

BREEAM[®]

Code for a Sustainable Built Environment
www.breeam.org

BREEAM Refurbishment Domestic Buildings

Technical Manual SD5072 - 1.0:2012



This page is intentionally blank.

Table of Contents

Table of Contents	3
BREEAM Refurbishment	7
About BRE Global Limited	9
About this Scheme Document	11
Acknowledgments	13
Introduction	14
What is BREEAM?	15
What is BREEAM Domestic Refurbishment?	16
How to engage with the BREEAM Domestic Refurbishment scheme	18
Use of BREEAM Domestic Refurbishment Scheme	18
Routes to certification under BREEAM Domestic Refurbishment	20
Professional appointments	21
Designing to meet the BREEAM Domestic Refurbishment Scheme	23
Scope of BREEAM Domestic Refurbishment	28
Type of buildings that can be assessed	30
Building life cycle stages	32
Site Wide assessments	34
Scoring and Rating	36
Minimum standards	38
Minimum standards – listed buildings and buildings in a conservation area	40
Environmental section weightings	42
BREEAM assessment issues and ‘credits’	44
Calculating a building’s BREEAM rating	46
Management	48
Man 01 Home Users Guide	50
Man 02 Responsible Construction Practices	56
Man 03 Construction Site Impacts	62
Man 04 Security	66
Man 05 Protection and Enhancement of Ecological Features	72
Man 06 Project Management	80
Health and Wellbeing	90
Hea 01 Daylighting	92

Hea 02 Sound Insulation	96
Hea 03 Volatile Organic Compounds	104
Hea 04 Inclusive Design	110
Hea 05 Ventilation	116
Hea 06 Safety	120
Energy	126
Ene 01 Improvement in Energy Efficiency Rating	128
Ene 02 Energy Efficiency Rating Post Refurbishment	132
Ene 03 Primary Energy Demand	136
Ene 04 Renewable Technologies	140
Ene 05 Energy Labelled White Goods	144
Ene 06 Drying Space	148
Ene 07 Lighting	152
Ene 08 Energy Display Devices	156
Ene 09 Cycle Storage	160
Ene10 Home Office	164
Water	168
Wat 01 Internal Water Use	170
Wat 02 External Water Use	178
Wat 03 Water meter	182
Materials	184
Mat 01 Environmental Impact of Materials	186
Mat 02 Responsible Sourcing of Materials	192
Mat 03 Insulation	204
Waste	208
Was 01 Household Waste	210
Was 02 Refurbishment Site Waste Management	216
Pollution	226
Pol 01 Nitrogen Oxide Emissions	228
Pol 02 Surface Water Runoff	234
Pol 03 Flooding	240
Innovation	246
Inn 01 Innovation	248
Appendices	250

Appendix A: Checklists	252
Checklist A-1; Existing Features	252
Checklist A-2; Considerate Constructors Scheme	258
Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices	260
Checklist A-3; Considerate Constructors Scheme	262
Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices	276
Checklist A-5; Large Scale Refurbishments	284
Checklist A-6; Small-Scale Refurbishments- Constructions Site Impacts	287
Checklist A-7; Daylight Factor	290
Checklist A8; Access Statement Template	294
Checklist A-9; Refurbishment Site Waste Management – up to £100k value	316
Checklist A-10; PoI03	318
Appendix B: Calculation Procedures	320
Management	320
Health and Wellbeing	320
Energy	322
Calculation Procedure B-1; Average Improvement in Energy Efficiency Rating (EER) as a Result of Refurbishment	322
Calculation Procedure B-2; Average Improvement in Energy Efficiency Rating	322
Calculation Procedure B-3; Average Primary Energy Demand	322
Calculation Procedure B-4; Average watts per m ²	323
Water	324
Materials	326
Mat 01	328
Calculation Procedure B-5; Environmental Impact of Materials	328
Mat 03	336
Calculation Procedure B-7; Insulation	336
Mat 02	340
Calculation Procedure B-6; Responsible Sourcing of Materials – Basic Building Ele- ments	340
Appendix C	344
Additional guidance for site wide assessments	344
Appendix D	350
The BREEAM evidential requirements	350
Appendix E	354

BREEAM assessment issues and their percentage contribution to BREEAM performance ...	354
Appendix F	358
BREEAM domestic refurbishment issues that relate to policy and regulations	359
BREEAM Definitions	362
Index	418

BREEAM Refurbishment

Domestic Buildings Technical Manual

SD5072 - 1.0:2012

Disclaimer

This Scheme Document is the property of BRE Global Ltd and is made publicly available for information purposes only. Its use for testing, assessment, certification or approval must be in accordance with BRE Global Ltd internal procedures and requires interpretation by BRE Global Ltd and BRE experts. Any party wishing to use or reproduce this Scheme Document to offer testing, assessment, certification or approval must apply to BRE Global Ltd for training, assessment and a licence; a fee will normally be charged. BRE Global Ltd will not unreasonably refuse such applications. BRE Global Ltd accepts no responsibility for any un-authorised use or distribution by others of this Scheme Document and may take legal action to prevent such unauthorised use or distribution.

Copyright

The information and images contained in this document are the property of BRE Global Ltd unless explicitly stated to the contrary. They are protected by copyright laws. Material may be downloaded and printed without requiring specific permission but remains the intellectual property, technical know how and copyrighted material of BRE Global Ltd. Such material is not to be used in a derogatory manner, in a misleading context or for commercial purposes. If the material is being issued to others, the source including the web address and copyright status must be acknowledged. We may require you to register your details before downloading certain information or documents.

Trade Marks

BRE, BRE Global, BREEAM, EcoHomes, SMARTWaste, SmartLIFE, Envest, the Green Guide, and Insight are all registered trademarks owned by either BRE or BRE Global Ltd and may not be used without BRE's or BRE Global Ltd's written permission.

This page is intentionally blank.

About BRE Global Limited

BRE Global Limited (part of the BRE Group) is an independent third party approvals body offering certification of fire, security and sustainability products and services to an international market.

BRE Global Limited's mission is to Protect People, Property and the Planet.

We aim to achieve this by:

- Researching and writing standards
- Testing and certification in the areas of fire, electronics, security and sustainability
- Developing world leading sustainability assessment methods
- Undertaking research and consultancy for clients and regulators
- Promulgating standards and knowledge throughout the industry through publications and events
- Developing and delivering training

BRE Global Limited's product testing and approvals are carried out by recognised experts in our world renowned testing laboratories.

BRE Global Limited is custodian of a number of world leading brands including:

- BREEAM the world's leading environmental assessment method for buildings
- LPCB for approval of fire and security products and services

BRE Global Limited is a trading subsidiary of the BRE Trust, the registered research and education charity which owns the BRE Group.

BRE Global Limited
Bucknalls Lane
Watford
Hertfordshire
WD25 9XX

T +44 (0)1923 664100
F +44 (0)1923 664910
E enquiries@breglobal.com

www.breglobal.com

www.greenbooklive.com

Governance

As a certification body accredited by the UK Accreditation Service (UKAS) BRE Global Limited maintains an open and accountable governance structure. The operation of BREEAM (and indeed all our assurance activities) is overseen by an independent Governing Body and a Standing Panel for Peer & Market Review.

The Governing Body represents stakeholder interests to ensure, amongst other things, that BRE Global Limited are acting independently and impartially, that we are operating our processes correctly, and that we are treating our customers fairly.

The Standing Panel provides BRE Global with access to a range of experts that can review BRE Global Limited's standards and schemes to ensure their robustness from a scientific, technical and market perspective as well as ensuring the development of the standards and schemes is open to greater external and independent scrutiny.

Quality Standards

To ensure our independence, competence and impartiality, BRE Global Limited is accredited by the United Kingdom Accreditation Service (UKAS) to:

- BSEN ISO 17024 (Conformity assessment - General requirements for bodies operating certification of persons) for BREEAM assessors. This is to ensure that BREEAM assessors are technically competent, accurate and professional when offering BREEAM assessment services to their clients.
- BSEN 45011 (General requirements for bodies operating product certification systems) for the complete BREEAM assessment process.

Furthermore BRE Global Limited is formally certified to ISO 9001 for all its BREEAM related activities.

About this Scheme Document

This BREEAM Scheme Document describes an environmental performance standard against which, domestic refurbishment projects in the UK can be assessed, rated and certified.

The BREEAM Refurbishment scheme is designed to help building owners and occupiers to save operating costs, reduce the environmental impacts of refurbishments and to increase the sustainability of existing building stock. The scheme provides a methodology, software tool and certification for those responsible for delivering sustainable refurbishment projects.

The first part of the scheme is for domestic buildings and covers:

- Reducing energy use and carbon, water, waste and saving money
- Protecting homes from fire, flooding and criminal damage as appropriate
- Improving health of occupants – including fuel poverty

The scheme has been initially designed for the UK market taking account of UK climate market regulations, policy and existing and potential finance schemes including the New Green Deal. It has been designed to work cost effectively at a single dwelling level as well as large scale refurbishment level in a way that helps those providing a quality service to differentiate themselves. It can be adapted internationally for use by National Scheme Operators. The second part of the scheme is for non domestic buildings and is currently under development.

Please note that this BREEAM Scheme Document and the information detailed therein has been designed for, and to be used by personnel trained, qualified and licensed under the BREEAM Domestic Refurbishment scheme in accordance with the procedural and operational requirements of BREEAM under the terms and conditions of the BREEAM Domestic Refurbishment licence. Other users of this document should do so for reference purposes only.

Affiliation with the Code for a Sustainable Built Environment

The BREEAM Domestic Refurbishment Scheme is affiliated to the BRE Global international Code for A Sustainable Built Environment.

The BRE Global Code for a Sustainable Built Environment is a set of strategic principles and requirements which define an integrated approach to the design, management, evaluation and certification of the environmental, social and economic impacts of the built environment.

The Code is interpreted through the BREEAM Core Process and Technical Standards. These linked documents set out the requirements that a compliant scheme must meet in order to be affiliated with the Code. The Standards ensure that a common scientific and performance basis is used by all compliant schemes operated by National Scheme Operators whilst ensuring that these can be adapted to suit local demands, standards and practices. BRE Global own and operate a number of affiliated schemes for use in the UK and internationally.

Alignment with European Standards for the Sustainability of Construction Works

CEN, the European Committee for Standardisation is developing a set of framework standards to meet the requirements of Mandate M350.

BREEAM Domestic Refurbishment incorporates the majority of environmental performance measures proposed for evaluation in CEN/TC 350 standards, together with a significant number of the social performance measures. Obvious examples are in Materials, using Life Cycle Assessment (LCA) based data through the application of the Green Guide; Energy consumption in use through the application of SAP, the UK Governments EPBD compliant Standard Assessment Procedure for Energy Rating of Dwellings, and water consumption through the UK Governments Water Efficiency Calculator for New Dwellings. Outputs give KPIs on Energy and Water in compliance with the draft standards and BRE Global will be introducing others following the final release of the CEN/TC 350 Standards.

Changes to this BREEAM Scheme Document

Issue 1.0 is the first issue of the BREEAM Domestic Refurbishment UK version. The BREEAM Domestic Refurbishment 2012 scheme document may be revised and re-issued from time to time. A schedule of changes will be provided in Appendix for all re-issues of the BREEAM Domestic Refurbishment 2012 Scheme Document.

Acknowledgments

BREEAM Domestic Refurbishment has been made possible through the continued efforts of many dedicated BRE Group staff members, the BRE Global Limited Governing Board, BREEAM, EcoHomes and Code for Sustainable Homes Assessors and those who have responded to our consultation calls and meetings or provided feedback in other ways. BRE also reserve a special thank you to those who support BREEAM by continuing to specify and apply the method and contribute toward a sustainable built environment. BRE would also like to offer a special thank you to the following who were involved in the piloting of BREEAM Domestic Refurbishment:

Pozzoni LLP

Great Places Housing Association

DuCane Housing Association

Proport Eco-Services

Rund Partnership Ltd

HMH Architects

Radian Group Ltd

Brilliant Futures Consulting Ltd

PRP Architects

Higgins Construction PLC

Swan Housing Group

NRG Consulting Ltd

Greenfields Community Housing Trust

London Borough of Newham

Bramall Construction Ltd

Eco Alchemists Ltd

SRE Ltd

First Wessex Housing Group Ltd

Fareham Borough Council

Bramall Construction Ltd

Chevin Housing Association Ltd

ECD Architects

Dolphin Square Foundation

Eco-Energy (Northern Ireland) Ltd

The Construction Products Association and its members

Introduction

What is BREEAM?

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings. At the time of writing, BREEAM has certified over 250,000 buildings since it was first launched in 1990.

Aims of BREEAM

- To mitigate the life cycle impacts of buildings on the environment
- To enable buildings to be recognised according to their environmental benefits
- To provide a credible, environmental label for buildings
- To stimulate demand for sustainable buildings

Objectives of BREEAM

- To provide market recognition of buildings with a low environmental impact
- To ensure best environmental practice is incorporated in building planning, design, construction and operation.
- To define a robust, cost-effective performance standard surpassing that required by regulations.
- To challenge the market to provide innovative, cost effective solutions that minimise the environmental impact of buildings.
- To raise the awareness amongst owners, occupants, designers and operators of the benefits of buildings with a reduced life cycle impact on the environment.
- To allow organisations to demonstrate progress towards corporate environmental objectives.

BREEAM has been developed to meet the following underlying principles:

- Ensure environmental quality through an accessible, holistic and balanced measure of environmental impacts.
- Use quantified measures for determining environmental quality.
- Adopt a flexible approach, avoiding prescriptive specification and design solutions.
- Use best available science and best practice as the basis for quantifying and calibrating a cost effective performance standard for defining environmental quality.
- Reflect the social and economic benefits of meeting the environmental objectives covered.
- Provide a common framework of assessment that is tailored to meet the 'local' context including regulation, climate and sector.
- Integrate construction professionals in the development and operational processes to ensure wide understanding and accessibility.
- Adopts third party certification to ensure independence, credibility and consistency of the label.
- Adopts existing industry tools, practices and other standards wherever possible to support developments in policy and technology, build on existing skills and understanding and minimise costs.
- Stakeholder Consultation to inform ongoing development in accordance with the underlying principles and the pace of change in performance standards (accounting for policy, regulation and market capability).

What is BREEAM Domestic Refurbishment?

BREEAM Domestic Refurbishment is a performance based 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. This enables the client, through personnel qualified and licensed under the BREEAM Domestic Refurbishment Scheme and the BRE Global certification process, to measure, evaluate and reflect the performance of their refurbishment project against best practice in an independent and robust manner. This performance is quantified by a number of individual measures and associated criteria stretching across a range of environmental issues as described in the following table, which is ultimately expressed as a single certified BREEAM rating, i.e. the label (section 3 describes how a BREEAM rating is calculated).

BREEAM Domestic Refurbishment Principles

In addition to the overarching principles of BREEAM, the BREEAM Domestic Refurbishment scheme has been developed in accordance with the following set of principles:

- Promote low cost, sustainable refurbishment
- Recognise the limitations of existing buildings including their inherent built form and location
- Drive market transformation by promoting best practice and innovation in the refurbishment of existing buildings
- Provide a holistic environmental assessment that works effectively across different building and project types
- Recognise the different starting points of our existing building stock

Table - 1: BREEAM Domestic Refurbishment sections and assessment issues

Energy	Pollution
Improvement in Energy Efficiency Rating	Surface Water Runoff
Energy Efficiency Rating post refurbishment	Flooding
Primary Energy Demand	Nitrogen Oxide Emissions
Renewable Technologies	Health and Wellbeing
Energy Labelled White Goods	Daylighting
Drying Space	Sound Insulation
Lighting	Volatile organic compounds (VOCs)
Display Energy Devices	Inclusive Design
Cycle Storage	Ventilation
Home Office	Safety
Water	Management
Internal Water Consumption	Home Users guide
Water Meters	Responsible Construction Practices
External Water Consumption	Construction Site Impacts
Materials	Security
Environmental Impact of Materials	Protection and enhancement of ecological features

Responsible Sourcing	Project Management
Insulation	Innovation
Waste	Exemplary performance
Household Waste	
Refurbishment Site Waste Management	

How to engage with the BREEAM Domestic Refurbishment scheme

BREEAM Domestic Refurbishment assessments are intended as an integral part of the refurbishment design and specification process. This is to ensure that the refurbishment of existing dwelling result in the greatest savings in energy use and carbon whilst reducing impacts on water, waste, flooding, resources and health.

Engagement with and use of a licensed BREEAM Assessor, referred to in this scheme document as 'competent persons', is essential for ensuring seamless integration of the methodology in the refurbishment process. Without this, the ability to cost effectively optimise the dwelling's environmental performance and achieve the desired rating will be compromised. This can be achieved through designers and property managers becoming licensed BREEAM Assessors or through the appointment of an external BREEAM Assessor early in the project. Doing so will help in achieving the target rating without undue impacts on the flexibility of design decisions, budgets and potential solutions. A list of licensed BREEAM Assessors can be found listed on the Green Book Live www.greenbooklive.com.

Use of BREEAM Domestic Refurbishment Scheme

The BREEAM Domestic Refurbishment certification process can be used as a service to clients to demonstrate the environmental credentials of a refurbishment project. The scheme is intended to be used when developing refurbishment packages and specifications and has the following purpose

- Guiding refurbishment designs by identifying the sustainability issues that should be taken into account of
- Demonstrating environmental credentials to clients as well as funding and planning authorities
- To maximise gain from investment
- Increase property and rental value
- Help tackle fuel poverty
- To help reduce risk from flooding, fire and security issues
- Improve health and wellbeing of occupants

How to use the BREEAM Domestic Refurbishment Scheme Document

This BREEAM Scheme Documents is a technical document which has been created:

- To enable qualified and licensed BREEAM Assessors to complete BREEAM assessments
- As an aid for BREEAM Accredited Professionals (AP) to undertake project team facilitation, in terms of defining, monitoring and successfully achieving the desired BREEAM rating.
- As a reference for clients and members of the project team whose proposed building is being BREEAM assessed.

The scheme document is split in to five parts:

- Introduction to BREEAM Domestic Refurbishment (section 1)
- Scope of BREEAM 2012 Domestic Refurbishment (section 2)
- Scoring and Rating assessed buildings (section 3)
- Assessment criteria (sections 4-11)
- Appendices (A-D)

The Scope section describes the types of building and stages of assessment that this version of the BREEAM Domestic Refurbishment scheme can be applied to.

The Scoring and Rating section outlines the BREEAM rating level benchmarks, the BREEAM environmental weightings and minimum standards. It also describes the individual BREEAM assessment issues and BREEAM 'credits', including BREEAM 'Innovation credits', and how performance against these is calculated and expressed as a BREEAM rating. This section is provided to illustrate how a building's assessed performance is measured and rated. Please note that, for the purpose of formal assessment and certification, actual building performance must be determined by competent persons licensed under BREEAM Domestic Refurbishment scheme using the relevant BREEAM calculation tools.

The Assessment criteria section includes the thirty BREEAM assessment issues, categorised in eight environmental sections of sustainability Table - 1. Each issue defines a level of performance (the assessment criteria) against which the assessed refurbishment project demonstrates compliance (using appropriate evidence) in order to achieve the corresponding number of available BREEAM credits.

The majority of BREEAM issues are tradable, meaning that a client/design team can pick and choose which to target in order to build their BREEAM performance score and achieve the desired BREEAM rating. Several BREEAM issues have minimum standards meaning that to achieve a particular BREEAM rating certain credits or criteria must be achieved (BREEAM's minimum standards are outlined in section 3.0 Scoring and Rating).

Each BREEAM issue is structured as follows:

- Issue Information: This contains the assessment issue reference, title, number of credits available for meeting the defined level of performance and whether the issue forms part of BREEAM's minimum standards.
- Aim: This broadly outlines the objective of the issue and the impact it intends to mitigate.
- Assessment Criteria: outlines the good/best practice performance level benchmark(s) and criteria. Where the building complies with the assessment criteria, as determined by competent persons licensed under the BREEAM Domestic Refurbishment Scheme, the relevant number of BREEAM credits can be awarded. Some issues have Exemplary Level Criteria; where a building demonstrates that it meets Exemplary Level Criteria a BREEAM Innovation credit can be awarded (refer to section 13 Innovation for more detail).
- Assessment Procedures: sets out the steps that are required in order to assess dwellings against each of the BREEAM Domestic Refurbishment assessment issues
- Compliance notes: These notes provide additional guidance that supports the application and interpretation of the main assessment criteria, including how to assess compliance in particular situations or for particular building or project types.
- Schedule of Evidence: outlines typical examples of the type of information that must be provided and document in order to certificate dwellings against the BREEAM Domestic Refurbishment Scheme. This enables competent persons licensed against the BREEAM Domestic Refurbishment Scheme to verify the building's performance against the assessment criteria and award the

relevant number of BREEAM credits (refer to Appendix G for further information on BREEAM's evidential requirements).

- Additional Information: This section contains information that supports the application of the assessment criteria, including; definitions, calculation procedures, checklists and tables and any other relevant information.

The Appendices provide supporting information relevant to either the scope of the BREEAM Domestic Refurbishment scheme or its assessment criteria. A Schedule of Changes appendix is also included (for when the scheme document is re-issued) and a list of the 2012 assessment and their overall percentage contribution to BREEAM performance.

Routes to certification under BREEAM Domestic Refurbishment

Certification under the BREEAM Domestic Refurbishment Scheme is delivered by Competent Persons Licensed under the BREEAM Domestic Refurbishment Scheme. There are two routes to certification depending on the type of project and stage of certification required.

Third party assessment certification

Third party certification is delivered through licensed BREEAM Domestic Refurbishment Assessors and enables interim and final certification to be obtained through BRE Global Ltd at the design stage (pre-refurbishment) and post refurbishment stages respectively. BREEAM Domestic Refurbishment Assessors can carry out assessments for both small scale and large scale refurbishments which may be carried out across a site (e.g. a street or an estate) as defined in section 2 ("Scope").

Self declaration assessment certification

A self declaration assessment is delivered through licensed BREEAM Domestic Refurbishment Assessors who hold a self declaration certification (referred to as tier 2 licence within the scheme) are authorised under the terms of the license to issue self declaration certificates, for small projects, at the post refurbishment stage only, defined in section 2 ("Scope"). Design stage certification is not available through self declaration however a design stage assessment is recommended in order to guide the project specification.

Verifying a building's certified BREEAM rating

The BREEAM assessment process is one of evaluating a dwelling's performance against the scheme and its criteria using competent persons certified by BRE Global to carry out assessments under the BREEAM Domestic Refurbishment Scheme. The BREEAM certificate, issued by the National Scheme Operator (NSO - BRE Global in the UK), or by licensed BREEAM Assessors, provides formal verification that competent persons have completed an assessment of a building in accordance with the requirements of the scheme and its quality standards and procedures. A BREEAM certificate therefore provides assurance to any interested party that a building's BREEAM rating, at the time of certification, accurately reflects its performance against the BREEAM standard.

All BREEAM assessed and certified buildings are listed on Green Book Live www.greenbooklive.com (along with directory of licensed BREEAM Assessors). Green Book Live is a free to use, publicly available online database designed to help specifiers and end users identify products and services that can help to reduce their impact on the environment.

Anyone wishing to verify the BREEAM rating of a building can do so by either checking a building's BREEAM certificate, examples of which is included in appendix A, or by searching Green Book Live for a specific listing

Professional appointments

The scheme has been designed to avoid the need for additional experts where possible to reduce cost however for some areas this cannot be avoided due to the specialist nature of some particular issue e.g. where advice is required for a property at risk from flooding.

To provide an up front guide to indicate when professionals may be needed to support the BREEAM Refurbishment assessment, Table - 2: Professional appointments provides a list of professionals that may be required depending upon which credits are sought. This is in order to inform those seeking particular credits and it is advised that appointments are made as early in the refurbishment process as possible, prior to any work being carried out.

In addition to the BREEAM Domestic Refurbishment Assessor, only one professional is required in all cases—a Domestic Energy Assessor or SAP assessor. However, this is typically required for all cases in order to provide the EPC or as part of the normal design process. 3 additional professionals are required where additional non mandatory credits are sought, however this is part of another process i.e. MCS installer, Considerate Constructors scheme auditor and Police Architectural Liaison officer.

Further professionals including a flood resilience expert, hydrologist, suitably qualified acoustician, accessibility consultant and hydrologist are only required where advanced credits are sought and as such it is possible to achieve a BREEAM Very Good rating without these additional appointments and a BREEAM Excellent in many cases e.g. where there is a low risk of flooding, flood resilience expertise is not required. It is however the choice of whoever is designing the refurbishment how the rating is to be achieved based up the issues that are most appropriate for that dwelling type. For example it may be a priority for a particular dwelling to be resilient from flooding and have good access, in order to reduce risk and cater for particular occupants. As such it may be appropriate to target these credits, seeking professional advice so that such complex issues can be addressed in the most appropriate way.

Finally, a further two experts may be required for exemplary credits including a suitably qualified ecologist and a suitably qualified professional to carry out air tightness testing and a thermographic survey. This is only required where seeking exemplary credits as part of the innovation category.

Table - 2: Professional appointments

Issue ID	Professional required	When	Requirement	Why
Ene 01, 02 & 03	Domestic Energy Assessor or SAP assessor	All cases	All cases in order to calculate the EPC or full SAP	To provide EER for the assessment of Ene 01, Ene 02 and Ene 03
Man 02	Considerate constructors scheme auditor	Credit dependent	This is required where at least one credit is awarded under Man 02. The visit is carried out during refurbishment.	Registration under the considerate constructors scheme will be needed which includes a site visit from an auditor

Issue ID	Professional required	When	Requirement	Why
Man 04	A crime prevention design advisor or police architectural liaison officer	Credit dependent	Where more than one credit is awarded.	As part of the secured by design certification process
Hea 02	Suitably qualified acoustician	Credit dependent	Where more than two credits are awarded	To assess whether the specification meets or goes beyond Part E of building regulations and to carry out sound testing where required
Hea 04	Accessibility expert	Credit dependent	Where at least one credit is being awarded	This could be from within the design team
Ene 04	MCS installer	Credit dependent	Where credits are sought under Ene 04	Requirement of Feed in Tarrifs and RHI in order to gain credits under Ene04.
Pol 02	Hydrologist	Credit dependent	Where more than one credit is sought under Pol 02	To provide specialist advice on designing SUDS
Pol 03	Flood resilience expert	Credit dependent	To gain credits where in a medium or high flood risk	To provide specialist advice on how to make dwellings resilient or resistant to flooding
Man 05	Suitably qualified ecologist	Exemplary performance	Exemplary credits	To provide site specific advice on ecological enhancement
Man 06	-BREEAMAP	Exemplary performance	Exemplary credits	Exemplary credit requirement
Man 06	- Professional to carry out thermographic survey and air-tightness testing	Exemplary performance	Exemplary credits	Exemplary credit requirement

Documenting Evidence

The documentation of evidence is a key requirement of the BREEAM Domestic Refurbishment scheme. This is a requirement to ensure that there is an audit trail to verify how the BREEAM Domestic Refurbishment score was achieved. The process also provides confidence to those funding refurbishment over what has been delivered, ensuring that the projects green credentials have been verified.

The evidence required is set out in the schedule of evidence required for each issue. For a number of issues, evidence required for each issue comprises 'detailed documentary evidence'. Detailed documentary evidence may be any written documentation confirming compliance. Across the assessment, evidence will include a mix of letters, the site inspection report, specification text or drawings as appropriate. Evidence has been specified as such to provide flexibility in the type of evidence that is required, provided the assessor is satisfied that the evidence is robust and traceable. A letter of intent from the developer is acceptable in a number of circumstances at the Design Stage (as specified in the applicable Schedule of Evidence Required tables) however for a number of cases, there is also a requirement for additional 'detailed documentary evidence'. Table - 3: Issues relating to dwellings existing performance below provides a brief overview of the evidence required, including those issues where evidence could be included as part of overall specification or letter of commitment to support a design stage assessment.

For the post refurbishment stage, for the majority of issues a site inspection report along with photographic evidence or other 'detailed documentary evidence' is required. Where no design stage assessment was carried out, additional evidence will be required as specified for a design stage assessment. More detailed information on the evidence requirements can be found in Appendix D, evidential requirements.

Designing to meet the BREEAM Domestic Refurbishment Scheme

This scheme document is not a design manual for the specification of domestic refurbishment but sets out the requirements for assessing a domestic refurbishment project against the BREEAM domestic refurbishment scheme, for the purposes of assessors qualified and licensed under the BREEAM Domestic Refurbishment scheme.

BRE Global are authoring additional documentation to support the scheme as a guide to using the scheme for contractors, builders, architects, surveyors, designers, planners, social landlords, other general refurbishment practitioners as well as housing occupants.

As an outline guide, the following sets out a summary of the key steps taken to incorporate the BREEAM Domestic Refurbishment issues into the refurbishment design.

Assessing existing performance

Once a Licensed BREEAM Domestic Refurbishment Assessor has been appointed, the first stage is to carry out an assessment of the dwellings existing performance. This is to establish the dwellings baseline performance, any issues the dwelling may already achieve as well as to identify additional work required in order for the dwelling to meet the requirements of particular issues. The existing performance can be identified by carrying out a site visit or through existing performance data that may already be available such as through the English House Condition Survey. In some cases, the dwelling

may already achieve criteria for BREEAM Domestic Refurbishment issues, at which point evidence should be collected to demonstrate compliance. Checklist A-1; Existing Features : pre-refurbishment site survey provides a checklist of issues that should be surveyed. A summary of these issues are below:

Table - 3: Issues relating to dwellings existing performance

Issue	Summary of information
Ene 01 Ene 02 Ene 03	The dwellings existing Energy Efficiency Rating and Primary Energy Demand from SAP or RdSAP
Mat 01	The U values of existing thermal elements
Ene 04	% of Primary Energy Demand met by renewable technologies
Ene 05	Provision of white goods
Ene 06	Complaint drying space provision
Ene 07	Energy efficient external lighting and average watt/m ² of internal lighting
Ene 08	Presence of a display energy device
Ene 09	Cycle storage provision
Ene 10	Space for a compliant home office
Wat 01	Internal water fittings
Wat 02	Water Butt provision
Wat 03	Provision of a water meter
Was 01	Recycling and composting storage and presence of local authority collection scheme
Pol 01	NO _x emissions of existing heating system
Pol 03	Flood risk assessment
Hea 01	Daylighting
Hea 02	Feasibility of improving sound insulation and for carrying out sound testing
Hea 04	Accessibility statement
Hea 05	Existing ventilation provision including background, extract and purge ventilation

Issue	Summary of information
Hea 06	Fire detection and alarm system and carbon monoxide detection
Man 01	Home Users Guide provision
Man 04	Security of windows and doors
Man 05	Existing ecological features

A 5 step guide for designing to BREEAM domestic refurbishment

Once the existing performance of the dwelling has been established, the BREEAM domestic refurbishment score can be achieved by following 5 key steps. This should be used as guidance only, with the assessment carried out in accordance with the assessment criteria:

1. Set targets: 40% of available score

Now the existing performance of the dwelling has been established, the next stage is to identify appropriate targets for the dwelling along with a target BREEAM Domestic Refurbishment rating. The BREEAM Domestic Refurbishment scheme includes a number of refurbishment design targets for particular issues with a total of 40% of the overall score available for meeting particular targets including:

- Ene 01: The improvement in EER points achieved as a result of refurbishment
- Ene 02: Energy Efficiency Rating Post Refurbishment
- Ene 03: The Primary Energy Demand Post Refurbishment (kWh/m²/annum)
- Ene 04: % of energy demand met by renewable technologies
- Ene 04: Primary Energy Demand backstops for Ene 04: Renewable Technologies
- Wat 01: The calculated water consumption in litres per person per day
- Lighting in average Watts/m²
- Pol 01: NO_x
 - NO_x emissions in mg/kWh/msq
- Hea 05: Ventilation:
 - Purge ventilation (air changes per hour per room)
 - trickle ventilation (mm²)
 - extract ventilation (litres/second)

2. Identify wider opportunities: 16% of available score

In addition to achieving particular design targets, where carrying out work to the fabric of the building there may be further design opportunities to achieve other BREEAM issues with an additional 16% of available score that can be achieved including:

- Hea 04 Inclusive design: carry out an access statement using Checklist A8; Access Statement Template Checklist A8; Access Statement Template to identify opportunities for improving access to the dwelling.
- Pol 02 Surface water runoff: where carrying out external work and or extending the dwelling, achieve up to one credit for ensuring the work has a neutral impact on surface water runoff. Identify further opportunities for reducing run-off by consulting with a hydrologist. An additional credit can be gained where run-off is managed on site through source control methods e.g. a

soakaway. Gain a further credit where run-off is reduced further through the use of SuDS (Sustainable Drainage Systems), with calculations provided by a Hydrologist.

- Pol 03 Flooding: where the dwelling is in a medium or high flood risk area and using checklist A10, develop a flood resilience/resistance strategy to reduce the impact of flooding, with input from a Suitably Qualified Building Professional.
- Hea 01 Daylighting; complete Checklist A-7; Daylight Factor to identify how impacts on daylighting can be reduced, consider opportunities for achieving the second credit for improving daylighting.
- Hea 02 Sound insulation: where there are opportunities for carrying out work to party walls and floors, gain up to two credits for designing the party wall and/or floor to meet the requirements of Part E and gain an additional two credits for going beyond Part E and consulting with a Suitably Qualified Acoustician and carrying out testing where required.

3. Specify through procurement: 17% of available score

Specifying standards through procurement is typically one of the lower cost means of achieving credits under BREEAM Domestic Refurbishment. It largely comprises ensuring that there is an audit trail for products procured and ensuring products of an appropriate standard have been selected. Whilst collecting evidence can take a while, once set up, this can be achieved with relative ease and has a big impact on improving the environmental performance of products and the supply chain. This applies to the following issues:

- Mat 01 Environmental impact of materials: using the Refurbishment Green Guide Calculator and Green Guide to Specification to select new materials used in refurbishment that have the highest Green Guide Rating and that deliver the highest reduction in heat loss (e.g. the lowest U value economically possible).
- Mat 02 Responsible sourcing of materials: ensuring products have responsible sourcing certification under one of the tiers listed in BREEAM Domestic Refurbishment Mat 02 Responsible Sourcing of Materials e.g. FSC, BES6001 etc.
- Mat 03 Insulation: using insulation products that are A+ or A rated and ensuring they also have responsible sourcing certification.
- Hea 03 Volatile Organic Compounds: using finishing products that avoid the use of Volatile Organic Compounds with evidence to show they have been tested to the appropriate British Standard as listed under . Hea 03 Volatile Organic Compounds
- Pol 01 Nitrous Oxide Emissions: Specify a heating and hot water system that will achieve the NO_x emissions targets in Pol 01. Pol 01 Nitrogen Oxide Emissions CN1 – CN4 provides guidance on the type of systems that do or do not typically comply with these requirements.
- Man 04 Security: Where replacing doors and windows, specify doors and windows which meet appropriate certification standards for security. Man 04 Security CN1.
- Ene 05 Energy Labelled White Goods: Where providing white goods, ensure they meet the requirements of Ene 05 as Energy Saving Trust Recommended or meeting the appropriate rating under the EU Energy Labelling Scheme.

4. Set contractor requirements: 10% of available score

As BREEAM has now been used to certificate more than 250,000 buildings worldwide, it is widely recognised by industry and therefore a growing number of contractors are used to meeting the requirements of the scheme such as through achieving site management issues such as sorting site waste and monitoring energy and water use. Up to 10% of available score can be achieved through specifying contractor requirements and good refurbishment site practice including the following issues:

- Man 01 Home Users Guide: working with the contractor to develop a Home Users Guide, in accordance with the Man 01 Home Users Guide contents list.
- Man 02 Responsible Construction Practices: ensuring contractors are registered with the Considerate Constructors scheme or equivalent, or for small sites using Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices .

- Man 03 Construction Site Impacts: ensure contractors are monitoring site impacts using Checklist A-5; Large Scale Refurbishments for Checklist A-5; Large Scale Refurbishments Large Scale Refurbishments – Construction Site Impacts for large scale refurbishment or Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices for small scale projects.
- Man 05 Protecting Ecological Features: Once existing features have been identified, ensuring instructions for adequate protection have been provided to trades on site in accordance with the requirements of the Man 05 criteria, particularly compliance notes 1 and 2.
- Man 06 Project Management: meeting to ensure clear lines of responsibility for the project are set out as well as responsibilities for achieving particular BREEAM issues. This should include setting out individual responsibility for overseeing the project as well as all joint responsibilities for all trades working on site as detailed in issue Man 01.
- Man 06 Handover and aftercare: agreeing with contractors what level of handover and aftercare is going to be provided for residents following refurbishment in accordance with issue Man 06.
- Man 06 Pre and post refurbishment testing: arranging pre and post refurbishment testing and communicating testing requirements along with air tightness targets to trades on site.
- Was 02 Refurbishment site waste management: ensuring an appropriate site waste management plan has been implemented based on project value as detailed in the Was 02 credit criteria.

5. Identify additional measures: 17% of available score

Once the initial score has been maximised through targets, contractor requirements, procurement and wider opportunities, additional measures can also be considered in order to improve the overall BREEAM Domestic Refurbishment score including some additional potential measures as listed below:

- Wat 02 Water Butt
- Wat 03 Water meter
- Was 01 Household waste
- Ene 06 Drying space
- Ene 07 Low energy external lighting
- Ene 08 Display Energy Device
- Ene 09 Cycle storage
- Ene 10 Home office

Where the desired rating has still not been achieved the above steps can be repeated in their entirety or individually. Whilst this section of the scheme suggests a potential 5 step approach to designing to achieve BREEAM Domestic Refurbishment ratings it is at the discretion of the Assessor and project team to decide how the particular rating is achieved.

Scope of BREEAM Domestic Refurbishment

The BREEAM Domestic Refurbishment 2012 scheme can be used to assess the environmental life cycle impacts of refurbishment projects including existing dwelling undergoing refurbishment, extensions, domestic conversions and change of use projects in the UK only. The following section sets out the project types for which the scheme should be used. For the purposes of this scheme, 'Domestic Refurbishment' is classified under two categories:

- Category 1: Alterations to existing dwellings and extensions
- Category 2: Domestic conversions and change of use projects

Category 1

Alterations to existing dwellings and extensions

This is where at least one thermal element (walls, roof or floor) undergoing major alteration (internal/external insulation etc) plus a change to building services such as a new boiler, or internal refit of a room such as a new bathroom, kitchen, loft conversion etc. Refurbished dwellings are within scope of the scheme where the refurbishment results in an improvement to the dwellings Energy Efficiency Rating (EER) as listed on the Energy Performance Certificate, of at least 3 points.

A thermal element is defined under Building Regulations Approved Document Part L as an external wall, floor or roof, separating a thermally conditioned (e.g. heated or cooled) part of the building from:

- the outside
- an unconditioned area (e.g. plant room)
- a conservatory

For the purposes of this scheme, a project can be defined as an existing dwelling where at least one or a combination of the following building elements are present in situ:

- External walls
- Ground Floor
- Upper floor slab
- Structural frame

Extensions

Whilst existing dwellings that are being extended can be assessed under the scheme, as the scheme is a whole house assessment methodology, it would require both the extension and the existing dwelling to be included as part of the assessment. This means that in order to achieve credits under the scheme as well as the minimum standards, improvements will be required to the existing dwelling in order to achieve a rating under the scheme. As such, for extensions, the existing dwellings Energy Efficiency Rating would need to be increased by at least 3 points as a minimum in order for it to be appropriate to assess the project under the scheme and in some cases; this may not be of sufficient improvement in order to meet the minimum standards for Ene 02.

For some extension projects, it may not be appropriate to assess the project under the scheme where no improvements are being made to the existing dwelling as a whole. For example, if a dwelling with an EPC band F was being extended with no improvements being made to the remainder of the existing dwelling, it is unlikely to meet the minimum standards for Ene 02.

Category 2

Domestic conversions and change of use projects

The scheme can also be applied to domestic conversions and change of use projects. This is where a new dwelling is formed by change of use from a building which was not previously used for domestic purposes. This may also include change of use through the conversion of a single dwelling into multiple dwellings, or where several dwellings are converted into a single dwelling.

Examples of a change of use projects include an office, school or hospital building being converted into flats, a large dwelling being converted into flats, or maisonettes being converted into a single dwelling. Changes of use is further defined by Regulation 5 (a), (b) and (g) of the Building Regulations 2000 for England and Wales or Regulation 4 – schedule 2 types 1 and 3 of Technical Handbook 2010 for Scotland.

Newly constructed dwellings

The scheme cannot be used for newly constructed dwellings. Newly constructed dwellings come under the scope of the Department of Communities and Local Government (DCLG), Code for Sustainable Homes (the Code) in England, Wales and Northern Ireland. New build dwellings in Scotland come under the Building (Scotland) Amendment Regulations 2011, Section 7 (Sustainability) or may use EcoHomes. For further information on the Code and EcoHomes refer to the following websites:

- <http://www.communities.gov.uk/>
- www.breeam.org/code
- www.breeam.org/ecohomes

A newly constructed dwelling is a building that has been constructed from scratch and in general does not incorporate any part of an existing building. Where a building is constructed on the site of a pre-existing building, it can only be defined as a new build dwelling where it will not incorporate any part of the former building above ground level, with the exception of a retained cellar, basement and ground floor slab. The only situation where a building may still be defined as a new build whilst incorporating an existing building is where:

- No more than one façade (or two on a corner site) of a pre-existing building must be retained as an explicit condition as part of Planning Permission
- The newly constructed dwelling is a semi-detached building or terrace and incorporates party walls of a pre-existing building and may also include a façade which is being retained due to explicit requirement by statutory planning consent
- A building or dwelling is being extended to create an additional dwelling that is contained entirely within the extension with no internal access between the two buildings.

Type of buildings that can be assessed

The BREEAM Domestic Refurbishment scheme is intended for use on self contained dwellings which may include a single dwelling or multiple dwelling within a street or block of flats. A self contained dwelling is defined as a unit designed to accommodate a single household. This follows the definition as provided in the Building Regulations 2000, Approved Document L1A 2010 edition.

Non domestic buildings and residential buildings that contain units other than dwellings such as rooms for residential purposes cannot be assessed under the Domestic Refurbishment Scheme. This includes student halls of residence, sheltered housing, care homes and other multi-residential buildings which come under the BREEAM Multi-Residential Scheme. Refer to www.breeam.org/multi-residential for further information.

Large and small scale refurbishment projects

For the purpose of this scheme, small scale refurbishment projects are defined as projects consisting of five dwellings or less and with a value of less than £1 00k.

Large scale refurbishment is defined as a project which exceeds the above thresholds and may only be certificated through a BREEAM Domestic Refurbishment Assessor who holds a level 1 license. Small scale projects are eligible for certification under the self declaration certification process at the post refurbishment stage only by BREEAM Domestic Refurbishment Assessors who hold a self declaration certification license (level 2 license).

This page is intentionally blank.

Building life cycle stages

This BREEAM Domestic Refurbishment scheme can be used to assess and rate the environmental impacts arising from a refurbished dwelling at the following life cycle stages:

- Design Stage (DS) - leading to an Interim BREEAM certified rating
- Post Refurbishment Stage (PRS) – leading to a Final BREEAM certified rating

Design Stage Assessment

The Design Stage Assessment provides a rating of the refurbishment as specified, otherwise referred to as the 'interim' rating. Ideally the design stage assessment is carried out prior to refurbishment and is labelled as 'interim' as it does not represent the dwellings BREEAM Domestic Refurbishment rating as refurbished. The design stage assessment is carried out during the design process using the specification and other evidence to document measures to be implemented in the refurbishment.

To complete an assessment at this stage the design must be advanced to a point where the relevant design information is available to enable the BREEAM Assessor to evaluate and verify the building's performance against the criteria defined in this scheme document. Certification at this stage can only be obtained by a BREEAM Assessor through the National Scheme Operator (BRE Global Ltd in the UK).

Self declaration certification is not available at the design stage and is only available at post refurbishment stage. It is however recommended that a design stage assessment is carried out in order to guide the design and refurbishment process. Assessors licensed for self declaration certification are able to issue self declaration certificates at the post refurbishment stage for projects they are involved in.

During the design stage, the BREEAM Assessor should work with the project team to carry out the following steps:

- Identify the issues which can be credited based upon the existing performance of dwellings being assessed as detailed in Checklist A-1; Existing Features, in accordance with sections 4-11
- Determine the minimum standards that are achievable across dwellings and the additional credits required across issues where no minimum standards apply
- For site wide assessments, evaluate the performance of each dwelling type identifying where it may be appropriate to split site wide projects into sub projects as described in section 2.3. Reference should be made to Appendix C which provides guidance on the issues where dwelling types typically vary in performance and Additional guidance for site wide assessments which provides a guide to standard house types which the assessment may be sub-divided.
- Evaluate whether each dwelling type will achieve the requirements of each issue in accordance with sections 4-11
- Obtain and document evidence from across the project team in order to demonstrate how the intended performance will be met

Post-refurbishment Stage Assessment

The PRS assessment and BREEAM rating confirms the final 'as-refurbished' performance of the building at the refurbishment stage of the life cycle. A final PRS assessment is completed and certified after practical completion of the refurbishment works.

There are two approaches to assessment at the post-construction stage:

- A post-refurbishment review of an interim design-stage assessment
- A post-refurbishment assessment

BREEAM Domestic Refurbishment Assessors are licensed to carry out either a post-refurbishment review of an interim design-stage assessment or a post refurbishment assessment. BREEAM Domestic Refurbishment Assessors licensed for self declaration certification are licensed to carry out Post-refurbishment Assessments only.

Post-refurbishment Review

A post-refurbishment review can be carried out by BREEAM Domestic Refurbishment Assessors and serves to confirm that the building's 'as refurbished' performance and rating is in accordance with that certified at the interim design stage. To carry out a post refurbishment review, the following steps should be taken:

- Review each assessment issue and confirm the criteria and the number of credits committed to at the interim stage of assessment are still valid.
- Re-assess any issues where changes have occurred on the project since the interim assessment. This will be the case where such changes will or may have had an effect on compliance with a particular requirement and therefore the number of credits awarded/withheld and potentially the BREEAM rating achieved.

Post-refurbishment assessment

BREEAM Domestic Refurbishment Assessors licensed for self declaration are authorised to certificate dwellings at the post-refurbishment stage only.

Where an interim DS assessment has not been carried out (i.e. certified), and a BREEAM assessment and rating is required, a full post refurbishment stage assessment can be conducted.

In some instances the client or project team may not need to, or may choose not to certify the building at the 'interim' design stage of assessment, instead choosing to certify at the final, post construction stage only. In such instances, verification of compliance with the BREEAM criteria will be based on actual 'as-refurbished' information, relying less on design stage information and letters of commitment (unless relevant to the assessment issue).

The 'Post Refurbishment Stage' column in the schedule of evidence table describes the typical information the BREEAM assessor requires to validate 'as-refurbishment' performance and, for a number of issues and criteria, an assessor's site visit and subsequent report and photographs will be adequate.

Site Wide assessments

The BREEAM Domestic Refurbishment Scheme enables assessments to be carried out at an individual dwelling level up to a site wide level. Due to the variety in house types and refurbishment specifications to be assessed under the scheme, for a large proportion of projects, certification will need to be applied on an individual dwelling basis, reflecting the specific score that each dwelling has achieved. Site wide assessments allow large scale refurbishments that could include multiple dwellings, to be grouped under one assessment with a single rating and certificate for the site. This is allowable where the following requirements are met:

1. Where all dwellings achieve the same targeted BREEAM rating and score for each issue, in accordance with the criteria set out in sections 4-11 and the exemptions for site wide assessments in Site Wide assessments
2. Where each dwelling achieves Minimum standards
3. Where the assessment is limited to one of the following dwelling types:
 - High rise purpose built flats
 - Low rise purpose built flats
 - Converted flats
 - Bungalows
 - Detached houses
 - Semi detached houses
 - Medium/Large terraces
 - Small terraces
 - End terraces

For site wide assessments, in order to meet the requirements of note 1 above, it may be necessary to split the assessment up further than the dwelling types listed in note 3 above. This depends upon the dwelling and construction types under assessment and refurbishment specification being applied.

This may be influenced by the following factors:

- The construction types e.g. where there is a mixture of dwellings with different construction types such as period solid wall, cavity wall construction, non traditional construction etc.
- The status of properties included in the assessment such as listed buildings or buildings in a conservation area
- The refurbishment package specified across dwelling types
- The potential for achieving BREEAM issues amongst different property types
- The fuel type of dwellings e.g. it may be appropriate to split dwellings with electric heating from those with mains gas

Additional guidance for site wide assessments are given in Additional guidance for site wide assessments, this indicates the issues that typically vary across house types on a scale of low, medium and high variance. Note this is only a guidance and it is the responsibility of the licensed assessor to ensure the project is split up into dwelling specification types in accordance with the scheme rules set out above.

For site wide assessments (Table - 4) of multiple dwellings, a number of exemptions are provided in order to give greater flexibility for large scale assessments as detailed in . For all other issues, each dwelling included in the assessment must meet the credit requirements and the minimum standards Minimum standards. Where this is not the case, the assessment will need to be split up into the dwelling type specifications, with certificates issued to each dwelling type, with a rating and score accurate of their specific performance against sections 4-11 of this scheme.

Table - 4: Site wide exemptions

Issue	Issue Title	Site wide exemptions
Ene	Improvement in	For dwellings where energy averaging is allowed as defined in Ene

Issue	Issue Title	Site wide exemptions
01	Energy Efficiency Rating	01 (for flats), credits can be awarded according to the average improvement in Energy Efficiency Rating
Ene 03	Primary Energy Demand	For dwellings where energy averaging is allowed as defined in Ene 03 (for flats), credits can be awarded according to the average Primary Energy Demand.
Ene 09	Cycle Storage	Where 90% of the required cycle storage spaces are provided across site
Mat 01	Environmental impact of materials	Where an average performance is calculated for specifications across the site and these meet the credit requirements in accordance with Mat 01.
Mat 03	Insulation	Where the average performance of dwelling type specifications included in the assessment achieves an Insulation Index of 2, the first credit can be awarded. To achieve the second credit, all insulation must meet the responsible sourcing requirements.
Hea 01	Daylighting	Where 90% rooms in the assessment meet the daylighting criteria as detailed in Hea 01.
Hea 04	Inclusive Design	Where 90% of dwellings meet the requirements of Hea 04

Scoring and Rating

There are a number of elements that determine the overall performance of a domestic refurbishment project assessed using BREEAM, these are as follows:

- The BREEAM rating level benchmarks
- The minimum BREEAM standards
- The environmental section weightings
- The BREEAM assessment issues and credits

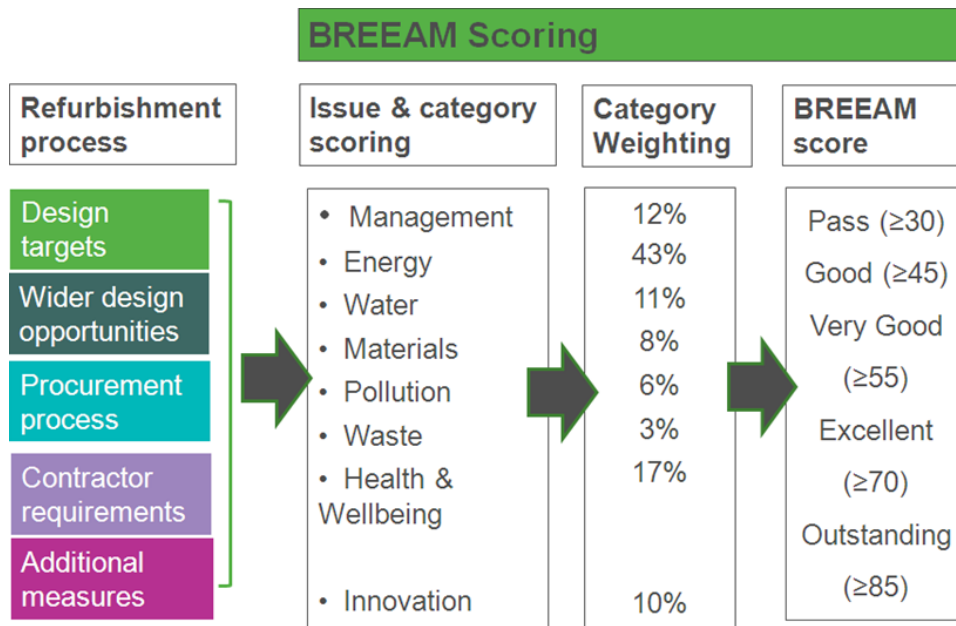


Figure 13-1: BREEAM Domestic Refurbishment scoring methodology

BREEAM Rating benchmarks

The BREEAM rating benchmarks for domestic refurbishment projects assessed using the 2012 version of BREEAM Domestic Refurbishment are as follows:

Table - 5: BREEAM Rating benchmarks

BREEAM Rating	% score
OUTSTANDING	≥ 85
EXCELLENT	≥ 70
VERY GOOD	≥ 55
GOOD	≥ 45
PASS	≥ 30

BREEAM Rating	% score
UNCLASSIFIED	<30

The BREEAM rating benchmark levels enable a client or other stakeholder to compare an individual building's performance with other BREEAM rated buildings and the typical sustainability performance of refurbished domestic buildings in the UK.

In this respect each BREEAM rating level broadly represents performance equivalent to:

- Outstanding: Less than top 1% of UK domestic refurbishments (innovator)
- Excellent: Top 10% of UK domestic refurbishments (best practice)
- Very Good: Top 25% of UK domestic refurbishments (advanced good practice)
- Good: Top 50% of UK domestic refurbishments (intermediate good practice)
- Pass: Top 75% of UK domestic refurbishments (standard good practice)

An unclassified BREEAM rating of less than 30 represents performance that is non-compliant with BREEAM, in terms of failing to meet either the BREEAM minimum standards of performance for key environmental issues or the overall threshold score required for formal BREEAM certification.

Minimum standards

To maintain a flexible system BREEAM adopts a 'balanced score-card' approach to the assessment and rating of a building or project. This means that, to achieve a particular level of performance the majority of BREEAM credits can be traded i.e. not meeting a credit in one area can be off-set by achieving a credit in another to achieve the target BREEAM rating.

However, to ensure that performance against fundamental environmental issues is not over-looked in pursuit of a particular rating, BREEAM sets minimum standards of performance in key areas e.g. energy, water, ventilation etc. It is important to bear in mind that these are minimum acceptable levels of performance and, in that respect they should not necessarily be viewed as levels that are representative of best practice for a BREEAM rating level. The BREEAM Domestic Refurbishment scheme sets minimum standards that are deemed to be achievable across the UK housing stock given current refurbishment practice.

The minimum standards of performance apply to all building types including listed buildings and buildings within a conservation area, however listed buildings and buildings within a conservation area should refer to the additional guidance provided in the minimum standards for listed buildings and conservation areas section, which provides flexibility for where there are statutory restrictions which prevent a building from achieving the minimum standards.

To achieve a particular BREEAM rating, the minimum overall percentage score must be achieved and the minimum standards, detailed below in Minimum standards, applicable to that rating level complied with.

Table - 6: Minimum BREEAM Domestic Refurbishment standards by rating level

BREEAM issue	Minimum standards by rating level				
	Pass	Good	Very Good	Excellent	Outstanding
Ene 02: Energy Efficiency Rating Post Refurbishment	0.5 Credits	1.0 Credits	1.5 Credits	2.5 Credits	3.5 Credits
Wat 01: Internal Water use	-	-	1 Credit	2 Credits	3 Credits
Hea 05: Ventilation	1 Credit	1 Credit	1 Credit	1 Credit	1 Credit
Hea 06: Safety	1 Credit	1 Credit	1 Credit	1 Credit	1 Credit
Pol 03: Flooding	-	-	-	2 Credits	2 Credits
Mat 02: Responsible sourcing of materials	Criterion 3 only	Criterion 3 only	Criterion 3 only	Criterion 3 only	Criterion 3 only

This page is intentionally blank.

Minimum standards – listed buildings and buildings in a conservation area

There is estimated to be over 440,000 listed buildings in the UK with 374,000 in England and Wales, 47,000 in Scotland and 8,500 in Northern Ireland. There are also more than 10,000 conservation areas in the UK where conservation consent and an Article 4 direction may apply.

Recognising the limitations subject to buildings within a conservation area or with a listed status, where building control set limitations on the scope of works due to this status, the project team should work with their Local Authority conservation officer to deliver the minimum standards as far as practically possible. This can be demonstrated by producing a report with confirmation from the Local Authority conservation officer that the work carried out goes as far as is practically possible within the restrictions of any statutory obligations.

This applies to buildings classified as follows:

- Grade 1, 2* and 2 listed buildings in England and Wales
- Grade A, B and C in Scotland
- Grade A, B1 and B2 in Northern Ireland
- Buildings where either a conservation consent is required or subject to Article 4 direction

This page is intentionally blank.

Environmental section weightings

Environmental weightings are fundamental to any building environmental assessment method as they provide a means of defining, and therefore ranking, the relative impact of environmental issues. BREEAM uses an explicit weighting system derived from a combination of consensus based weightings and ranking by a panel of experts. The outputs from this exercise are then used to determine the relative value of the environmental sections used in BREEAM and their contribution to the overall BREEAM score.

This weighting system is defined in greater detail within the BRE Global Core Process Standard (BES 5301) and its supporting procedural documents. These form part of the over-arching BREEAM Standard and the Code for a Sustainable Built Environment. The same ranking of impacts used in BREEAM underpins the scoring mechanisms in the BRE Green Guide to Specification and the BRE Environmental Profiling Method for construction materials.

The table below outlines the weightings for each of the nine environmental sections included in the BREEAM Domestic Refurbishment scheme:

Table - 7: BREEAM Domestic Refurbishment environmental section weightings

Environmental section	Weighting
Management	12%
Health & Wellbeing	17%
Energy	43%
Water	11%
Materials	8%
Waste	3%
Pollution	6%
Total	100%
Innovation (additional)	10%

Each of the above environmental sections consists of a differing number of assessment issues and BREEAM credits (as described below and defined in detail in the technical sections of this Scheme Document). As a result, each individual assessment issue and credit varies in terms of its contribution to a building's overall score.

This page is intentionally blank.

BREEAM assessment issues and ‘credits’

BREEAM Domestic Refurbishment consists of thirty-three individual assessment issues spanning the seven environmental categories, plus an eighth category called ‘innovation’ (described below). Each issue addresses a specific building related environmental impact or issue and has a number of ‘credits’ assigned to it. ‘BREEAM credits’ are awarded where a building demonstrates that it meets the best practice performance levels defined for that issue i.e. it has mitigated an impact or, in the case of the health and wellbeing section, addressed a specific building occupant-related issue e.g. good thermal comfort, daylight or acoustics.

The number of ‘credits’ available for an individual assessment issue will vary and generally the higher the number there are for a given issue, the more important that issue is in terms of mitigating its impact. In most cases, where there are multiple ‘credits’ available, the number awarded is based on a sliding scale or benchmark, where progressively higher standards of building performance are rewarded with a higher number of ‘credits’.

It is worth noting that, in addition to the environmental section and overall score and BREEAM rating, verified performance against individual assessment issues also provides users with a credible set of key building performance indicators for a range of embodied, operational and construction phase building impacts. In this respect, in addition to using BREEAM to define overall targets, it is possible to use the method to define performance levels in support of specific organisational policy objectives for individual environmental issues. Care should be taken when setting design targets using individual issues and credit levels in this way as it can limit design flexibility and have an impact on project costs.

Awarding ‘credits’ for innovation

It is one of the aims of BREEAM to support innovation within the construction industry and refurbishment. BREEAM does this by making additional ‘credits’ available for the recognition of sustainability related benefits or performance levels which are currently not recognised by standard BREEAM assessment issues and criteria. By doing this BREEAM is rewarding buildings that go beyond best practice in terms of a particular aspect of sustainability i.e. where the building or its procurement has demonstrated innovation.

Awarding credits for innovation enables clients and design teams to boost their building’s BREEAM performance and, in addition, helps to support the market for new innovative technologies, and design or construction practices.

There are two ways in which BREEAM awards ‘innovation credits’ to recognise innovation in building design and procurement. The first is by meeting exemplary performance criteria defined within an existing BREEAM issue i.e. going beyond the standard BREEAM assessment criteria and therefore best practice. Note, not all assessment issues have exemplary performance criteria. The second route is where an application is made to BRE Global by the BREEAM Assessor in connection with a project registered for BREEAM assessment to have a particular building technology or feature, design or construction method or process recognised as ‘innovative’. If the application is successful and subsequently building compliance is verified, an ‘innovation credit’ can be awarded.

An additional 1% can be added to a building’s overall score for each ‘innovation credit’ achieved. The maximum number of ‘innovation credits’ that can be awarded for any one building is 10; therefore the maximum available additional score for ‘innovation’ is 10%. Innovation credits can be awarded regardless of the building’s final BREEAM rating i.e. they are awardable at any BREEAM rating level.

This page is intentionally blank.

Calculating a building's BREEAM rating

A BREEAM Assessor must determine the BREEAM rating using the appropriate assessment tools and calculators. An indication of performance against the BREEAM scheme can also be determined using a BREEAM Pre-Assessment Estimator. The Pre-Assessment Estimator is available from the BREEAM website www.breeam.org.

The process of determining a BREEAM rating is outlined below and an example calculation included in the following table:

- For each environmental section the number of credits awarded must be determined by the assessor in accordance with the criteria of each assessment issue (as detailed in the technical sections of this document)
- The percentage of credits achieved is then calculated for each section
- The percentage of credits achieved in each section is then multiplied by the corresponding section weighting. This gives the overall environmental section score
- The section scores are then added together to give the overall BREEAM score. The overall score is then compared to the BREEAM rating benchmark levels and, provided all minimum standards have been met, the relevant BREEAM rating is achieved
- An additional 1% can be added to the final BREEAM score for each 'innovation credit' achieved (up to a maximum of 10%)

Table - 8: Example BREEAM Domestic Refurbishment score and rating calculation

BREEAM Section	Credits Achieved	Credits Available	% of Credits Achieved	Section Weighting	Section score
Management	9	11	81.8%	0.12	9.82
Health & Wellbeing	8	12	66.7%	0.17	11.34
Energy	15	29	51.7%	0.43	22.23
Water	2	4	50%	0.11	5.50
Materials	14	45	31.1%	0.08	2.49
Waste	3	5	60%	0.03	1.80
Pollution	4	8	50%	0.06	3.0
Innovation	2				2.0
Final BREEAM score			58.0		
BREEAM Domestic Refurbishment Rating			VERY GOOD		

Table - 9: How to achieve a 'Very Good' rating

Minimum Standards for BREEAM 'Very Good' rating	Achieved?
Ene 02 – Energy Efficiency Rating Post Refurbishment	Yes
Wat 01 – Internal Water Consumption	Yes
Man 03 – Responsible Sourcing of Materials	Yes
Hea 05 - Ventilation	Yes
Hea 06 – Safety	Yes
Pol 03 – Flooding	N/A

Management

Category overview

- Category weighting: 12%
- Minimum standards:None

Summary

The management section covers issues that aim to ensure the home owner is able to operate their home efficiently and effectively as well as being able to live in a home that is safe and secure. The category also covers issues relating to effective project management and sustainable site practices, to providing a framework that encourages refurbishment projects to be managed in an environmentally, socially considerate and accountable manner. This includes the following aspects during refurbishment:

- Providing a home users guide
- Improving or implementing responsible construction practices
- Improving construction site impacts in categories such as CO₂ production, water consumption and the sourcing of construction materials
- Improving security on the dwelling/s to reach minimum standards
- Protecting and enhancing the site ecology
- Encouraging efficient project management by assigning responsibilities and project planning
- Testing that may be required to establish any remediation that may be necessary
- Carrying out handover and aftercare with the occupant

Category summary table

Issue	Issue name	Credits	Credit summary
Man 01	Home Users Guide	3	Three credits - provision of a home users guide – containing the information listed in the User Guide Contents List
Man 02	Responsible Construction Practices	2 + Exemplary Credit	Different responsible construction practices criteria for small and large scale projects. Large scale – assessed using the Considerate Constructors Scheme score or Alternative scheme checklist Small scale – option to assess against Small scale checklist
Man 03	Construction Site impacts	1	Construction site impacts are assessed against a checklist – with separate checklists for small and large scale projects. The checklists consider issues such as CO ₂ production, water consumption and the sourcing of construction materials.
Man 04	Security	2	First credit – achieving best practise security

Issue	Issue name	Credits	Credit summary
			requirements for external door sets and windows and minimum security requirements for retained doors and windows Second credit – implementing the principles and guidance of secured by design.
Man 05	Protection and Enhancement of Ecological Features	1+ Exemplary Credit	First credit – protection of ecological features that have been identified during a site survey Exemplary credit- implementation of recommendations made by a suitably qualified ecologist to enhance the site ecology
Man 06	Project Management	2 + 2 Exemplary Credits	First credit – assigning project roles and responsibilities Second credit – arranging a handover meeting and implementing a minimum of 2 methods of aftercare. First exemplary credit –involvement of a BREEAM Accredited Professional or BREEAM Assessor from an early stage Second exemplary credit – carrying out thermographic and airtightness surveys pre and post refurbishment.

Man 01 Home Users Guide

Number of credits available	Minimum standards
3	No

Aim

To recognise and encourage the provision of guidance for the home owner / tenant so they can understand how to operate their home efficiently and effectively.

Assessment criteria

Three credits

Provision of a home users guide: Where a Home User Guide containing the information listed in the 'User Guide Contents List' has been produced and supplied to all homes.

Assessment Procedure

Criteria	Procedure
	All Credits
1	Refer to the User Guide Contents List and ensure the Home User Guide that is produced covers all listed items.

Compliance Notes

Ref	Terms	Description
CN1	Extensions to existing dwellings	The Home Users Guide will cover the extension and provide information on how to operate their whole home effectively.
CN2	Existing features	In addition to improvements made to the dwelling as a result of refurbishment, the Home Users Guide should also cover existing features of the home and how to use such features in a more energy and water efficient way. For example, where an existing boiler is not being replaced, instructions on efficient use of the existing boiler should be addressed in the Guide.
CN3	Self builds	Where the home owner is the project manager a home users guide should be produced for potential future occupants of the home. As an

Ref	Terms	Description
		alternative means of compliance a credit can also be achieved where the project has been published as case study on the BREEAM website.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	All Credits	All Credits
Req. 1	<p>Written confirmation from the developer or in the specification that a Home Users Guide will be:</p> <ol style="list-style-type: none"> Supplied to all dwellings and will as a minimum include a list of contents showing that the guide will cover all of the issues required in the 'User Guide Contents List' 	<ol style="list-style-type: none"> A sample copy of the Home User Guide covering all the issues required in the User Guide Contents List AND Confirmation that the Home User Guide has been supplied to all dwellings <p>NOTE: Where Home User Guides are to be provided on the internet or CD occupants must be given a letter regarding the Home User Guide and a hard copy of the Home User Guide contents page.</p>

Additional information

User Guide Contents List

The list below indicates the type of information that should be included in the Home Users Guide and provided to occupants at handover. Where such features are not relevant to the dwelling (e.g. there are no renewables) or this is an occupied home and residents are already familiar with surrounding area (e.g. location of local amenities), information can be excluded from the Home Users Guide.

About BREEAM Domestic Refurbishment

- Background about the scheme, category areas, scoring system (all of this information can be found at the front of the manual).
- A copy or photocopy of the BREEAM Domestic Refurbishment certificate should also be provided with a summary of the environmental features that have been designed into the dwelling to help achieve the rating

Recommendations report

A recommendations report for how the homes could be improved in the future including:

- How to improve the home to the next BREEAM Domestic Refurbishment rating band covering each category
- Use of sustainable material including low VOC materials, responsible sourcing and the Green Guide
- Use of contractors with good green credentials including site waste management, use of considerate constructors scheme or similar and awareness of environmental impacts
- Sources of further guidance on how to improve the home e.g. EST, Green Deal Advisors
- Information on potential funding mechanisms e.g. the Green Deal, Feed in Tariffs etc.
- How to obtain an assessment for future refurbishment work

Energy Efficiency

Information on energy-efficient features and strategies relating to the home, and also provide an overview of the reasons for their use, e.g. economic and environmental savings. Information could include:

- Information on the effective operation and reason for the use (e.g. environmental economic savings) of environmental features/design strategies such as passive solar design, super insulation, energy efficient timber windows, heat recovery systems, solar hot water systems, photovoltaics, passive vents or the use of certified timber or SUDS within the boundary of individual properties.
- Tips on other energy saving measures such as not leaving electrical appliances on standby etc and the cost/environmental savings they can give.
- Information as described in the Building Regulations ADL1b (requirement note L1c)(1) i.e. Sufficient information about the building and its building services and their maintenance requirements so that the building can be operated in such a manner as to use no more fuel and power than is reasonable in the circumstances.
- A way of complying would be to provide suitable set of operating and maintenance instructions aimed at achieving economy in the use of fuel and power in a way that the home owner / tenant can understand. The instructions should be directly related to the particular system/s installed in the dwelling.
- The instructions should explain to the occupier how to operate the system(s) efficiently. These should include: the making of seasonal adjustments to control settings and what routine maintenance is needed to enable operating efficiency to be maintained at a reasonable level through the service life/s of the system/s.
- Details of any renewable system/s and how it/they operate/s.
- Details of low-energy light fittings (e.g. CFL, LED etc.), their use, their benefits and the benefits of purchasing high efficacy lamps, e.g. how much energy they save compared to traditional light fittings and what this can mean in terms of reduced energy bills and payback.
- Details of the EU labelling scheme for white goods.

Include information on smoke detector/s. User guide in Plain English on the following technologies where included with basic user instructions labelled on equipment or controls where appropriate:

- Boiler
- Air Source Heat Pump
- Ground Source Heat Pump
- Mechanical Ventilation with Heat Recovery (MVHR)
- Solar hot water
- PV
- CHP
- Smart meter / display energy device
- Water meter

Water Use

Details of water saving features and their use and benefits, e.g. low/dual flush toilets, low water use showers, low water use white goods (washing machines, dishwashers etc), and tips as well as details of external water use and efficiency, e.g. the use of water butts or other type of rainwater recycling systems.

Transport Facilities

Include details of resident car-parking and cycle storage provision, cycle paths in the area including if available cycle path network maps for the whole town/local area plus local public transport information, maps and timetables where relevant (i.e. this may not be relevant to existing occupied homes).

Information on alternative methods of transport such as park and ride, car sharing schemes and/or car pools/car hire in the area and local 'green' transport initiatives should be included. Information on the location of amenities and places of interest/cultural value, areas of outstanding natural beauty (AONB's), nature reserves, allotments etc. Also details on how to get to local amenities in the area, using public transport or cycling as relevant.

Materials & Waste

- Low energy/low water white goods
- Electrical equipment, including light fittings and bulbs
- Timber products from sustainable sources
- Organic food procurement/food growing/local produce/local food provision, e.g. farmers markets, organic box schemes, etc
- Information on the location of recyclable materials storage areas (especially within flats) and how to use them appropriately.
- Information on responsible purchasing of:
 - Low energy/low water white goods
 - Electrical equipment, including light fittings and bulbs
 - Timber products from sustainable sources
 - Organic food procurement/food growing/local produce/local food provision, e.g. farmers markets, organic box schemes, etc
- Information about the Local Authority collection scheme (if applicable).
- If the home is not covered by a Local Authority collection scheme, details and location of communal recycling bins/skips/facilities.
- Information on the location and use of any recycling and compost bins.
- Information on Waste and Resource Action Plan (WRAP) (4), which can offer guidance on recycling and sustainable waste disposal.
- Information on what to do with waste not covered by the standard weekly Local Authority collection scheme for example fridges/freezers, computer equipment, batteries and other potentially hazardous equipment. In some areas the local authority will collect these items. If this is the case, details and information on such a collection scheme should be provided.
- Information and location detailing local recycling facilities and waste tips.
- Environmental recommendations for consideration in any home improvement works, such as the use of low VOC products or the purchase of certified timber

Emergency Information

- Information on smoke detector/s and carbon monoxide detectors
- Contact details for emergency services including the location of local minor injuries clinics, A&E departments and the nearest police/fire station

Local Amenities

The location of food shops, post boxes, postal facilities, bank/cash points, pharmacies, schools, medical centres, leisure centres, community centres, places of worship, public houses, children's play areas, outdoor open access public areas as deemed relevant occupiers.

Other local amenities such as places of interest/cultural value, areas of beauty / wildlife / conservation / allotments etc.

Provision of Information in Alternative Formats

Include details of the procedure for obtaining a copy of the guide in alternative formats, including foreign languages, Braille, large print or audio cassette / CD. It should include the contact details of the person/organisation responsible for producing the guide

SuperHomes network

SuperHomes is a network of over 100 energy aware households. The homeowners have refurbished their old homes to the highest standards of energy efficiency and have achieved at least 60% reduction on fossil fuel use. The homes are examples which are open for visits to aid other refurbishment projects. For more information about the SuperHomes network and the projects visit www.superhomes.org.uk

Links & References

This should include links to other information including websites, publications and organisations providing information on how to reduce the environmental impact in terms of transport, the use of local amenities, responsible purchasing etc. As a minimum, this should include links and address/telephone contact numbers to:

- The Energy Saving Trust good practice guidance
- The Local Authority
- The company responsible for the refurbishment of the property
- The company responsible for the management of the home (where applicable)
- Act on CO₂¹

¹Act on CO₂ Go to www.direct.gov.uk for further information

This page is intentionally blank.

Man 02 Responsible Construction Practices

Number of credits available	Minimum standards
2	No

Aim

To recognise and encourage refurbishment projects which are managed in an environmentally and socially considerate and accountable manner.

Assessment criteria

For this issue large scale projects and small scale projects are assessed under different criteria. Up to 2 credits may be awarded with an innovation credit available for exemplary performance as follows:

Two Credits - Large Scale Projects

Where either option 1 or 2 is adopted as follows:

1. Option 1 - Where the principle contractor has been certified under the Considerate Constructors Scheme (CCS). Credits are awarded depending on the CCS Code of Considerate Practice score achieved, as outlined in Table - 10
2. Option 2 – Where the principle contractor has used an alternative scheme which addresses all mandatory items, credits are awarded depending on the criteria.

Table - 10: Credit requirements for options 1 and 2

Credits	Option 1 – Considerate Constructors Scheme	Option 2 – Alternative Scheme
One Credit	24 - 31.5	50% of the optional items in Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices
Two Credits	32 - 35.5	80% of the optional items in Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices
Innovation Credit	>36	All optional items in Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices

Two Credits– Small Scale Projects

3. Where the requirements of criterion 1 or 2 has been met
OR

4. Where the principle contractor addresses all mandatory items in Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices, credits are as follows:
 - a. Where 50% optional items in Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices have been addressed, one credit can be awarded
 - b. Where 80% optional items in Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices have been addressed, two credits can be awarded.

Exemplary Credit Requirements

Where either option 1 or 2 (Table 4-1) is adopted as follows:

5. Option 1 - Where the principle contractor has been certified under the Considerate Constructors Scheme (CCS) and reaches the level required for the innovation credit.
6. Option 2 –Where the principle contractor has used an alternative scheme which addresses all of the items (optional and mandatory) on the relevant checklist (Checklist A-2; Considerate Constructors Scheme and Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices for large scale and Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices for small scale).

Assessment Procedure

Criteria	Procedure
1	<ol style="list-style-type: none"> a. Refer to definitions to ensure the project meets the Large Scale Project classification b. Refer to definition for; Considerate Constructors scheme c. Refer to the compliance note 1. Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices d. Obtain a copy of the Considerate Constructors Scheme certificate and report from Checklist A-2; Considerate Constructors Scheme Checklist A-3; Considerate Constructors Scheme or Checklist A-2; Considerate Constructors Scheme Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices e. Obtain a completed copy of Checklist A-2; Considerate Constructors Scheme and Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices
2	<ol style="list-style-type: none"> a. Refer to definitions to ensure the project meets the Large Scale Project classification b. Refer to Checklist definitions and definition for alternative local or national schemes c. Obtain a completed copy of Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices d. Obtain a completed copy of the Alternatives Scheme certificate and report (or equivalent).
3 & 4	<ol style="list-style-type: none"> a. Refer to definitions to ensure the project meets the Small scale Project classification b. Checklists must be completed someone independent of the refurbishment works c. Refer to Checklist definitions d. Obtain a completed copy of Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices
5	<ol style="list-style-type: none"> a. As for criterion 1
6	<ol style="list-style-type: none"> a. As for criterion 2

Compliance Notes

Ref	Terms	Description
CN1	Considerate Constructors score	Credits cannot be awarded for the Considerate Constructors Scheme (6) where any of the section scores within the scheme are less than 3, as this represents non compliance with the CCS Code of Considerate Practice.
CN2	Contractor not yet appointed	At the interim design stage of assessment, where the contractor is not yet appointed, the client must either include within the specification, or commit to including, a requirement for the appointed contractor to comply with one of the above requirements. This information must be used to complete the appropriate checklist.
CN3	Site clearance	The scope of this credit applies to the main contractor and their scope of works only: <ul style="list-style-type: none"> — If the scope of the main contractor's works includes demolition and site clearance then this stage of work falls within the scope of the credit requirements. — If clearance is carried out by others prior to the main contractor commencing works on site, this clearance work does not need to be covered.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All	1. Written confirmation: that registration with the Considerate Constructor Scheme OR completion of the checklists took place no later than the commencement of the refurbishment works	1. Written confirmation: that registration with the Considerate Constructor Scheme OR completion of the checklists took place no later than the commencement of the refurbishment works
Req. 1 and 5	1. Detailed documentary evidence showing commitment to: <ul style="list-style-type: none"> a. comply with the Considerate Constructors 	1. A copy of the Considerate Constructors Certificate 2. AND The Considerate Constructors Monitor's report highlighting the total score and the sub-scores in each section AND

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	Scheme (6), b. achieve formal certification under the scheme, c. gain the CCS score relevant to the number of points sought d. complete Checklist A-2; Considerate Constructors Scheme	3. A signed and dated copy of Checklist A-2; Considerate Constructors Scheme
Req. 2 and 6	1. Detailed documentary evidence confirming the commitment from the contractor or developer to complete Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices to the level required for the number of credits sought.	1. A copy of the alternative scheme's Certificate of Compliance or equivalent documentary evidence (from an independent third party assessor). AND 2. A dated and signed copy of Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices completed by the independent scheme assessor to the level required for the number of credits sought
Req. 3 and 4	1. Detailed documentary evidence outlining the commitment to complete Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices	1. A dated and signed copy of Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices completed by assessor to the criteria level required for the number of credits sought.

Additional information

Checklist Definitions

Neighbours

For the purposes of this issue neighbours are defined as those which have a common boundary with the refurbishment site or others considered likely to be disturbed by the refurbishment works.

This page is intentionally blank.

Man 03 Construction Site Impacts

Number of credits available	Minimum standards
1	No

Aim

To recognise and encourage refurbishment sites managed in an environmentally sound manner in terms of resource use, energy consumption and pollution.

Assessment criteria

For this issue large and small scale projects are assessed under different criteria. Up to one credit may be awarded for this issue as follows:

One Credit: Large Scale Projects

1. Where there is evidence to demonstrate that 2 or more of the sections a-e in Checklist A-5; Large Scale Refurbishments are completed.

One credit: Small Scale Projects

2. Where there is evidence to demonstrate that 2 or more of the sections a-d in Checklist A-6 are completed.

Assessment Procedure

Criteria	Procedure
	All Credits
1	<ol style="list-style-type: none"> Refer to definitions to ensure the project meets the Large Scale Project classification Refer to compliance note 1 Obtain a Chain of Custody certificate for Site timber Obtain a completed copy of Checklist A-5; Large Scale Refurbishments Where a or b from Checklist A-5; Large Scale Refurbishments have been completed, copies of the site monitoring records and targets for energy and water consumption are required.
2	<ol style="list-style-type: none"> Refer to definitions to ensure the project meets the Small Scale Project classification Refer to compliance note 1 for Site Timber Obtain a Chain of Custody certificate for site timber Obtain a copy of Checklist A-6: Small-Scale Refurbishments- Constructions Site Impacts Where a or b from Checklist A-6: Small-Scale Refurbishments- Constructions Site Impacts have been completed, site monitoring records and targets for energy and water consumption are required.

Compliance Notes

Ref	Terms	Description
CN1	Site timber	For the purposes of this credit, site timber is considered to be timber used to facilitate construction, including formwork, site hoardings and other temporary site timber used for the purpose of facilitating construction. It does not cover structural timber (Mat 02 Responsible Sourcing of Materials). All site timber used on the project is sourced in accordance with the UK Government's Timber Procurement Policy.
CN2	Site clearance	The scope of this credit applies to the main contractor and their scope of works only if the scope of the main contractor's works includes demolition and site clearance then this stage of work falls within the scope of the credit requirements. If clearance is carried out by others prior to the main contractor commencing works on site, this clearance work does not need to be covered.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
First Credit		
Req. 1	<ol style="list-style-type: none"> 1. A completed signed and dated copy of Checklist A-5; Large Scale Refurbishments (identifying which items will form part of the main contractor's obligations. AND 2. Confirmation that site timber will be sourced from suppliers capable of providing certification to the level required for the particular tier claimed in Mat 02 Responsible Sourcing of Materials AND 3. A copy of the policy for sourcing site timber for the project 	<ol style="list-style-type: none"> 1. A copy of the following: <ol style="list-style-type: none"> a. Site records demonstrating the monitoring and recording of the following (where relevant): b. Site energy/CO₂ consumption c. Site water consumption d. Project targets set for water and energy consumption e. Written confirmation from the main contractor confirming the name/job title of individual responsible for monitoring and managing construction site impacts throughout the project f. Environmental materials policy

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
		<p>g. Certification document or Chain of custody (CoC) certificate(s) for the site timber.</p> <p>AND</p> <p>2. Where any non-certified timber is used, written confirmation from the supplier(s) confirming that all timber comes from a legal source in accordance with the Governments Procurement Policy.</p>
Req. 2	<p>1. As listed for req. 1 but using Checklist A-6: Small-Scale Refurbishments- Constructions Site Impacts</p>	<p>1. Site estimations made for the following (where relevant):</p> <ul style="list-style-type: none"> a. Site energy/CO₂ consumption b. Site water consumption <p>AND</p> <p>2. Written confirmation from the main contractor confirming that suitable measures to reduce energy and water use onsite have been outlined and implemented.</p> <p>AND</p> <p>3. A copy of the following</p> <ul style="list-style-type: none"> b. Environmental materials policy c. Certification document or Chain of custody (CoC) certificate(s) for the site timber. <p>AND</p> <p>4. Where any non-certified timber is used, written confirmation from the supplier(s) confirming that all site timber used on the project is sourced in accordance with the UK Government's Timber Procurement Policy.</p>

Additional information

Man 04 Security

Number of credits available	Minimum standards
2	No

Aim

To encourage domestic refurbishment projects where people feel safe and secure; where crime and disorder, or the fear of crime, does not undermine quality of life or community cohesion.

Assessment criteria

Up to two credits may be awarded for this issue as follows:

One Credit – secure windows and doors

1. Where retained external doors and accessible windows comply with the minimum security requirements as set out in compliance note 6
2. Where the following newly added features are appropriately certified:
 - a. External door sets
 - b. Windows

Two Credits – Secured by design

3. Where the principles and guidance of Secured by Design Section 2 – Physical Security are complied with.
4. A suitably qualified security consultant such as the Police Architectural Liaison Officer (ALO) or Crime prevention design advisor (CPDA) is consulted at the design stage and their recommendations are incorporated into the refurbishment specification.

Assessment Procedure

Criteria	Procedure
	First Credit
1	<ol style="list-style-type: none"> a. Refer to CN1 and CN6 b. Refer to definitions of External doors and Accessible windows
	Second Credit
3	<ol style="list-style-type: none"> a. Refer to CN3 b. Refer to definitions of: Secured by Design Section 2 – Physical Security
4	<ol style="list-style-type: none"> a. Refer to definitions of: Architectural Liaison Officer; Crime Prevention Design Advisor b. Refer to CN3 c. Obtain confirmation recommendations have been incorporated in the design.

Compliance Notes

Ref	Terms	Description
CN1	Appropriate Certification (where applicable)	<ul style="list-style-type: none"> — External Door sets: — PAS 24:2007 or — LPS 1175 Issue 7 Security Rating 1¹ or equivalent — Windows are certified to: — BS 7950:1997 (36) — LPS 1175 Issue 7 Security Rating 1 or equivalent
CN2	Secured by Design New Homes	Refurbishment projects applying for secured by design are expected to apply as much of the standard criteria as possible, and where necessary, to incorporate alternative measures that have been agreed with the ALO. The involvement of existing residents should feature in the implementation of SBD guidelines.
CN3	Suitably qualified security consultant	<p>Individual security consultants that meet the following requirements are deemed to be suitably qualified:</p> <ul style="list-style-type: none"> — They are a practising security consultant with a minimum of three years relevant experience within the last five years. This experience must clearly demonstrate a practical understanding of factors affecting security in relation to construction and the built environment, including, acting in an advisory capacity to provide recommendations for security and crime prevention. — Hold a recognised qualification in design and crime prevention. This qualification must incorporate Secured by Design (or an equivalent). Where the qualification incorporates Secured by Design, the training and qualification must have been provided by an organisation/company that is a member of the Secured by Design membership scheme and whose courses have the 'Police Preferred Specification' accreditation status. — Continue to maintain their qualification/status through (full) membership of a relevant industry professional body or accreditation scheme that meets the following: <ul style="list-style-type: none"> — Has a professional code of conduct, to which members must adhere to. — Ongoing membership is subject to peer review or the consultants SbD advice/reports are subject to regular audits by the scheme operator. <p>Organisations, associations or scheme operators who wish to have their membership recognised as 'suitably qualified', should review</p>

¹Guide to Security Standards for Doors and Windows (May 2002) prepared with the support of LPCB, Secured by Design and BSIA. PDF file is available from www.securedbydesign.com

Ref	Terms	Description
		their current status (and therefore their members) against the requirements above and, where they feel they are compliant, contact BRE Global with the relevant information/evidence.
CN4	Compliant security qualification schemes	<p>The following are, at present, deemed to meet the Suitably qualified security consultant:</p> <ul style="list-style-type: none"> — Crime Prevention Design Advisors (CPDA) — Police Architectural Liaison Officers (ALO) — A suitably qualified security consultant (SQSC) <p>A list of contact details for the above are available from: www.securedbydesign.com</p>
CN5	Alternative means of demonstrating compliance with requirements 1-4	<p>This is alternative means of demonstrating compliance with requirements 1-4.</p> <p>CN1 and evidence requirements 1-2: In cases where the building is listed or in a conservation area or other circumstances where external windows and doors don't meet the minimum security requirements in CN6 and cannot be replaced to meet the appropriate certification in CN1. Where a Suitably qualified security consultant has produced a brief containing the most optimal security measures to compensate for windows not meeting requirements 1 and 2. These measures should then be incorporated into the refurbishment works. Where this has been done the first credit can be awarded.</p> <p>Evidence requirements 3-4: Where as a result of this the project also achieve criterion 3 and 4, two credits can be achieved. This may include compensatory measures have been adopted as recommendations from the suitably qualified security consultant, as alternatives to the full requirements of the secured by design standard. Secured by design certification is not required, but it is required that recommendations from the ALO to meet part 2 of SBD are implemented.</p>
CN6	Minimum security Requirements	<p>External doors are of good quality with working key locks and a strong frame, where there is no sign of warping, splitting or rotting to the door or its frame. Where the door contains glazing this should be a minimum of double glazing. Putty or beading to glazed areas should be on the unexposed side of the door, in good condition, with no sign of degradation.</p> <p>Accessible Windows should have a minimum of double glazing with working key locks. Putty or beading to glazed areas should be on the unexposed side of the window, in good condition, with no sign of degradation. The window frame should be strong with no sign of warping, splitting or rot.</p>
CN7	Alternative standards	In instances where a product has not been certificated against one of the appropriate standards quoted in compliance note 1, it is acceptable to use an alternative nationally recognised standard so long as the following is met as a minimum:

Ref	Terms	Description
		Physical testing demonstrates that the performance level requirements required by the alternative standard are equivalent to or better than those specified in the appropriate standards listed in compliance note 1.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
Req. 1-2	<p>1. Confirmation that retained external windows and doors meet the minimum security requirements in compliance note 5</p> <p>Confirmation that new external and/or entrance door sets and windows present meet CN6 in the form of:</p> <p>Written confirmation from the developer</p> <p>OR</p> <p>Relevant drawings clearly showing location of the windows and external and/or entrance door sets/locks</p> <p>OR</p> <p>A building/site inspection report and photographic evidence</p> <p>OR</p> <p>Where evidence 1 cannot be produced</p> <p>Compliant design stage commitment from the developer outlining the design specification that will be implemented if the above detailed documentary evidence cannot be produced at this stage.</p>	<p>The following as appropriate:</p> <p>1. Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished.</p> <p>OR</p> <p>Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the design stage.</p> <p>AND</p> <p>2. A building/site inspection report and photographic evidence.</p>
Req. 3-4	<p>1. Detailed documentary evidence confirming:</p>	<p>1. Detailed documentary evidence, confirming that all of</p>

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	<p>a. That a suitably qualified security consultant has been contacted for advice to ensure that the requirements of Section 2 – Physical Security of Secured by Design – New Homes¹ are met</p> <p>b. A commitment to follow the advice provided by the suitably qualified security consultant</p>	<p>the recommendations provided by the suitably qualified security consultant have been incorporated in the design and that the site meets the standards required in Section 2 – Physical Security of Secured by Design – New Homes.</p> <p>OR</p> <p>A copy of a 'Secured by Design'² certificate</p>

Additional information

¹Secured by Design – New Homes Guidance (PDF) www.securedbydesign.com

²Secured by Design www.securedbydesign.com

This page is intentionally blank.

Man 05 Protection and Enhancement of Ecological Features

Number of credits available	Minimum standards
1	No

Aim

To protect existing ecological features from substantial damage during refurbishment and enhance the ecological value of a site.

Assessment Criteria

One Credit - Protecting ecological features

1. Where a site survey is carried out by a member of the project team or a Suitably Qualified Ecologist (SQE) to determine the presence of ecological features.
2. Where protected species have been identified as present on site, the relevant Statutory Nature Conservation Organisation (SNCO) has been notified and protected species have been adequately protected
3. Where all existing features of ecological value (including any of those listed in CN1) on the refurbishment site potentially affected by the works, are maintained and adequately protected during refurbishment works.

Exemplary performance requirements – ecological enhancement

The following outlines the exemplary level criteria to achieve an innovation credit for this BREEAM issue:

4. Where a Suitably Qualified Ecologist has been appointed to recommend appropriate ecological features that will positively enhance the ecology of the site and where the developer adopts all general ecological recommendations and 30% of additional recommendations.

Assessment Procedure

Criteria	Procedure
	First Credit
1	<ol style="list-style-type: none"> a. Refer to definitions of a Suitably Qualified Ecologist; Project team; Scrub; Grassland; Protected Species; Protection of: local priority UK Biodiversity action plan (BAP) species, trees etc, roosting and nesting and protected species. b. Refer to the compliance notes: 1, 3 and 13 c. Obtain a copy of the site survey report from either the project team or the SQE
2	<ol style="list-style-type: none"> a. Refer to CN8, CN12, CN14 and CN15

Criteria	Procedure
3	a. Get confirmation any features present on site will be adequately protected
	Second Credit
4	a. Refer to definition for: General ecological recommendations

Compliance Notes

Ref	Terms	Description
CN1	Ecological Features	<p>The presence of the following ecological features must be determined in the in the site survey:</p> <ul style="list-style-type: none"> — Trees which met one or more of the following requirements: <ul style="list-style-type: none"> — over 100mm trunk diameter, — over 10 years old — of significant ecological value — Mature hedgerows over 1 m tall and 0.5m wide — Natural areas (e.g. Flower-rich meadow/grassland and heathland which includes habitat/plants that thrive on acidic soils, such as heather and gorse) — Watercourses (rivers, streams and canals) — Wetlands (ponds, lakes, marshland, fenland) — Protected Species — Local Priority UK BAP species — Roosting and/or nesting opportunities in buildings for bats and birds
CN2	Adequately protected	<p>Where ecological features are adequately protected as defined in the relevant definitions of:</p> <ul style="list-style-type: none"> — Protection of trees, hedges, natural areas, watercourses and wetlands — Protection of local priority UK BAP species — Protection of roosting and/or nesting opportunities in buildings for bats and birds. See Criteria CN3 — Protection of Protected Species. See Criteria CN12.
CN3	Roosting and/or nesting opportunities	<p>Roosting and or nesting opportunities are identified in the following guidance:</p> <ul style="list-style-type: none"> — Birds in your building - what to look for, RSPB, www.rspb.org.uk — Bats and the built environment series, volume 1, Bat Conservation Trust, December 2010, www.bats.org.uk

Ref	Terms	Description
CN4	Removal of Features	If a Suitably Qualified Ecologist has confirmed a feature can be removed due to insignificant ecological value or where an arboriculturalist has confirmed a feature can be removed due to poor health/condition (e.g. diseased trees which require felling, either for health and safety and/or conservation reasons), the credit can be achieved provided all other features are adequately protected in accordance with the ecologist's recommendations.
CN5	No features of ecological value	The first credit can be awarded where the refurbishment site is defined as 'land of low ecological value' and where the surrounding site contains no features of ecological value.
CN6	Re-location	Credits cannot be awarded for the re-location of ecological features.
CN7	Un-protected Ecological Features	Where ecological features (as defined above) have not been protected, credits cannot be awarded. This applies even where the developer/client has confirmed a commitment to comply with all current EU and UK legislation relating to protected species and habitats applicable to the development site.
CN8	EU and UK Legislation	<p>UK legislation requires that the following must be complied with:</p> <ul style="list-style-type: none"> — England and Wales: The Conservation of Habitats and Species Regulations (2010), the Countryside and Rights of Way Act, 2000; the Natural Environment and Rural Communities Act (NERC, 2006); — Scotland: The Conservation (Natural Habitats &c.) Regulations 1994 (as amended). — Northern Ireland: The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (Northern Ireland) <p>The second credit cannot be achieved where the developer/client has confirmed a commitment to comply with all current EU and UK legislation relating to protected species and habitats applicable to the development site but no ecological enhancement is proposed.</p>
CN9	Offsite enhancement	Where enhancement has been made to an area outside of the site boundary, unconnected to the site and no enhancement has been made within the site boundary, the exemplary credit cannot be awarded.
CN10	Non Qualified Ecologists	Where ecological features have been designed in to the development to enhance the ecology of the site but they are not recommendations from a Suitably Qualified Ecologist, the credit cannot be awarded unless the compliance below is met.
CN11	Verification of a report written by an ecologist not meeting the	Where a suitably qualified ecologist is verifying an Ecology Report produced by another ecologist who does not meet the SQE criteria, they must, as a minimum, have read and reviewed the report and confirm in writing that they have found it to:

Ref	Terms	Description
	BREEAM SQE criteria	<ul style="list-style-type: none"> — represent sound industry practice — report and recommend correctly, truthfully and objectively — be appropriate given the local site conditions and scope of works proposed — avoid invalid, biased and exaggerated statements <p>Additionally, written confirmation from the third party verifier that they comply with the definition of a Suitably Qualified Ecologist is required.¹</p>
CN12	Protected Species	<p>These are animals and plants that are protected under The Conservation of Habitats and Species Regulations 2010. EU protected species can be found at the following link: www.legislation.gov.uk/uksi</p> <p>More information can be found at: www.naturalengland.org.uk</p> <p>Where they have been identified, the project team must be informed and relevant information passed onto all involved in the refurbishment works to ensure their protection.</p>
CN13	Local Priority UK BAP species	<p>A Local Biodiversity Action Plan and/or a Local Biodiversity Officer should be consulted to ensure any local priority UK BAP species are identified within the site survey. Local authorities or councils are responsible for Local BAPs.</p> <p>More information can be found at: ukbars.defra.gov.uk</p>
CN14	Relevant Statutory Nature Conservation Organisation (SNCO)	<p>The relevant SNCOs that are to be contacted where protected species have been identified are as follows:</p> <ul style="list-style-type: none"> — England: Natural England — Scotland: Scottish Natural Heritage — Wales: Countryside Council for Wales — Northern Ireland: Environmental Heritage Service
CN15	Habitats Regulation Licence	<p>This is required in circumstances where refurbishment activities are likely to negatively impact a European Protected Species. For Further information refer to: www.naturalengland.org.uk</p> <p>A Suitably Qualified Ecologist is required to carry out the survey of the structure and write the method statement for the licence on behalf of the person proposing the work. Licences are administered by the SNCO.</p> <p>If the protected species is not in the dwelling being refurbished but is, for example, in an old farm building, out-building, or a tree on the grounds of the refurbishment building then a Habitats Regulations Licence may also be required.</p>
CN16	Timing of the ecologist's survey and report	<p>The suitably qualified ecologist must be appointed to carry out site surveys of existing site ecology, on which their report is based (or to provide verification where the report is prepared by others) prior to commencement of refurbishment works on site in order to facilitate and maximise potential ecological enhancement</p>

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	First Credit	
Req.1	<ol style="list-style-type: none"> 1. Confirming ecological features present prior to commencement of refurbishment works in the form of A building/site inspection report and photographic evidence OR Drawings showing the location of the ecological features present prior to commencement of refurbishment works OR Where the above detailed documentary evidence cannot be produced at this stage compliant design stage commitment to carrying out a out a survey to determine the presence of ecological features. 	<ol style="list-style-type: none"> 1. Detailed documentary evidence as listed for the Design Stage
Req. 2	<ol style="list-style-type: none"> 1. A copy of the notification sent to the Statutory Nature Conservation Organisation (SNCO) outlining the presence of protected species on site (where applicable). AND 2. Written confirmation from the developer confirming that the recommendations from the Statutory Nature Conservation Organisation (SNCO) have been implemented OR 3. Where evidence 1 and 2 cannot be produced compliant design stage commitment from the contractor or developer to notify the SNCO and to implement their rec- 	<ol style="list-style-type: none"> 1. Detailed documentary evidence as listed for the design stage

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	ommendations	
Req. 3	<ol style="list-style-type: none"> 1. Written confirmation from the developer that ecological features have been adequately protected. OR A building/site inspection report and photographic evidence confirming ecological features have been adequately protected OR Drawings describing the location, details and type of ecological features and how they have been adequately protected. AND 2. Written evidence from the appropriate statutory body of any requirement to remove any features for health and safety and/or conservation reasons (where appropriate) AND 3. Written confirmation that all EU and UK law with regards to protected species have/will be adhered to (where appropriate) OR 4. Where evidence 1, 2 and 3 cannot be produced Compliant design stage commitment from the contractor or developer to; adequately protect ecological features 	<ol style="list-style-type: none"> 1. Detailed documentary evidence as listed for the design stage
	Exemplary Credit	
Req. 1	<ol style="list-style-type: none"> 1. A copy of the ecologist's report (in the format outlined in the Ecology Report Template) which: <ol style="list-style-type: none"> a. Clearly outlines the key and additional recommendations to protect ecological features 	<ol style="list-style-type: none"> 1. The following as appropriate: Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the developer that the dwelling/s

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	<ul style="list-style-type: none"> b. Confirms that all UK and EU legislation in relation to protected species has been met and recommendations go beyond these requirements c. Confirms that the ecologist meets the requirements set out in the definition of a Suitably Qualified Ecologist d. Confirms that the ecologist made a site visit prior to the commencement of the refurbishment works AND <p>2. Compliant design stage commitment from the contractor or developer detailing:</p> <ul style="list-style-type: none"> b. How the key recommendations and 30% of additional recommendations will be incorporated into the design c. The planting schedule of any species to be incorporated from Suitably Qualified Ecologists recommendations 	<p>have been refurbished in accordance with the detailed documentary evidence provided at the design stage. AND</p> <p>2. A building/site inspection report and photographic evidence.</p>

Additional Information

This page is intentionally blank.

Man 06 Project Management

Number of credits available	Minimum standards
2	No

Aim

To ensure delivery of a functional and sustainable refurbishment, designed and built in accordance with performance expectations.

Assessment Criteria

Up to two credits may be awarded for this issue along with the opportunity for an additional two innovation credits as follows:

First credit - Project Roles and Responsibilities

1. Where all of the project team are involved in the project decision making and individual and shared roles and responsibilities are assigned in accordance with CN1 and CN2 as follows:
 - a. For small scale projects, the project manager writes a project implementation plan and holds an initiation meeting to assign individual and shared responsibilities amongst the project team including all trades on site:
 - b. For large scale projects, the project manager assigns individual and shared responsibilities across the following key design and refurbishment stages:
 - i. Planning and Building control notification
 - ii. Design
 - iii. Refurbishment
 - iv. Commissioning and handover
 - v. Occupation

Second credit - Handover and Aftercare

2. Where a handover meeting is arranged
3. Where 2 or more of items a-c have been committed to determine project success:
 - a. A site inspection within 3 months of occupation.
 - b. Conduct post occupancy interviews with building occupants or a survey via phone or posted information within 3 months of occupation.
 - c. 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 occupation.

Exemplary Credit requirements

Up to two innovation credits are available as follows:

One credit – Early Design Input

4. Where a BREEAM Accredited Professional (AP) has been appointed at an early stage of the project, prior to the production of a refurbishment specification and to oversee key stages within the project.
Or
5. for small scale projects where a BREEAM Accredited Professional (AP) or BREEAM Domestic Refurbishment Assessor has been appointed at an early stage of the project, prior to the production of a refurbishment specification and to oversee key stages within the project.

Note: The appointment of a BREEAM Domestic Refurbishment Assessor early in the project may be the most appropriate option for small scale projects where the appointment of an AP (accredited professional) may not always be feasible.

One credit - Thermographic Surveying and Airtightness Testing

6. Where Thermographic surveying and Airtightness testing have been carried out at both pre and post refurbishment stages.
7. Where an improved air tightness target has been set at design stage and testing demonstrates that this has been achieved post refurbishment.

Assessment Procedure

Criteria	Procedure
	First Credit
1	<ol style="list-style-type: none"> a. Refer to Project team definition b. Refer to compliance notes: CN1 or CN2 and CN3 and CN4.
	Second Credit
2	<ol style="list-style-type: none"> a. Refer to CN15 b. Refer to Aftercare team definition
3	<ol style="list-style-type: none"> a. Refer to CN10 (where appropriate)
	Exemplary Credit One
4-5	<ol style="list-style-type: none"> a. Refer to compliance notes CN11 and CN12 b. Refer to the definition of BREEAM Accredited Professionals
	Exemplary Credit Two
6-7	<ol style="list-style-type: none"> a. Refer to definitions of Thermographic Studies and Airtightness testing b. Refer to CN13 Man 06 Project Management and CN14

Compliance Notes

Ref	Terms	Description
CN1	Small Scale Project decision making	For small scale projects, the project manager should assign individual and shared responsibilities as detailed in CN3 and CN4. This should be assigned amongst the project team including all trades on site, lead and sub contractors, architects, consultants and others involved in delivery of the project.
CN2	Large Scale Project decision making	In the case of large scale projects, roles and responsibilities should be assigned by the project manager during the following stages: <ul style="list-style-type: none"> — Planning and Building control notification

Ref	Terms	Description
		<ul style="list-style-type: none"> — Design — Refurbishment — Commissioning and handover — Occupation <p>Key design team meetings should be held to define and make key decisions that influence/affect the dwelling's proposed designs, and their refurbishment in accordance with the design (and therefore the dwelling's sustainability impacts and BREEAM performance). These meetings may be site or office based and would typically include representatives from at least three of the parties (below).</p> <ul style="list-style-type: none"> — Representatives of the Client / Developer — The Main Contractor — The Architect — Structural Engineers — Building Services Engineers — Cost Consultants — Environmental Consultants — Project Management Consultants <p>Team meetings must be related to the building under assessment.</p>
CN3	Individual Responsibilities	<p>Where it is the responsibility of one person (i.e. the project manager) to ensure the production and/or completion of the outlined tasks:</p> <ul style="list-style-type: none"> — Produce a timeframe for the project — Compile the scheduled evidence for the assessment — Determine Building Status i.e. Listed buildings and buildings in conservation areas — Occupier's budget and technical expertise in maintaining any proposed systems — Building control notification — Ensure the shared responsibilities are assigned and managed — To write project implementation plan and hold an initiation meeting
CN4	Shared Responsibilities	<p>Where it is the joint responsibility of the whole project team, to ensure the production and/or completion of the outlined tasks:</p> <ul style="list-style-type: none"> — End user requirements and building usage — Design aims. See Criteria CN7 — Particular installation and construction requirements. See Criteria CN8. — Usability and manageability of design solutions for the installer and end user of the building — Project team communication methods. See Criteria CN6. — Supply chains. See Criteria CN9. — Documents as required in schedule of evidence sections
CN5	Timeframe	<p>The timeframe should include contingency measures to ensure project flexibility and adaptability.</p>

Ref	Terms	Description
CN6	Communication methods	<p>This should ensure each interested party is kept up to date with any changes to the original plan and that all on-site trades are briefed with information required to ensure appropriate installation and/or protection of materials and appliances. For both large and small scale projects the most suitable way for onsite and offsite teams (where applicable) to contact each other should be agreed on and set up as early as possible. For large scale projects an individual could be assigned responsibility of conveying information from team meetings to those appropriate. It would also be this persons responsibility to select the most appropriate method of communication (e.g. in person, phone, email) for the level of detail that needs to be conveyed and time should be allocated for questions that may arise.</p> <p>For small scale projects any information should be communicated using the most appropriate method (e.g. in person, phone, email) for the level of detail that needs to be conveyed and time should be allocated for questions that may arise. Direct onsite communications is likely to be easier to implement on the small scale projects and should be adopted where possible.</p>
CN7	Design aims	<p>Where within the design aims the target BREEAM Domestic Refurbishment Rating is outlined along with the assessment issues that will be targeted. The design aims should be formed following a discussion and/or a site inspection with reference to a surveyors report (where available) which highlights any problems with the existing dwelling (e.g. rising damp, excessive condensation, thermal comfort etc.)</p>
CN8	Particular installation and construction requirements	<p>Refurbishment processes and any necessary product installation should comply with the following (where applicable):</p> <ul style="list-style-type: none"> — Installation/refurbishment instructions are handed onto appropriate onsite trades/contractors/installers i.e. those from product supplier or manufacturer — installation equipment is used as advised by the product supplier or manufacturer and appropriately calibrated — any consequential risks associated with the installation are identified, with actions identified as part of installation instructions to avoid risks e.g. avoidance of thermal bridging, rain penetration, condensation, fire in accordance with relevant building regulations approved documents e.g. Part B, Part L1b, Part F etc. — the requirement of additional training for installation is identified and implemented — the refurbishment process is recorded by the contractor including any changes to the specification including installation instructions (any changes should be agreed with the project team and comply with relevant requirements) — records should be kept to document any issues with product installation and remedial actions taken.

Ref	Terms	Description
CN9	Supply Chains	Supply chain identification is required to ensure that the correct specified products can be sourced within a reasonable distance, timeframe and through the most cost effective procurement routes.
CN10	Project success	<p>The methods employed to determine project success, require the following to be assessed in order for this credit to be awarded:</p> <ul style="list-style-type: none"> — levels of occupancy. — occupant thermal comfort. — adequacy of ventilation and lighting; level of energy consciousness. — identification of any defects post refurbishment. — identification of problems or concerns regarding the effectiveness of the refurbishment and its systems.
CN11	Key Stages	<p>A BREEAM Accredited Professional is appointed to ensure the implementation of the following key stages:</p> <ul style="list-style-type: none"> — Facilitate the setting of BREEAM related performance targets for the project, i.e. target BREEAM rating and individual assessment issues (credits). The AP is appointed no later than early RIBA Stage C (Concept Design) or equivalent. — Set up a contract between the client and design/project team to define BREEAM performance targets no later than RIBA Stage C (or equivalent). — Engaged to monitor and report progress against the BREEAM targets by attending key project/design team meetings during the feasibility, design stages, information production, tendering and construction stages. — Prepare regular written reports for the client and project team detailing progress against the defined BREEAM performance targets (as a minimum for each full design team meeting).
CN12	Key design team meetings	<p>Key design team meetings can be defined as those where key decisions that influence/affect the building's proposed design, and its construction in accordance with the design (and therefore the building's sustainability impacts and BREEAM performance), are discussed/made. These meetings may be site or office based and would typically include representatives from at least three of the following parties:</p> <ul style="list-style-type: none"> — Representatives of the Client / Developer — The Main Contractor — The Architect — Structural Engineers — Building Services Engineers — Cost Consultants — Environmental Consultants — Project Management Consultants <p>Team meetings must be related to the building under assessment.</p>

Ref	Terms	Description
CN13	Thermographic survey – for large projects	<p>The thermographic survey's must ensure that all elements of the building fabric that enclose an internal heated and/or conditioned (treated) zone of the building, including internal walls separating treated and untreated zones, will be tested. The thermographic surveys of the building fabric must be undertaken in accordance with the appropriate standard and by a professional holding a valid Level 2 certificate in thermography (as defined by the UK Thermography association (UKTA) website http://www.ukta.org).</p> <p>The surveys should be accounted for within the project budget and programme of works.</p> <p>The pre-refurbishment highlights areas with poor thermal performance, which the project should prioritise for improvement and use to inform an appropriate thermographic strategy.</p> <p>The post-refurbishment survey confirms:</p> <ul style="list-style-type: none"> — Continuity of insulation in accordance with the construction drawings — Avoidance of excessive thermal bridging — Avoidance of air leakage paths through the fabric (except through intentional openings) <p>Any defects identified via the post-refurbishment inspections are rectified.</p> <p>Trades onsite should be notified that these surveys are being carried out both pre and post refurbishment.</p>
CN14	Airtightness testing	<p>A pre- refurbishment air-tightness test of the building is undertaken in accordance with the following standards and is used to inform appropriate airtightness strategy:</p> <ul style="list-style-type: none"> — BSEN 13 187 Qualitative detection of thermal irregularities in building envelopes. Infrared method or BSEN 13829:2001 Determination of air permeability of buildings — ATTMA (the Air Tightness Testing and Measurement Association) Technical Standard 1 <p>A post project air-tightness test of the building is undertaken in accordance with the appropriate standards (as above) and highlights any defects identified via the post refurbishment testing which are then rectified.</p>
CN15	Handover Meeting	<p>This should be arranged as soon as possible after occupation. It should introduce the aftercare team and Home User Guide (where appropriate); present key information about how the building operates; and answer questions. Where appropriate it should also include demonstrations of newly installed equipment and an insight into their advantages. Information should be presented in a clear manner and with an appropriate level of technical terminology. Where the first credit has been achieved, the handover and any subsequent aftercare should also determine project success in accordance with compliance note 10.</p>

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
First Credit		
Req. 1	1. Written confirmation indicating when the collaboration began and the roles and responsibilities of the project team. This could be either: <ol style="list-style-type: none"> Meeting minutes Construction programme Responsibilities schedule Relevant section/clauses of the building specification or contract Project implementation plan (typically in the case of small scale projects) 	1. Detailed documentary evidence as listed for design stage
Second Credit		
Req. 2-3	1. Written confirmation of a commitment/contract to provide compliant aftercare support and training or a compliant design stage commitment to provide aftercare.	1. Detailed documentary evidence to show that there is a contract in place to provide aftercare OR evidence that there are procedures for aftercare in place and a commitment to implement them.
Exemplary Credit		
Req. 4-7	1. Written confirmation of the appointment of a BREEAM Accredited Professional (AP) or BREEAM Domestic Refurbishment Assessor including relevant section/clauses of the building specification or contract. AND 2. Written confirmation from the AP that the key stages have	1. A copy of the following; <ol style="list-style-type: none"> Post- Refurbishment thermographic survey Level 2 thermography certificate Post- Refurbishment Airtightness test results AND 2. Confirmation of remedied defects. AND

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	<p>been implemented. AND</p> <p>3. A copy of the following;</p> <ul style="list-style-type: none"> a. Meeting notes/minutes, recorded correspondence or schedules that can demonstrate AP or BREEAM Domestic Refurbishment Assessor attendance at key design team meetings and that BREEAM issues are/were a regular agenda item. b. Pre- Refurbishment Thermographic survey c. Level 2 Thermography certificate d. Re- Refurbishment Airtightness test results <p>AND</p> <p>4. Written confirmation from the refurbishment project manager of areas to be targeted as a result of the testing. AND</p> <p>5. Design stage BREEAM assessment report.</p>	<p>3. Final post construction assessment report AND</p> <p>4. Where post refurbishment only-In addition to the evidence listed above detailed documentary evidence as listed for the design stage</p>

References

1. Building Regulations 2010 - Approved document, Part L.
2. Carbon Trust : www.thecarbontrust.co.uk/
3. Energy Saving Trust www.energysavingtrust.org.uk/
4. WRAP – The Waste and Resource Action Plan www.wrap.org.uk
5. Act on CO₂ Go to www.direct.gov.uk for further information
6. <http://www.considerateconstructorsscheme.org.uk/>
7. CITES List, www.cites.org
8. Secured by Design – New Homes Guidance (PDF) www.securedbydesign.com
9. Secured by Design www.securedbydesign.com
10. Association of Wildlife Trust Consultants (www.awtc.co.uk)
11. Chartered Institute of Water and Environmental Management (www.ciwem.org.uk)
12. Institute of Ecology and Environmental Management (www.ieem.net)
13. Institute of Environmental Management and Assessment (www.ieem.ne)
14. Landscape Institute (www.landscapeinstitute.org)
15. For information on airtightness visit [Anderson Mechanical Services](http://www.andersonmechanicalservices.co.uk)
16. PAS 2030: 2012 (Draft). Improving the energy efficiency of existing buildings – Specification for installation process, process management and service
17. Town and Country Planning, England (General Development Procedure) Order 2006 Navigate to www.legislation.gov.uk

This page is intentionally blank.

Health and Wellbeing

Category overview

- Category weighting: 15%
- Minimum standards: Hea 05 Ventilation

Summary

The Health and Wellbeing category aims to improve the quality of life in homes by recognising refurbishments that encourage a healthy and safe internal environment for occupants including the following aspects during refurbishment:

- Minimising impacts on daylighting and encouraging enhanced daylighting
- Improving sound insulation values for separating walls and floors to Part E standards and beyond
- The specification of finishes which avoid the use of Volatile Organic Compounds
- Improving accessibility to the home and allowing for future adaptability
- Providing sufficient ventilation
- Providing fire and carbon monoxide detection

Category summary table

Issue	Issue name	Credits	Credit summary
Hea 01	Daylighting	2	First Credit—maintaining good daylighting levels Second Credit—achieving minimum daylighting standards
Hea 02	Sound Insulation	4	Credits are awarded for bringing the home up to and beyond national regulations. Criteria differ depending on the type of dwelling and whether sound testing is feasible.
Hea 03	Volatile Organic Compounds	1	One Credit—for avoiding the use of VOCs—assessed by ensuring applicable products have met European standards and testing requirements, or equivalent national standards.
Hea 04	Inclusive Design	2	All credits assessed against the accessibility template checklist First Credit—achieving minimum accessibility Second Credit—achieving advanced accessibility Exemplary credit—achieving a level of accessibility equivalent to lifetime homes and Part M compliance.
Hea 05	Ventilation	2*	First Credit—achieving minimum ventilation requirements for background, extract and purge ventilation. Second Credit—achieving advanced ventilation requirements in line with Building regulations Part F NB separate requirements for historic buildings

Issue	Issue name	Credits	Credit summary
Hea 06	Safety	1*	One Credit—implementation of appropriate fire and carbon monoxide detection and alarm systems.

Minimum standards are denoted by *

Hea 01 Daylighting

Number of credits available	Minimum standards
2	No

Aim

To improve the quality of life in homes through the provision of good daylighting and to reduce the need for energy to light the home.

Assessment criteria

Up to two credits may be awarded for this issue as follows:

First credit—maintaining good daylighting

1. For existing dwellings and change of use projects (e.g. conversions):
 - a. The refurbishment results in a neutral impact on the dwellings daylighting levels in the kitchen, living room, dining room and study with “no” answered for all questions in Checklist A-7; Daylight Factor, parts 1 and 2 (for existing dwellings) or parts 3 and 4 (for change of use e.g. conversions).
2. Where the property is being extended:
 - a. new spaces achieve minimum daylighting levels See Criteria CN1
 - b. the extension does not reduce daylighting levels in the kitchen, living room, dining room or study of neighbouring properties

Second credit—minimum daylighting

3. The dwelling achieves minimum daylighting levels in the kitchen, living room, dining room and study See Criteria CN1

Assessment Procedure

Criteria	Description
Criterion	First Credit
1	<ol style="list-style-type: none"> a. Obtain a completed copy of Checklist A-7; Daylight Factor b. Refer to definitions for further guidance on Checklist A-7
2	<ol style="list-style-type: none"> a. Obtain daylighting calculations for any new kitchen, living room, dining room or study in the extension referring to compliance note 2 and completing Hea 01 daylighting calculator b. Refer to compliance note 1 c. Confirm the daylighting calculations show the minimum daylighting levels have been met

Criteria		Description
Criterion	Second Credit	
3	<ul style="list-style-type: none"> a. Obtain daylighting calculations for the kitchen, living room, dining room and study referring to compliance note 2 and completing Hea 01 daylighting calculator b. Refer to compliance note 1 c. Confirm the daylighting calculations show the minimum daylighting levels have been met for the kitchen, living room, dining room and study 	
Compliance notes		
CN1	Minimum daylighting levels	<p>First Credit—New spaces created from an extension</p> <ol style="list-style-type: none"> 1. Where any new spaces created meet a minimum average daylight factor including: <ul style="list-style-type: none"> a. Where kitchens achieve a minimum daylight factor of at least 2% b. Where living rooms, dining rooms and studies achieve a minimum average daylight factor of at least 1.5% c. Where 80% of the working plane in each new space including kitchens, living rooms, dining rooms and studies, receive direct light from the sky. 2. Where the dwelling is extended (including loft conversions), 80% of the working plan in each new spaces created including a kitchen, living room, dining room and study, receives direct light from the sky 3. There is a neutral impact on existing spaces as a result of refurbishment in accordance with criterion 1 <p>Second Credit—Existing dwellings and dwellings created from a change of use (i.e. conversions):</p> <p>One credit is awarded where the dwelling achieves the following daylighting criteria:</p> <ol style="list-style-type: none"> 1. Where kitchens achieve a minimum daylight factor of at least 2% 2. Where living rooms, dining rooms and studies achieve a minimum average daylight factor of at least 1.5% 3. Where 80% of the working plan in the kitchen, living room, dining room and study, receives direct light from the sky
CN2	Daylighting Calculation procedures	<p>In all cases it is recommended that calculations are supplied by a daylighting expert. Where this is not possible, the BREEAM Domestic Refurbishment Assessor should carry out a reasonableness check of any calculations provided, cross referencing against building dimensions used in SAP calculations or carry out the calculations themselves using the Hea 01 calculator. For large scale projects, checks should be performed on one room per dwelling, in 10% of dwellings up to a maximum of 10 dwellings per site.</p> <p>Calculation procedures for Daylight Factor (DF) and typical values are detailed in Littlefair (1998) (4):</p> <ul style="list-style-type: none"> — The DF formula can be used to model daylighting conditions in any simple rectangular room with a continuous external obstruction or

Compliance notes

		<p>none. For L-shaped rooms, it is acceptable to divide the room into two sections and calculate the DF for each section based only on the windows present in that section. The DF of both sections can then be averaged to give a final result.</p> <ul style="list-style-type: none"> — Where external obstructions are of complex geometry and cannot be approximated by a continuous object, it is advisable to use the methodology in Littlefair (1998) (4). Individual trees can be ignored. — More complex room geometries can be modelled using computer simulation software, physical scale modelling or advanced manual calculations. BREEAM does not specify 'compliant' computer software. The individual carrying out the daylighting calculations must select the most appropriate. — Where there are two types of room which form part of the same large space, for example, an open-plan kitchen-dining room, calculate as one room as there is no solid partition present to block the distribution of the daylight. Credits will then be awarded on the basis of the DF of the whole space. For example, if the space is used as a kitchen, a living room and a dining room, the same DF will be used when assessing all these areas against the levels set out above. — When two or more windows in a room face different obstructions (e.g. vertical windows and roof lights) or differ in transmittance, the DF should be found separately for each window, and the results summed. — Plotting of the no-sky line or estimating the percentage of the working plane that receives direct light from the sky can be done using the Hea01 Daylighting calculator. It must be understood that this methodology will underestimate the actual percentage of the working plane that receives direct light from the sky because obstructions are unlikely to be infinite. Where obstructions are not horizontal, parallel to the window or considered infinite, refer to Littlefair (1998) (4) for a more accurate methodology. — Seeking expert advice is recommended to carry out daylighting calculations as mentioned above. However, assessors are not prohibited from performing calculations. It is up to the assessor and project team to judge whether the assessor has sufficient expertise to do this. Further guidance on how to complete calculations can be found in BS 8206-2:2008, Lighting for buildings—Part 2: Code of practice for daylighting (2).
CN3	Sun pipes	<p>As a general rule, sun pipes should be treated as roof lights, i.e. if there are no obstructions use a u of 180°. There are a wide range of light pipes on the market with different reflective linings and some include lenses/mirrors etc. If no transmission factor is stated, use $T=0.5$ for a 1 m length pipe and $T=0.25$ for a 2 m length pipe</p>

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
Req 1, 2 & 3	<ol style="list-style-type: none"> 1. A completed signed and dated copy of Checklist A-7; Daylight Factor, parts 1 and 2, or parts 3 and 4 as relevant. AND Where relevant, calculations to demonstrate: 2. Average daylight factor using the the Hea01 calculator. AND 3. Position of the no-sky line and percentage of area of the working plane that receives direct light from the sky. 	<ol style="list-style-type: none"> 1. Where Post Refurbishment assessment only OR where documentary evidence differs from that provided at the Design Stage, then provide detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed evidence provided at the Design Stage OR On-site measurements (methodology detailed in BRE IP 23/93 (1)) in the same rooms assessed at Pre-refurbishment stage (required when scale model measurements were carried out at Pre-refurbishment Stage).

Additional information

None

Hea 02 Sound Insulation

Number of credits available	Minimum standards
4	No

Aim

To ensure the provision of acceptable sound insulation standards and so minimise the likelihood of noise complaints.

Assessment criteria

The following demonstrates compliance (up to four credits may be awarded):

Up to four credits are awarded—achieving and going beyond national Regulations

Credits are awarded depending on the type of dwelling and whether they are subject to sound testing as follows:

Properties where sound testing has been carried out:

1. Where sound testing has been carried out and where the dwelling meets or goes beyond Regulations, up to four credits may be awarded according to the sound insulation credit requirements as shown in Table - 12: sound insulation credit requirements.

Properties where sound testing is not feasible (see CN4 and CN5) and not required by the appointed Building Control body:

2. Where existing separating walls and floors are designed to meet the requirements of Building Regulations with compliant construction details, two credit can be awarded (CN6).
3. Where a Suitably Qualified Acoustician (SQA) provides recommendations for the specification of all existing separating walls and floors, confirming in their professional opinion that they have the potential to meet or exceed, the sound insulation credit requirements. Where these recommendations are implemented up to four credits may be awarded as shown in Table - 12: sound insulation credit requirements.

Historic Buildings

4. 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 credits may be awarded as shown in Table - 12: sound insulation credit requirements table (insulation credits for historical buildings) and described in CN10.

Detached Properties

5. Where the dwelling is a detached property with no separating walls or floors, four credits should be awarded

Properties with separating walls or floors only between non habitable rooms

6. Where existing separating walls or floors only occur between non habitable rooms and where testing is not required by the appointed building control body, four credits should be awarded, see CN3.

Assessment Procedure

Criterion	Up to four credits
1	a. Testing results from an SQA to confirm the sound insulation credit requirements (additional information section) are met for impact and airborne sound for all separating walls and floors.
2	a. Specification details confirming that separating walls and floors meet the requirements set out in Part E with compliant construction details (refer to compliance note 6).
3	a. Evidence from an SQA that the construction details meet the sound insulation credit requirements (additional information section).
4	a. Confirmation that the building is a Historic Building with evidence from an SQA that the Historic Building credit requirements are met (refer to compliance note 10)
5	a. Evidence to show that the dwelling is a detached property
6	a. Evidence to show that the dwelling only has separating walls or floors between non habitable rooms and that Part E testing is not required. b. Refer to the definitions of; non habitable rooms and appointed building control body

Compliance Notes

Ref	Terms	Description
CN1	Pre-completion testing	Pre-completion testing (Robust Details cannot be used for refurbishments) must be conducted by a compliant testing body to demonstrate the lowest-performing separating wall or floor. The number of credits awarded to a dwelling is determined by the lowest performing separating wall or floor. The performance of the lowest performing separating wall or floor (taken from all specific plots, groups and sub-groups combined) must be clearly identified by the compliant test body appointed to the project.
CN2	Regulatory baseline	The selection of regulatory performance standards applicable to the project is down to the discretion of the appointed building control body, but will in most cases be taken from Table 01a AD part E. Based on normal practice, targets are given below for each project type:

Ref	Terms	Description																		
		<table border="1"> <thead> <tr> <th>Project type</th> <th>Element</th> <th>Airborne sound insulation (dB)</th> <th>Impact sound insulation (dB)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Materials alterations (refurbishment)</td> <td>Walls</td> <td>≥43</td> <td>n/a</td> </tr> <tr> <td>Floors and stairs</td> <td>≥43</td> <td>≥64</td> </tr> <tr> <td rowspan="2">Material change of use (including loft conversions)</td> <td>Walls</td> <td>≥43</td> <td>n/a</td> </tr> <tr> <td>Floors and stairs</td> <td>≥43</td> <td>≥64</td> </tr> </tbody> </table> <p>Where the refurbishment project covers a significant number of dwellings/buildings, the building control body should identify specific dwellings/buildings, groups and sub-groups to be tested. The dwellings in a group or sub-group that have been tested are awarded credits appropriate to their measured performance. Other dwellings in the group or sub-group that are not tested are awarded the same number of credits as the lowest performing separating walls or floors in the same group or sub-group that was tested.</p> <p>Where insufficient suitable separating walls or floors prevent carrying out the number of tests specified required by AD E, the Building Control Body will typically exercise their discretion to require all of the available suitable separating walls or floors to be tested. Credits can then be awarded based upon the lowest performing wall or floor.</p> <p>Remedial work may be necessary to reach desired performance standards. Remediation should be carried out on the entire separating wall or separating floor construction and across the entire site covered by the assessment. Re-tests should be carried out to confirm that the performance standards have been met. Should the developer consider that only a localized defect caused the failed tests, this should be documented. In addition, this should be supported by an assessment from a suitably qualified acoustician based on additional testing at other locations on the site that have not been remediated.</p> <p>Specifying structures to the typical types found in Sections 2, 3, 4 and 6 of the Approved Document E (2003 edition, Building regulations England and Wales) will NOT, in itself, be sufficient to achieve the credits. All other conditions of the Issue must be met.</p>	Project type	Element	Airborne sound insulation (dB)	Impact sound insulation (dB)	Materials alterations (refurbishment)	Walls	≥43	n/a	Floors and stairs	≥43	≥64	Material change of use (including loft conversions)	Walls	≥43	n/a	Floors and stairs	≥43	≥64
Project type	Element	Airborne sound insulation (dB)	Impact sound insulation (dB)																	
Materials alterations (refurbishment)	Walls	≥43	n/a																	
	Floors and stairs	≥43	≥64																	
Material change of use (including loft conversions)	Walls	≥43	n/a																	
	Floors and stairs	≥43	≥64																	
CN3	Attached dwellings with	Part E1 of AD E is concerned with the transmittance of neighbour noise between habitable rooms (i.e. bedroom to bedroom; living room to living room; living room to bedroom etc). If there are no																		

Ref	Terms	Description
	separating walls or floors between non habitable rooms	habitable rooms with separating walls or floors no testing may be required by the appointed building control body and 4 credits can be awarded by default.
CN4	Where pre-completion testing is not possible	<p>In the case of material alterations to, or changes of use to existing buildings, it may not be possible to conduct pre-completion tests where adjoining properties remain occupied, furnished or inaccessible. In this situation and where testing is required by the appointed building control body, justification should be made to the appointed building control body who will make the decision to either</p> <ul style="list-style-type: none"> — Accept existing construction meets the applicable performance standards of Part E without the need for remedial work. This would be the case if the construction was generally similar (including flanking constructions) to one of the constructions in Sections 2 and 3 of the AD as detailed in compliance note 5; where field test data from previous developments demonstrating similar construction as compliant; or expert advice from an SQA. OR — Require remedial treatment to result in reaching the applicable performance standards of Part E (without testing). <p>For BREEAM for Domestic Refurbishments, developers must seek advice from an SQA when specifying additional sound insulation to meet the stretch targets (3, 5, 8 dB) set out in the Part E credit requirements below.</p>
CN5	Where pre-completion testing is not required	In the case of material alterations to existing buildings, pre-completion testing may not be required by the appointed building control body. Where this is the case and confirmation can be provided from the building control body, two credits can be achieved where compliant construction details are specified as detailed in compliance note 6. Up to 3 additional credits may be awarded where pre-completion testing is carried out to demonstrate that compliance note 9 has been met. Where pre-completion testing is not possible refer to compliance note 4.
CN6	Compliant construction details	<p>For dwellings where testing is not required by the appointed building control body:</p> <p>When an appropriately qualified acoustician has not been appointed for the project, two credits may be awarded where a detailed assessment from the design team demonstrating that the design and construction work has been made in full accordance with Approved Document E. The assessment must include, as a minimum, direct reference to the listed constructions for separating walls and floors within the Approved Document stating how each element complies with the guidance and shall include references to the minimum material thicknesses, densities and weights as appropriate for; the separating structure(s), external wall constructions, service</p>

Ref	Terms	Description
		penetrations, electrical fixing detailing and junctions with adjoining structures. This approach is only likely to be appropriate for the most simple of projects and, if full compliance with the detailing and guidance cannot be demonstrated, then a design statement from a Suitably Qualified Acoustician should be provided.
CN7	Suitably Qualified Acoustician (SQA)	An individual who holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics. Due to the level of competence required to ensure adequate level of sound insulation, for the purpose of this issue, it is necessary to consult with a suitably qualified acoustician in order to achieve more than one credit (except for detached dwellings and dwellings with separating walls and floors between non habitable rooms). This may not be feasible for all refurbishment projects however this is to ensure that investment made in achieving more advanced sound insulation is based on sound advice due to the specialist nature of improving sound insulation within existing buildings.
CN8	Assessments outside of England and Wales	In reference to CN6 note that the same BREEAM for Domestic Refurbishments criteria are set throughout the UK i.e. even though the performance levels are based on the regulations in England and Wales, performance targets taken from Part E must form the basis of assessment for homes assessed in Northern Ireland and Scotland.
CN9	Part E Credit Requirements	For attached dwellings with separating walls or floors between habitable rooms and where sound testing is required by the appointed building control body: Testing results should be provided from a compliant test body to confirm that the airborne and impact sound insulation values have been met. For attached dwellings with separating walls or floors between habitable rooms but where testing is not required for building control purposes: Two credits can be awarded where separating walls and floors are designed to meet the flanking construction details set out in Part E. Where a design statement from an SQA or previous test results on comparable construction from an SQA confirms the potential for all Post-refurbishment separating wall or floor types to meet or go beyond the relevant performance standards of Part E, up to four credits can be awarded as detailed in Table - 12 and Table - 13.
CN10	Historic Buildings Credit Requirements	For attached dwellings within Historic Buildings, as defined by Approved Document E fulfilling the requirements of Paragraph 0.8, the following credit requirements apply: Pre-completion testing should be carried out before and after refurbishment by a Suitably Qualified Acoustician to determine whether the sound insulation values for historic buildings have been met as found in the additional guidance below.
CN11	Robust details	Only completely new constructed dwellings are permitted to

Ref	Terms	Description
		register under the Robust Details scheme. Robust Details applies to complete new separating elements and their associated flanking construction. Robust details are therefore not recognised as compliant evidence for awarding credits under this issue.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
Req 5 and 6	Detached dwelling/s: 1. Drawings or written confirmation from the developer confirming no separating construction between neighbouring habitable rooms	Detached and semi-detached dwelling/s: 1. Detailed documentary evidence as listed for the Design Stage.
Req 1 and 4	For properties where sound testing will be carried out: 1. Written confirmation from the developer confirming the intent to: <ul style="list-style-type: none"> a. Meet the relevant sound insulation performance levels b. Use a Compliant Test Body to complete testing OR Evidence as listed for the Post-refurbishment stage	Where pre-completion testing has been carried out: 1. Copies of the sound insulation field test results and/or a letter of confirmation from the suitably qualified acoustician that the required sound insulation performance standards as detailed in the assessment criteria have been achieved.
Req 2 and 3	Attached dwelling/s with separating walls or floors between habitable rooms but where testing is not required for building control purposes: 1. A copy of the suitably qualified acoustician's design statement including rec-	Where pre-completion testing is not required for building control purposes: 1. Detailed documentary evidence as listed for the Design Stage AND 2. A building/site inspection report and photographic

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	<p>ommendations to meet the relevant sound insulation performance levels and written confirmation that these recommendations have been implemented</p> <p>OR</p> <p>Previous test results on comparable construction with confirmation from the suitably qualified acoustician of the potential to meet the relevant sound insulation performance standards</p> <p>AND</p> <p>2. Written confirmation from either the building control body or a suitably qualified acoustician stating the reasons that testing is not required.</p>	<p>evidence confirming dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the Design Stage.</p> <p>OR</p> <p>Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the Design Stage</p>

Additional information

Tables

Table - 11: Sound insulation values for historic buildings

Credits	Airborne Sound Insulation values	Impact Sound Insulation values
1 credit	No worse than the values determined pre-refurbishment	
2 credits	3dB higher than before refurbishment	3dB lower than before refurbishment
3 credits	6dB higher than before refurbishment	6dB lower than before refurbishment
4 credits	9dB higher than before refurbishment	9dB lower than before refurbishment

Table - 12: sound insulation credit requirements

Credits	England & Wales	Scotland	Northern Ireland
Airborne sound insulation values			
1 Credit	Part E compliance	Section 5 compliance	Part G compliance
2 Credits	3dB higher than Part E	3dB higher than Section 5	3dB higher than Part G
3 Credits	6dB higher than Part E	6dB higher than Section 5	6dB higher than Part G
4 Credits	9dB higher than Part E	9dB higher than Section 5	9dB higher than Part G

Table - 13: Impact sound insulation values

Impact sound insulation values			
Credits	England & Wales	Scotland	Northern Ireland
1 Credit	Part E compliance	Section 5 compliance	Part G compliance
2 Credits	3dB lower than Part E	3dB lower than Section 5	3dB lower than Part G
3 Credits	6dB lower than Part E	6dB lower than Section 5	6dB lower than Part G
4 Credits	9dB lower than Part E	9dB lower than Section 5	9dB lower than Part G

Hea 03 Volatile Organic Compounds

Number of credits available	Minimum standards
1	No

Aim

To recognise and encourage a healthy internal environment through the specification of internal finishes and fittings with low emissions of volatile organic compounds (VOCs).

Assessment criteria

The following demonstrates compliance;

One credit—avoiding the use of VOCs

1. Where all decorative paints and varnishes used in the refurbishment have met the requirement in Table - 14.
2. Where at least five of the eight remaining product categories listed have met the testing requirements and emission levels for Volatile Organic Compound (VOC) emissions against the relevant standards identified in Table - 14.
3. Where five or less products are specified within the refurbishment, all must meet the requirements in order to achieve this credit.

Assessment Procedure

Criterion	Up to four credits
1	<ol style="list-style-type: none"> a. Identify the decorative paints and varnishes used in the refurbishment b. Refer to Table - 14 to identify the standards required for each type of decorative paint and varnish used in refurbishment
2 & 3	<ol style="list-style-type: none"> a. Identify which remaining products are specified in the refurbishment from Table - 14. b. Collect evidence from manufacturers for at least 5 of the remaining products to confirm they meet the relevant standards identified in Table - 14.

Compliance Notes

Ref	Terms	Description
CN1	Furnishings	The scope of this BREEAM issue does not extend to furnishings e.g. desks/shelving, it focuses on the key internal finishes and fittings integral to the building.

Ref	Terms	Description
CN2	Relevant standards—VOC's	All standards outlined in Table - 14 are standards recognised across Europe for VOCs content and testing. These are the only standards that will be accepted by BREEAM for the purpose of this issue.
CN3	Alternative to testing for VOC's	<p>For decorative paints and varnishes, where the product manufacturer states that the method to determine the VOC content in a product is to use a calculation technique rather than testing in accordance with BS EN 13300:2001, this will be acceptable for the purposes of BREEAM compliance provided the manufacturer has confirmed the following:</p> <p>The calculation method is acceptable for the purpose of compliance with the European Regulation on Classification, Labelling and Packaging of Substances and Mixtures (CLP), or where in transition to CLP, the UK Chemicals (Hazard Information and Packaging for Supply) Regulations 2009, and the product complies with the Decorative Paint Directive 2004/42/CE.</p> <p>The manufacturing process i.e. the paint/varnish formulation and raw material mixing, is carried out in accordance with a ISO 9001 (or equivalent) certified quality management procedure.</p>
CN4	Products with no formaldehyde containing materials	<p>For some floor coverings and wood based panels, the requirement for formaldehyde testing (referred to in the above criteria) does not apply. This is the case for "floor coverings to which no formaldehyde-containing materials were added during production or post-production processing," or in the case of EN 13986:2004, wood-based panels.</p> <p>As such, if a product manufacturer confirms that they have made a declaration of Formaldehyde class E1 without testing (in writing or via a company product fact sheet/literature) then the product in question meets the BREEAM requirement relevant to Formaldehyde testing. A declaration of E1 without testing is effectively confirmation from the manufacturer that formaldehyde emissions comply with the emission level requirements of the relevant standard(s) therefore evidence confirming the actual emission level(s) via testing will not be required by the Assessor to demonstrate compliance with that particular requirement.</p>
CN5	Alternative standards	<p>In instances where a product is not assessed against the European standards set out in Table - 14, it is acceptable to use an alternative nationally recognised standard so long as the following is met as a minimum:</p> <ul style="list-style-type: none"> — The performance level requirements required by the alternative standard are equivalent to or better than those specified in the EN standard. (For example for resilient, textile and laminated floor coverings, if a material containing formaldehyde has been added to the floor covering product as a part of the production process then the E1 emission measured for formaldehyde must be less than 0.124mg/m³.) — Where an alternative standard omits evaluation of a particular material, it is only acceptable to use the alternative standard in instances where the product does not contain that particular

Ref	Terms	Description
		material.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
First Credit		
Req. 1–3	1. Compliant design stage commitment that the VOC content of the relevant specified product types will comply with the standards specified within the criteria.	1. For each relevant product, a formal letter from or copies of the manufacturer's literature confirming: <ol style="list-style-type: none"> The standard(s) against which the product is tested The VOC emissions achieved The VOC emissions meet the required level.

Additional information

Table - 14: VOC requirements by product type

Product	European Standard	Emission level required
Decorative paints and varnishes	BS EN 13300:2001 (24) referred to the requirements of Decorative Paint Directive 2004/42/CE	VOC (organic solvent) content (testing req. 6), requirement for Phase 2. Fungal and algal resistant.
Wood Panels <ul style="list-style-type: none"> — Particleboard, — Fibreboard including MDF, — OSB, — Cement-bonded particleboard — Plywood — Solid wood panel and acoustic board 	EN 13986:2004 (13)	Formaldehyde E1 in accordance with EN 3986:2004 Annex B (see also compliance notes) Verify that regulated wood preservatives are absent as defined by the standard.
Timber Structures	EN 14080:2005 (14)	Formaldehyde E1 (Testing req 1)

Product	European Standard	Emission level required
— Glued laminated timber		
Wood flooring — parquet flooring	EN 14342:2005 (15)	Formaldehyde E1 (Testing req. 1) Verify that regulated wood preservatives are absent as defined by the standard.
Resilient, textile and laminated Floor coverings — Vinyl/linoleum — Cork and rubber — Carpet — Laminated wood flooring	EN 14041:2004 (16)	Formaldehyde E1 (Testing req. 1) Verify that regulated preservatives are absent as defined by the standard.
Suspended ceiling tiles	EN 13964:2004 (17)	Formaldehyde E1 (Testing req 1). No asbestos.
Flooring adhesives (and if relevant adhesives for rigid wall coverings)	EN 13999–1:2007 (18)	Verify that carcinogenic or sensitising volatile substances are absent.(Testing req. 2–4)
Wall-coverings — Finished wall-papers — Wall vinyls and plastic wall-coverings — Wallpapers for subsequent decoration. — Heavy duty wall-coverings — Textile wall-coverings	EN 233:1999 (19) EN 234:1997 (20) EN 259:2001 (21) EN 266:1992 (22)	Formaldehyde (Testing req. 5) and Vinyl chloride monomer (VCM) (Testing req. 5) release should be low and within the BSEN standard for the material. Verify that the migration of heavy metals and other toxic substances are within the EN standard for the material.
Adhesive for hanging flexible wall-coverings (for rigid wall coverings use flooring adhesives criteria)	BS 3046:1981 (23)	No harmful substances and preservatives used should be of minimum toxicity.
Testing requirement: 1. EN 717–1:2004 (25) 2. EN 13999–2:2007—Volatile Organic Compounds (VOCs) (18) 3. EN 13999–3:2007—Volatile aldehydes (18) 4. EN 13999–4:2007—Volatile diisocyanates (18) 5. EN 12149:1998 (26) 6. BSEN ISO 11890–2:2006 (27)		

This page is intentionally blank.

Hea 04 Inclusive Design

Number of credits available	Minimum standards
2	No

Aim

Adopting an inclusive design approach to optimise the accessibility of the home and its future adaptability to cope with changing needs of a household, such as old age, frailty, a short or long-term disability or a debilitating illness.

Assessment criteria

The following demonstrates compliance (up to two credits may be awarded):

One credit—minimum accessibility

1. An access expert or suitably qualified member of the design team (CN6) has completed section 1 of Checklist A8; Access Statement Template, accessibility template with evidence provided of the measures implemented in the refurbishment
 - a. The access statement demonstrates reasonable provision to provide accessibility to the dwelling covering section 1 of Checklist A-8 in accordance with CN3 and CN4.

Two credits—advanced accessibility

2. An access expert or suitably qualified member of the design team (CN6) has completed sections 1 and 2 of Checklist A8; Access Statement Template with evidence provided of the measures implemented in the refurbishment
 - a. The access statement demonstrates reasonable provision to provide accessibility to the dwelling covering sections 1 and 2 of Checklist A-8 in accordance with CN3 and CN4.

Exemplary performance requirements—lifetime homes and Part M

The following outlines the exemplary level criteria to achieve an innovation credit for this BREEAM issue:

3. One innovation credit can be awarded where an access expert suitably qualified member of the design team (CN6) has completed sections 1, 2 and 3 of Checklist A8; Access Statement Template, access statement template with evidence provided of the measures implemented in the refurbishment
 - a. The access statement demonstrates reasonable provision to meet sections 1, 2 and 3 of Checklist A-8 in accordance with CN3 and CN4.

Assessment Procedure

Criterion	First two credits and exemplary performance requirements
All	<ol style="list-style-type: none"> a. Obtain a completed copy of Checklist A8; Access Statement Template, accessibility statement from the access expert or suitably qualified member of the design team. This should be based upon a site visit to assess existing access. b. Check whether there is reasonable provision to meet parts 1–3 of Checklist A-8 including evidence that provision has been made within the design spec-

Criterion	First two credits and exemplary performance requirements
	ification, awarding credits as appropriate

Compliance Notes

Ref	Terms	Description
CN1	Extensions to existing dwellings	Where the building is being extended, the extension must comply with the recommendations set out in the access statement, these being within the scope of work being undertaken (e.g. if no entrance level WC is being installed to the extension, it will not have to be provided in the existing, unaltered part of the property to satisfy Section 10 of Part M).
CN2	Alterations degrading accessibility	<p>In all cases, the building must be no less compliant with any requirements than it was prior to alteration (under regulation 4(2) of Part M there is a requirement that, where dwellings are altered, they should not be made less compliant with Part M than they were before the work began. This is regardless of whether the building was previously subject to the regulations or not).</p> <p>Examples of bad practise could include</p> <ul style="list-style-type: none"> — the replacement of existing external doorsets with new frames incorporating a threshold beyond 15mm in height — door widths decreasing below Part M requirements — gently sloping pathways being replaced with steps after earth-work alterations
CN3	Assessing a completed Access Statement	<p>Whilst it is accepted that access improvements may not always be practical given the restrictions of the pre-refurbishment situation (size constraints being one example of this), the overarching aim must be to make improvements as far as practical. To gauge whether this has been achieved, BREEAM assessors should exercise their professional judgement when reviewing access statements provided by the project manager, inclusive design champions or NRAC Auditors.</p> <p>The following should be taken as a list of determinants to the result of this decision:</p> <ul style="list-style-type: none"> — Have access improvements been considered a key objective of the refurbishment project by the project team? — Has consideration towards inclusive design been made by the project team from the earliest stages in the development process? — Have accessibility improvements been completed as far as practicable given the scope of the refurbishment programme itself—i.e. replacement work has met all applicable criteria but potentially not those related to other elements left unaltered. — Have accessibility requirement been completed as far as practical given the restrictions posed by existing design and construction of the dwelling and its plot? — In all cases, the building must be no less compliant with any requirements than it was prior to alteration.

Ref	Terms	Description
		Assessors must sign the Access Statement to confirm the Statement as acceptable. Assessors may withhold credits where insufficient consideration is given towards inclusive design principles, until additional improvements are committed to (at the Pre-refurbishment stage), and/or implemented (at the Post-refurbishment stage).
CN4	Acceptable restrictions	<p>The Access Statement will allow a project team to identify the constraints imposed by the existing structure and its immediate environment and to propose compensatory measures where full compliance proves to be impracticable. This will allow for an explanation to be provided where a less than- fully compliant or alternative design solution is proposed. When considering alternative arrangements, design teams should refer to the recommendations of</p> <ul style="list-style-type: none"> — BS8300:2009 (44) — DD266:2007 (45) — Wheelchair housing design guide. 2nd edition (46) — Other examples of good practise relating to inclusive design in refurbishment projects including those referenced below.
CN5	Access Statement Template	<p>In the case of a registered NRAC Consultant not being appointed to the project, the Access Statement template must be completed by either a NRAC Auditor or inclusive design champion. The Access Statement template allows project teams to clearly demonstrate compliance with Part M, Lifetime Homes (41) and other requirements relating to external storage facilities. Additional useful guidance on how to complete access statements can be found at:</p> <ul style="list-style-type: none"> — Commission for Architecture in the Built Environment—Guidance Note on Inclusive Design — www.cabe.org.uk (47) — Disability Rights Commission—Access Statements www.sfc.ac.uk/ (48) <p>For each requirement, statements must include a written description of provision at pre-development, along with details of restrictions or limitations, followed by a description of the practical solution achieved at post-development to meet requirement. photos, maps and drawings may be needed to further illustrate the points made. Further ancillary uses may include informing building regulations compliance as well as demonstrating obligations set out by either the Disability Discrimination Act (50) or Disability Equality Duty (51) has been meet. Design and Access Statements needed within planning applications should relate specifically to the planning stage of the development and as such will not typically be as far-reaching as that provided for Hea 04. Although not a requirements of the Issue, Information from the Access Statement can be included in any home user guide to highlight and explain inclusive design features of the property.</p>
CN6	Access experts or suitably	Appropriately qualified access experts may come from within or outside the project team. Assessors, designers, consultants and others may act as an access expert provided they fulfil one of the requirements below:

Ref	Terms	Description
	qualified members of the design team	<ul style="list-style-type: none"> — NRAC access auditor — NRAC consultant — Inclusive design champions may be appointed from within the existing design team provided they possess the minimum core competences and skills requirements listed by the National Register of Access Consultants (NRAC) for Access Auditors (actual qualification is not required). For information on skills and competencies see: http://www.nrac.org.uk <p>For a list of registered NRAC Access Auditors and NRAC Access Consultants please visit the NRAC website, URL given above.</p>

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
Two Credits		
Req. 1–2	<ol style="list-style-type: none"> 1. A copy of the Access Statement completed by the inclusive design champion/NRAC Auditor's/NRAC Consultant to address the requirements of Sections 6–9 of Part M. In all cases the Access Statement is signed by the developer and, when completed by an inclusive design champion or NRAC Auditor, the appointed assessor. 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the design stage. AND 2. Building/site inspection report and photographic evidence.
Exemplary performance		
	<ol style="list-style-type: none"> 1. A copy of the Access Statement completed by the inclusive design champion/NRAC Auditor's/NRAC Consultant to address the requirements of Lifetime Homes (41). In all cases the Access Statement is signed by the developer and, when completed by an inclusive design champion or NRAC Auditor, the 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence pro-

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	appointed assessor.	vided at the design stage. AND 2. Building/site inspection report and photographic evidence.

Additional information

None

This page is intentionally blank.

Hea 05 Ventilation

Number of credits available	Minimum standards
2	Yes

Aim

To recognise and encourage a healthy internal environment through the provision of appropriate ventilation levels to provide fresh air and avoid problems associated with the build up of pollutants and humidity levels without excessive heat loss.

Assessment criteria

The following demonstrates compliance:

One credit—minimum ventilation requirements

One credit can be awarded where the dwelling meets the following levels of ventilation:

1. A minimum level of background ventilation (CN1) is provided (with trickle ventilators or other means of ventilation) for all habitable rooms, kitchens, utility rooms and bathrooms;
2. A minimum level of extract ventilation (CN2) with heat recovery is provided in wet rooms (e.g. kitchen, utility and bathrooms) which comply with Building Regulations Approved Document Part F with the addition of heat recovery.
3. A minimum level of purge ventilation (CN3) is provided in habitable rooms and wet rooms.
4. The building is a historic building (CN4) and meets the requirements for Historic Buildings below.

Two credits—advanced ventilation

Two credits can be awarded where:

5. Ventilation is provided for the dwelling that meets the requirements of Section 5 of Building Regulations Part F in full
6. Where the building is a historic building and meets the requirements for Historic Buildings (CN4).

Assessment Procedure

Criterion	Two credits
All	<ol style="list-style-type: none"> a. Identify current levels of background, extract and purge ventilation in the dwelling against the requirements set out in the compliance notes b. Identify if the dwelling is a Historic Building (see definitions) and if so refer to CN4. c. Identify provision being made as a result of refurbishment and award the appropriate number of credits in accordance with the assessment criteria, compliance notes and relevant definitions.

Compliance Notes

Ref	Terms	Description
CN1	Minimum background ventilation	<p>Minimum background ventilation in the form of trickle ventilation should be provided as follows as defined in Building Regulations Part F, Section 7:</p> <ul style="list-style-type: none"> — Habitable rooms: 2500 mm² openable area — Kitchens, utility rooms and bathrooms: 2500mm² openable area — New rooms (in the case of an extension): 8000mm² openable area <p>Where background ventilation is provided in accordance with section 5 of Building Regulations Part F, this can also be deemed compliant. Part F requires background ventilation to be provided where new rooms are being added or where windows are being replaced and no background ventilation was provided before. BREEAM Domestic Refurbishment requires a minimum level of background ventilation to be provided across the dwelling in order for credits to be awarded for this issue.</p>
CN2	Minimum extract ventilation	<p>Minimum extract ventilation with heat recovery should be provided with one of the following in accordance with section 5, Building Regulations part F:</p> <ul style="list-style-type: none"> — An intermittent system with minimum extract rates in accordance with Part F table 5.1 a , with fans not located within 500mm of another ventilator — Passive stack ventilation with continuous extract in accordance with Approved Document Part F table 5.2 b . — Continuous mechanical extract with the following extract rates, making no allowance for infiltration <ul style="list-style-type: none"> — Kitchen: 13 l/s — Bathroom/utility room: 8 l/s; and — Sanitary accommodation (WCs): 6 l/s
CN3	Minimum purge ventilation	<p>Minimum purge ventilation should be provided for habitable rooms and wet rooms in accordance with Part F.</p> <p>For habitable rooms, minimum purge ventilation should be capable of providing 4 air changes per hour per room directly to outside (e.g. openable windows) equivalent to an openable window area 5% of the floor area of each room in accordance with table 5.2a of Part F. Note that Part F gives two levels of floor area depending on the degree of window opening, openable area may be either 5% or 10% if tilting windows open less than 30°. Part F also says windows that open less than 15° are not suitable for purge ventilation.</p> <p>For wet rooms with an external wall, there should be an openable window which is occupant controlled. For wet rooms where there are no external walls, purge ventilation should be provided through extract ventilation with heat recovery.</p>

Ref	Terms	Description
CN4	Requirements for Historic Buildings	<p>Historical buildings typically have high levels of air infiltration leading to discomfort and heat loss. Historic buildings however also typically require a higher level of infiltration to remove structural moisture in the absence of impermeable damp proofing. The refurbishment should be designed to meet the requirements of Building Regulations Part F section 3.11–3.16 and reference is made to the guidance provided in:</p> <ul style="list-style-type: none"> — The guide to building services in historic buildings, CIBSE, 2002 — BS 7913: Guide to the principles of conservation in historic buildings — Building Regulations and Historic Buildings, English Heritage 2004 — Guide for Practitioners, conversion of traditional Buildings, application of the Scottish Building standards, Historic Scotland, 2007 <p>One credit is awarded: Where an assessment is carried out to establish the current levels of air tightness and structural moisture prior to the specification of fabric measures and heating systems. The assessment should establish the appropriate level of ventilation for the building, based upon:</p> <ul style="list-style-type: none"> — the balance required to achieve a healthy, comfortable and draught-free environment whilst allowing appropriate building breath-ability in relation to structural moisture levels. — a minimum requirement of 0.4 air changes per hour (or 8 litres/second per person) should be assumed. This may be greater where the structure needs higher levels of ventilation in order to deal with structural moisture levels. — ventilation rates are sufficient to allow structural moisture to be dealt with effectively. <p>Two credits are awarded where: The first credit is achieved and where the following testing was also carried out in order to develop the ventilation/air tightness strategy for the building:</p> <ul style="list-style-type: none"> — pressure testing was carried out before and after refurbishment in accordance with the appropriate standard — temperature and humidity is monitored before and after refurbishment
CN5	Appropriate standards (where applicable)	<p>Pressure testing standards:</p> <ul style="list-style-type: none"> — ATTMA (the Air Tightness Testing and Measurement Association) Technical Standard 1
CN6	Scotland and Northern Ireland	The assessment of dwellings in Scotland and Northern Ireland are expected to meet the requirements of Building Regulations Approved Document F, England and Wales.
CN7	Air permeability	Natural air permeability rates vary between buildings. Building regulations encourage lower permeability as does the BREEAM Domestic Refurbishment scheme where combined with adequate

Ref	Terms	Description
		ventilation, with higher ventilation requirements for more air tight buildings (following the principle of 'air tight, ventilate right') in accordance with Approved Document Part F 2010.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
All	1. Written confirmation from the developer confirming the level of background, extract and purge ventilation. OR Compliant design stage commitment confirming the level of background, extract and purge ventilation that will be implemented.	The following as appropriate: <ol style="list-style-type: none"> Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the design stage.

Additional information

None

Hea 06 Safety

Number of credits available	Minimum standards
1	Yes

Aim

To reduce the risks to life, health and property resulting from fire and exposure to carbon monoxide.

Assessment criteria

One credit may be awarded for this issue as follows:

One Credit—fire and carbon monoxide (CO) detection and alarm systems

Where a compliant fire detection and fire alarm system is provided in accordance with compliance notes 2-8.

1. Where the dwelling is supplied with mains gas or where any other form of fossil fuel is used within the building (e.g. coal), a compliant fire and carbon monoxide detector and alarm system is provided in accordance with compliance notes 2-8.
2. Where the project involves electrical re-wiring the power supply for the smoke alarm and compliant carbon monoxide alarm systems are derived from the dwellings main electricity supply in accordance with compliance note 5.
3. Where the project does not involve electrical re-wiring the power supply for the smoke alarm and carbon monoxide alarm systems are derived from a battery supply.

Assessment Procedure

Criteria	Information
1	a. Refer to compliance notes 2-8 for further guidance. Note: Separate requirements for large houses in accordance with CN3.
2	a. Refer to CN5 for further guidance.
3	a. Refer to CN5 for further guidance.

Compliance Notes

Ref	Terms	Description
CN1	Housing standards and	UK housing standard and regulations require that the following must be complied with:

Ref	Terms	Description
	regulations	<ul style="list-style-type: none"> — Where the property/properties are to be rented as accommodation for multiple occupation by a private or social landlord in England and Wales the fire section of the Housing Health and Safety Rating System must be completed which includes a requirement for smoke detectors. BREEAM Domestic Refurbishment specifies a standard of fire detection and alarm system beyond this level (see definitions). — A HMO licence may also be required. For accommodation with common or shared areas such as flat blocks or houses with multiple occupation, the Fire Safety Order (2005) must also be complied with however BREEAM Domestic Refurbishment specifies a standard of fire detection and alarm system beyond this level. — For dwellings where new habitable rooms are provided above ground level, or where they are provided at ground floor level and there is no final exit from the new room, Part B requires fire detection and alarm systems in line with BREEAM Domestic Refurbishment therefore the requirements do not apply.
CN2	Compliant fire detection and alarm system	Fire detection and alarm systems should be in accordance with BS 5839-6:2004 (40) and to at least a Grade D Category LD3 standard. For large houses, see compliance note 3. See compliance notes 4 and 5 for the requirements for the position and power supply of fire detection and alarm systems.
CN3	Compliant fire detection and alarm systems for large houses	A dwelling is regarded as large if it has more than one storey and any of those storeys exceed 200m ² . A large dwelling of 2 storeys (excluding basement storeys) should be fitted with a fire detection system of Grade B category LD3 as described in BS 5839-6:2004 (40). A large dwelling of 3 or more storeys (excluding basement storeys) should be fitted with a Grade A Category A LD2 system as described in BS 5839-6:2004 (40).
CN4	Positioning of compliant fire detection and alarm systems	The positioning of smoke and heat alarms should be in accordance with building Regulations Part B Fire Safety Volume 1—Dwellinghouses 2006. Section 1 Paragraphs 1.11–1.18 and in accordance with the recommendations of BS 5839-6:2004 (41) for a category L2 system. Note: Building regulations have separate requirements for the positioning of alarms in refurbishment projects. However for the purposes of this issue and in order to award the credit all alarms must meet part B building regulations as outlined for new build.
CN5	Power Supply	Where the project involves an electrical re-wire, Smoke and heat alarms should be mains-operated and conform to BS EN 14604:2005 (42) (which has preceded BS 5446-1:2000) or BS 5446-2:2003 (43) respectively: Fire detection and fire alarm devices for dwelling, Part 1 Specification for smoke alarms. They should have a standby power supply, such as a battery (either rechargeable or non-rechargeable) or capacitor. More information on power supplies is given in clause 15 of BS 5839-6:2004 (40). Carbon Monoxide alarm power supply should conform to

Ref	Terms	Description
		BS EN 50292:2002. The mains supply to the alarm(s) should comprise of a single independent circuit at the dwelling's main distribution board (consumer unit) or a single regularly used local lighting circuit. This has the advantage that the circuit is unlikely to be disconnected for any prolonged period. There should be a means of isolating power to the smoke alarms without isolating the lighting.
CN6	Compliant carbon monoxide detector and alarm system	Carbon monoxide detector and alarm system should be in accordance with and positioned in accordance to BS EN 50291-1:2001 and BS EN 50292:2002 and should carry a British or European approval mark. Note: please note there is a difference in the standards required for carbon monoxide alarms used as a method of fire detection and those used in the detection of faulty or inadequately ventilated gas appliances.
CN7	Combined smoke and carbon monoxide detectors	Where smoke and carbon monoxide detectors are combined they should, in addition to compliance notes 2-6, meet the LPS 1282 standard.
CN8	Alternative standards	In instances where a product does not conform to the above referenced standards, it is acceptable to use an alternative nationally recognised standard as long as evidence can be provided that demonstrates that the performance level is equivalent to or better than the standards required in compliance notes 2-7.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
Req. 1–4	<ol style="list-style-type: none"> Detailed documentary evidence demonstrating that the fire detection and fire alarm system and carbon monoxide detector/s are certified to the relevant standards. OR Where evidence 1 cannot be produced. Compliant design stage commitment outlining	The following as appropriate: <ol style="list-style-type: none"> Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR <ol style="list-style-type: none"> Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence pro-

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	the design specification that will be implemented.	vided at the design stage. AND 3. Building/site inspection report and photographic evidence or relevant drawings showing location of the fire detection and alarm system and carbon monoxide detector.

Additional information

None.

References

1. Building Research Establishment. BRE IP 23/93:Measuring daylight. BRE, 1993
2. British Standard BS 8206–2. Lighting for buildings. Code of practice for daylighting. BSI, London, 1992
3. Chartered Institution of Building Services Engineers (CIBSE). Lighting Guide 10: Daylighting and window design. CIBSE, London, 1999
4. P.J. Littlefair, Site layout planning for daylight and sunlight: a guide to good practice. 1998
5. Building Research Establishment. BRE IP4/92: Site layout for sunlight and solar gain. BRE, 1992
6. Association of Noise Consultants (ANC). www.association-of-noise-consultants.co.uk
7. British Standard BS 8233: Sound insulation and noise reduction for buildings—Code of practice. BSI, London, 1999
8. Communities and Local Government. Building Regulations Approved Document E—Resistance to the passage of sound. (2003 edition incorporating 2004 amendments). Communities and Local Government, London, 2006. Available from www.planningportal.gov.uk
9. Institute of Acoustics. www.ioa.org.uk
10. Robust Details Limited. www.robustdetails.com
11. United Kingdom Accreditation Service (UKAS). www.ukas.com
12. British Standards Institution. Code of Practice for Storage and On-Site Treatment of Solid Waste from Buildings. British Standard BS 5906. London. BSI. 2005
13. British Standards Institution. Wood Based Panels for use in Construction—Characteristics, Evaluation of Conformity and Marking, BSEN 13986, London, BSI, 2002
14. British Standards Institution, Timber Structures—Glued Laminated Timber and Glued Solid Timber, BSEN 14080, London, BSI, 2005
15. British Standards Institution, Wood Flooring—Product Characteristics, Evaluation of Conformity and Marking, BSEN 14342, London, BSI, 2005
16. British Standards Institution, Resilient, Textile and Laminate Floor Coverings—Essential Characteristics, BSEN 14041, London, BSI, 2004
17. British Standards Institution, Suspended Ceilings—Requirements and Test Methods, BSEN 13964, BSI, London, 2004
18. British Standards Institution, Short Term Method for Measuring the Emission Properties of Low-Solvent or Solvent-Free Adhesives After Application, BSEN 13999, BSI, London, 2007
19. British Standards Institution, Wallcoverings in Roll Form—Specification for Finished Wallpapers, Wall Vinyls and Plastics Wallcoverings, BSEN 233, BSI, London, 1999

20. British Standards Institution, Wallcoverings in Roll Form—Specification for Wallcoverings for Subsequent Decoration, BS EN 234, BSI, London, 1989
21. British Standards Institution, Wallcoverings in Roll Form—Heavy Duty Wallcoverings, Specification, BS EN 259, BSI, London, 2001
22. British Standards Institution, Specification for Textile Wallcoverings, BS EN 266, BSI, London, 1992
23. British Standards Institution, Specification for Adhesives for Hanging Flexible Wallcoverings, BS EN 3046, BSI, London, 1981
24. British Standards Institution, Paints and Varnishes—Water-Borne Coating Materials and Coating Systems for Interior Walls and Ceilings, Classification, BS EN 13300, BSI, London, 2001.
25. British Standards Institution, Wood-Based Panels—Determination of Formaldehyde Release, Formaldehyde emission by the Chamber Method, BS EN 717, BSI, London, 2004
26. British Standards Institution, Wallcoverings in Roll Form—Determination of Migration of Heavy Metals and Certain Other Elements, of Vinyl Chloride Monomer and of Formaldehyde Release, BS EN 12149, BSI, London, 1997
27. British Standards Institution, Paints and Varnishes—Determination of Volatile Organic Compound (VOC) Content, BS EN ISO 11890, BSI, London, 2006
28. Building Regulations Part M and Approved Document M—Access to and use of Buildings (2004 Edition). Communities and Local Government, London, 2006. Available from <http://www.planningportal.gov.uk>
29. Habinteg Housing Association. www.habinteg.org.uk/
30. Joseph Rowntree Foundation. Lifetime Homes. 2006. Available from www.jrf.org.uk/housingandcare/lifetimehomes/
31. Lifetime Home Standards. www.lifetimehomes.org.uk/codeassessors
32. Commission for Architecture and the Built Environment (CABE). The principles of inclusive design. (They include you.) CABE, 2006. Available from www.cabe.org.uk
33. Commission for Architecture and the Built Environment (CABE). Design and access statements. How to write, read and use them. CABE, 2007. Available from www.cabe.org.uk
34. British Standard BS 8300: Design of buildings and their approaches to meet the needs of disabled people—Code of practice. BSI, London, 2001
35. British Standard DD266:2007: Draft for Development Design of accessible housing—Lifetime home—Code of practice. BSI, London, 2001
36. Thorpe S & Habinteg Housing Association. Wheelchair housing design guide. 2nd edition. Bracknell, IHS BRE Press. 2006
37. English Partnerships, Guidance Note on Inclusive Design. Available online: <http://www.englishpartnerships.co.uk/inclusivedesign.htm>. 2007
38. Disability Rights Commission—Access Statements http://www.sfc.ac.uk/web/FILES/Our_Priorities_Access/Disability_Rights_Commission_Access_Statements.pdf
39. Disability Discrimination Act, 1995
40. Disability Equality Duty, 2006
41. 'Reducing overheating—a designer's guide,' CE 129, Energy Efficiency Best Practice in Housing,
42. Communities and Local Government. Proposed Changes to Part L and Part F of the Building Regulations: A Consultation Paper. Communities and Local Government, London, 2009. Available from <http://www.communities.gov.uk/publications/planningandbuilding/partf2010consultation>
43. BRE The Government's Standard Assessment Procedure for energy rating of dwellings Draft 2009 Version (SAP 2009, version 9.90). Published on behalf of DECC by BRE, Garston, Watford, 2009. Available from http://www.bre.co.uk/filelibrary/SAP/2009/Draft_SAP_2009_main_document.pdf
44. Littlefair, P.J. Solar shading of buildings. Bracknell, IHS BRE Press. 1999
45. Association of Noise Consultants (ANC). www.association-of-noise-consultants.co.uk
46. Communities and Local Government. Building Regulations Approved Document E—Resistance to the passage of sound. (2003 edition incorporating 2004 amendments). Communities and Local Government, London, 2006. Available from www.planningportal.gov.uk
47. Institute of Acoustics. www.ioa.org.uk
48. Robust Details Limited. www.robustdetails.com
49. United Kingdom Accreditation Service (UKAS). www.ukas.com

This page is intentionally blank.

Energy

Category overview

- Category weighting: 43%
- Minimum standards: Ene 02 Energy Efficiency Rating Post Refurbishment

Summary

The energy category assesses measures to improve the energy efficiency of the home through refurbishment. 65% of the available score relates the energy targets, based upon SAP or the EPC. These targets bring a balanced assessment of the impact that the refurbishment has on improving the dwellings energy performance including:

- How much the Energy Efficiency Rating has been improved as a result of refurbishment,
- The Energy Efficiency Rating that is achieved post refurbishment
- The dwellings energy demand post refurbishment
- The % of the dwellings demand that is met by renewable technologies

35% of remaining credits relate to additional measure that save energy that are not covered under SAP or measures that provide occupants with opportunities to reduce their energy use or their impact on transport energy use, thus reducing CO₂ emissions including:

- Providing energy efficient white goods
- Providing a reduced energy means of drying clothes
- Encouraging the provision of energy efficient lighting
- Providing a device for occupants to monitor energy use
- Encouraging occupants to cycle by providing adequate and secure cycle storage facilities
- Reducing the need to commute to work by ensuring residents have the necessary space and services to be able to work from home

Table - 15: Energy category summary table. Minimum standards are denoted by *

Issue	Issue name	Credits	Credit summary
Ene 01	Improvement in Energy Efficiency Rating	6	Up to 6 credits for the improvement to the dwellings Energy Efficiency Rating. This issue is assessed using the Energy calculator and SAP or RdSAP - credit allocation is based on exceeding EER improvement benchmarks, from the baseline EER.
Ene 02	Energy Efficiency Rating Post Refurbishment	4*	Up to 4 credits available for the Energy Efficiency Rating post refurbishment. One exemplary credit available for a post refurbishment EER greater than 90 with two credits available for a post refurbishment EER of equal to or greater than 100.
Ene 03	Primary Energy Demand	7	Up to 7 credits available for the primary energy demand. This issue is assessed using the Energy calculator - credit allocation is based on exceeding refurbishment benchmarks.

Issue	Issue name	Credits	Credit summary
Ene 04	Renewable Technologies	2	Up to 2 credits awarded depending on the % of the dwellings primary energy demand being met by low or zero carbon technologies. Maximum Primary Energy Demand targets apply to ensure system and fabric efficiency is considered first.
Ene 05	Energy Labelled White Goods	2	First credit - provision of fridges, freezers and fridge freezers with the appropriate label/information Second credit – provision of washing machines, dishwashers and washer dryers with the appropriate label/information
Ene 06	Drying Space	1	One credit – provision of adequate drying space – based on the number of bedrooms within the dwelling
Ene 07	Lighting	2	First credit – energy efficient external space and security lighting. Second credit – internal lighting that does not exceed the maximum average wattage across the total floor area - 9 watts/m ²
Ene 08	Display Energy Devices	2	One credit – energy display device displays either electricity consumption data or heating fuel consumption data Two credits – energy display device displays both electricity and primary heating fuel consumption data Exemplary credit –energy display device that is able to record consumption data
Ene 09	Cycle Storage	2	Two credits available for providing compliant cycle spaces, with the number of spaces required depending on the number of bedrooms in the dwelling.
Ene 10	Home Office	1	One credit - provision of a compliant home office space.

Ene 01 Improvement in Energy Efficiency

Rating

Number of credits available	Minimum standards
6	No

Aim

To recognise and encourage a reduction in CO₂ emissions through improved energy efficiency of the dwelling and its services as a result of refurbishment.

Assessment Criteria

The following demonstrates compliance:

Up to 6 credits are awarded – improving the dwellings Energy Efficiency Rating (EER)

- Where the refurbishment results in an improvement to the dwellings Energy Efficiency Rating, in accordance with CN2.

Table - 16: EER improvement credit benchmarks.

Credits	Improvement in EER
0.5	≥5
1.0	≥9
1.5	≥13
2.0	≥17
2.5	≥21
3.0	≥26
3.5	≥31
4.0	≥36
4.5	≥42
5.0	≥48

Credits	Improvement in EER
5.5	≥54
6.0	≥60

Assessment Procedure

Criteria	Procedure
Criterion	All Credits
1	<ol style="list-style-type: none"> Determine the dwellings Energy Efficiency Rating (EER) before refurbishment Determine the dwellings EER after refurbishment (preferably) from full SAP or where not available from the dwellings EPC report Obtain a copy of the BREEAM Domestic Refurbishment Energy Calculator For more information on the calculation procedures refer to Energy.

Compliance Notes

Ref	Terms	Description
CN1	Multiple Units	Energy averaging is allowable where a building contains more than one dwelling (such as in a terrace of houses or in a block of flats). An average improvement in EER can be calculated for all the dwellings in the building. In such cases, the average improvement in EER is the floor-area-weighted average improvement in EER of all the individual dwellings. Averaging is only permitted for multiple dwellings in the same building. It is not permitted across multiple buildings on the same site.
CN2	Improvement in EER	The Energy Efficiency Rating for before and after refurbishment should be obtained from either the Energy Performance Certificate using RdSAP April 2012 (Reduced Data SAP) or from full SAP 2009 using section 11 a, box (258). This should be provided in the case of RdSAP by an Accredited Domestic Energy Assessor or in the case of Full SAP a person registered with an accredited energy assessment scheme provider. The scheme provider will be licensed by the Department of Communities and Local Government to accredit competent persons to assess the CO ₂ emission rate of domestic buildings for the purposes of demonstrating compliance with Building Regulations.
CN3	Pre-refurbishment EER	The pre-refurbishment EER should be based on the existing performance of the dwelling as detailed in SAP 2009 appendix S, Reduced Data SAP for existing dwelling.

Ref	Terms	Description
CN4	Material change of use	For 'Material Change of Use' projects (as defined as category 2 under section 2, the Scope), the pre-refurbishment SAP assessment should be based upon the conventions set out in the additional information.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
Req. 1	<ol style="list-style-type: none"> 1. A copy of the design stage Energy Performance Certificate report or SAP 2009¹ worksheets to confirm the dwelling/s Energy Efficiency Rating pre and post refurbishment. AND 2. A copy of the output from the BREEAM Domestic Refurbishment Energy Calculator 	<ol style="list-style-type: none"> 1. Evidence as listed for the design stage.

Additional information

Reduced Data SAP (RdSAP) April 2012 top-ups

Where the Energy Efficiency Rating has been calculated using RdSAP, the Energy Efficiency Rating can be topped up to account for a measure not taken account of within RdSAP April 2012. This is achieved by adding additional points to the EER where the measure is incorporated into the refurbishment. This is not applicable where using full SAP 2009.

Table - 17: RdSAP EER top up scores

Measure	Additional EER Score
Primary pipework insulation	1

SAP conventions for material change of use projects

For dwellings created as part of a material change of use project as defined in Scope of BREEAM Domestic Refurbishment, the following conventions should be followed in order to provide a comparable pre and post refurbishment assessment of the Energy Efficiency Rating:

- For newly constructed thermal elements that replace existing elements (e.g. demolition of an existing wall and construction of a new wall), input data to calculate the pre-refurbishment EER for the element being replaced should be based upon the U value of the elements prior to replacement as set out in appendix S of SAP 2009

- For change of use projects where single dwellings are converted into multiple dwellings, or where multiple dwellings are converted into single dwellings, building dimensions for the pre and post refurbishment EER should be based on the dwellings dimensions post refurbishment
- All other assumptions (heating, hot water, infiltration, thermal bridging etc.) should be based upon the details set out in SAP appendix S or using actual values where available

Ene 02 Energy Efficiency Rating Post Refurbishment

Number of credits available	Minimum standards
4	Yes

Aim

To encourage high levels of Energy Efficiency in the refurbished dwellings, thus reducing CO₂ emissions, running costs and fuel poverty.

Assessment Criteria

The following demonstrates compliance:

Up to 4 credits are awarded – EER Post Refurbishment

- Where as a result of refurbishment, the dwelling meets a minimum Energy Efficiency Rating, credits can be awarded

Table -1 Minimum EER credit benchmarks.

Credits	EER post refurbishment	Minimum requirements
0.5	≥50	BREEAM Pass level requires a minimum EER of 50
1	≥55	BREEAM Good level requires a minimum EER of 58
1.5	≥60	
2	≥65	BREEAM Very Good level requires a minimum EER of 65
2.5	≥70	BREEAM Excellent level requires a minimum EER of 70
3	≥75	
3.5	≥80	BREEAM Outstanding level requires a minimum EER of 81
4	≥85	

Exemplary performance requirements

The following outlines the exemplary level criteria to achieve an innovation credit for this BREEAM issue:

2. One innovation credit can be awarded where the assessed dwellings achieve an EER post refurbishment of ≥ 90 , equivalent to an Energy Performance Certificate band A
3. Two innovation credits can be awarded where the assessed dwelling achieves an EER post refurbishment of ≥ 100

Assessment Procedure

Criteria	Procedure
Criterion	All Credits
1-3	<ol style="list-style-type: none"> a. Determine the dwellings Energy Efficiency Rating (EER) post refurbishment b. Top up the EER score using the Energy calculator where applicable, as detailed in the calculation procedures (Refer to Energy). c. Obtain a copy of the BREEAM Domestic Refurbishment Energy Calculator d. For more information on the calculation procedures (Refer to Energy).

Compliance Notes

Ref	Terms	Description
CN1	Multiple Units	<p>Energy averaging is allowable where a building contains more than one dwelling (such as in a terrace of houses or in a block of flats). An average EER can be calculated for all the dwellings in the building. In such cases, the average EER is the floor-area-weighted average EER of all the individual dwellings.</p> <p>Averaging is only permitted for multiple dwellings in the same building. It is not permitted across multiple buildings on the same site.</p>

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
Req. 1 & 2	<ol style="list-style-type: none"> 1. A copy of the design stage Energy Performance Certificate report or SAP 2009 worksheets post refurbishment to confirm the dwellings Energy Efficiency Rating. AND 2. A copy of the output from the BREEAM Domestic Refurbishment Energy Calculator 	<ol style="list-style-type: none"> 1. A copy of the post refurbishment stage Energy Performance Certificate report or SAP 2009 worksheets to confirm the dwelling/s Energy Efficiency Rating post refurbishment. AND 2. A copy of the output from the BREEAM Domestic Refurbishment Energy Calculator

Additional information

None

This page is intentionally blank.

Ene 03 Primary Energy Demand

Number of credits available	Minimum standards
7	No

Aim

To encourage a reduction in the absolute total regulated energy demand of a dwelling as a result of refurbishment, thus saving CO₂ emissions, running costs and reducing fuel poverty.

Assessment Criteria

The following demonstrates compliance:

1. Primary Energy Demand Targets. Where as a result of refurbishment the dwelling meets the Primary Energy Demand targets, up to 7 credits may be awarded:

Table -1 Primary Energy Demand Targets.

Credits	Primary Energy Demand Post Refurbishment (kWh/m ² /year)
0.5	≤ 400
1.0	≤ 370
1.5	≤ 340
2.0	≤ 320
2.5	≤ 300
3.0	≤ 280
3.5	≤ 260
4.0	≤ 240
4.5	≤ 220
5.0	≤ 200
5.5	≤ 180
6.0	≤ 160

Credits	Primary Energy Demand Post Refurbishment (kWh/m ² /year)
6.5	≤140
7.0	≤120

Assessment Procedure

Criteria	Procedure
Criterion	First Credit
1	<ol style="list-style-type: none"> a. Determine the dwellings Primary Energy Demand (kWh/m²/year) post refurbishment from SAP or RdSAP b. Obtain a copy of the Energy Calculator c. Primary Energy Demand for multiple units is calculated as detailed in Energy.

Compliance Notes

Ref	Terms	Description
CN 1	Multiple Units	<p>Energy averaging is allowable where a building contains more than one dwelling (such as in a terrace of houses or in a block of flats). An average Primary Energy Demand can be calculated for all the dwellings in the building using the Energy Calculator as described in Energy. In such cases, the average Primary Energy Demand is the floor-area-weighted average Primary Energy Demand of all the individual dwellings.</p> <p>Averaging is only permitted for multiple dwellings in the same building. It is not permitted across multiple buildings on the same site.</p>

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Req's.	<ol style="list-style-type: none"> 1. A copy of the design stage Energy Performance Certificate report, SAP 2009¹ or RdSAP April 2012 worksheets (or EPC report) post refurbishment to confirm the dwell- 	<ol style="list-style-type: none"> 1. A copy of the post refurbishment stage Energy Performance Certificate report, SAP 2009 or RdSAP April 2012 worksheets to confirm the dwelling/s Primary Energy

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	ing/s Primary Energy Demand. AND 2. A copy of the output from the BREEAM Domestic Refurbishment Energy Calculator	Demand post refurbishment. AND 2. A copy of the output from the BREEAM Domestic Refurbishment Energy Calculator

Additional information

This page is intentionally blank.

Ene 04 Renewable Technologies

Number of credits available	Minimum standards
2	No

Aim

To encourage local energy generation from renewable sources to supply a significant proportion of the dwellings energy demand and to encourage homes to reduce the total energy demand, prior to the specification of renewable technologies.

Assessment Criteria

The following demonstrates compliance;

One credit:

1. Where at least 10% of the dwellings Primary Energy Demand per annum is supplied by low or zero carbon technologies
AND
2. Where the dwelling has reduced energy demand prior to the specification of renewable technologies with a maximum Primary Energy Demand as follows:
 - a. For detached, semi-detached, bungalows and end terraces: 250 kWh/m²/year
 - b. Mid terraces and flats: 220 kWh/m²/year

Two credits:

3. Where for mid to high rise flats at least 15% of each dwellings Primary Energy Demand per annum is supplied by low or zero carbon technologies
4. Where for dwellings other than mid to high rise flats at least 20% of each dwellings Primary Energy Demand per annum is supplied by low or zero carbon technologies
AND
5. Where the dwelling has reduced energy demand prior to the specification of renewable technologies with a maximum Primary Energy Demand as follows:
 - a. For detached, semi-detached, bungalows and end terraces: 250 kWh/m²/year
 - b. Mid terraces and flats: 220 kWh/m²/year

Assessment Procedure

Criteria	Procedure
Criterion	First Credit
1-5	<ol style="list-style-type: none"> a. Determine the dwellings Primary Energy Demand (kWh/m²/year) post refurbishment from SAP or RdSAP b. Determine the renewable energy generation in kWh/m²/year from the MCS installer. Where this is an existing installation, documentary evidence will be required, as previously provided by the MCS installer at the original installation. Where the renewable energy generation in kWh/m²/year cannot be provided from the MCS installer, from the present or a past installation, this credit cannot

Criteria	Procedure
	<p>be obtained.</p> <p>c. Obtain a copy of the BREEAM Domestic Refurbishment Energy Calculator</p> <p>d. For more information on the calculation procedures refer to Energy</p>

Compliance notes

Ref	Terms	Description
CN1	Remote Sources	Energy supplied from remote sources through the National Grid is not eligible to contribute towards achieving the requirements set out in this issue. This includes electricity procured through 'green tariffs'.
CN2	MCS Certified Installer	An installer certified under the Microgeneration Certification Scheme by an accredited certification body accredited by UKAS under EN45011. A list of MCS Certified Installers can be found here: www.microgenerationcertification.org/
CN3	Mid to high rise flats	Mid to high rise flats are defined as a building with 4 or more storeys.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
First & Second Credit		
All Req's.	<ol style="list-style-type: none"> 1. A copy of the relevant calculations as detailed in the assessment procedure based on design stage SAP or RdSAP outputs AND 2. A copy of the output from the BREEAM Domestic Refurbishment Energy Calculator AND 3. Detailed documentary evidence confirming that the specified low or zero carbon technologies as applicable: 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the project manager that the dwelling/s have been refurbished in accordance with the evidence provided at the design stage. AND 2. A building/site inspection report and photographic

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	<ul style="list-style-type: none"> a. meet the requirements defined in Directive 2009/28/EC b. are certified under the Micro-generation Certification Scheme c. are certified under the CHPQA standard 	evidence.

Additional information

None

This page is intentionally blank.

Ene 05 Energy Labelled White Goods

Number of credits available	Minimum standards
2	No

Aim

To encourage the provision or purchase of energy efficient white goods, thus reducing the CO₂ emissions from appliance use in the dwelling.

Assessment Criteria

The following demonstrates compliance;

First credit – Fridges, freezers and fridge-freezers

1. Fridges and freezers or fridge-freezers are recognised by the Energy Saving Trust Recommended labelling scheme, carrying the Energy Saving Trust Recommended Label
OR
2. Where no white goods are provided to the dwelling(s) but the EU Energy Efficiency Labelling Scheme Information Leaflet is provided to each dwelling

Second credit – washing machines, dishwashers, tumble dryers and washer dryers

3. Washing machines and dishwashers are recognised by the Energy Saving Trust Recommended labelling scheme, carrying the Energy Saving Trust Recommended Label
4. Washer dryers and tumble dryers have a B rating under the EU Energy Efficiency Labelling Scheme (where a washer dryer is provided, it is not necessary to also provide a washing machine)
5. Where a washer dryer or tumble dryer is not provided, the EU Energy Efficiency Labelling Scheme Information Leaflet is provided to each dwelling

Assessment Procedure

Criteria	Procedure
Criterion	First Credit
1	a. Determine the white goods specified and whether they are recognised by the Energy Saving Trust Recommended Scheme
2	a. Where white goods are not specified, check whether the EU Energy Efficiency Labelling Scheme Information Leaflet is being provided to each dwelling
Criterion	Second Credit
3-4	a. Determine the white goods specified and whether they are recognised by the Energy Saving Trust Recommended Scheme or the EU Energy Labelling Scheme as relevant

Criteria	Procedure
5	a. Where white goods are not specified, check whether the EU Energy Efficiency Scheme Information Leaflet is being provided to each dwelling

Compliance notes

Ref	Terms	Description
CN1	Existing fittings	<p>For any existing fittings, the following demonstrates compliance:</p> <ul style="list-style-type: none"> — The fittings are replaced with fittings that are compliant with the assessment criteria. — For fittings less than 10 years old, where these are not being replaced, the fittings can still be compliant where an EU Energy labelling leaflet is provided to the occupants. — Fittings greater than 10 years old, these are on average 30-40% less efficient than new A rated white goods. For such fittings to be compliant they will need to be replaced with compliant fittings, or evidence will need to be provided to demonstrate that they comply with the relevant rating under the EU energy labelling scheme. <p>Note: Where the age of the fitting is unknown, either evidence of its rating under the EU energy labelling scheme will be needed, or the fitting will need to be replaced with a compliant fitting in order to comply with the criteria.</p>
CN2	Appliances not covered by the EU Energy Labelling Scheme	<p>In circumstances where appliances required to achieve credits under this issue are not covered by the EU Energy Labelling Scheme (e.g. gas powered tumble dryers), recognition under the Energy Saving Trust's Energy Saving Recommended scheme (www.energysavingtrust.org.uk/)⁷ is deemed to demonstrate compliance. Evidence confirming that the make and model of the appliance meets the requirements of the scheme and is permitted to display the Energy Saving Recommended logo should be provided. The evidence must be dated to show that the endorsement is current.</p>

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
Req. 1, 3 & 4	The following as appropriate: <ol style="list-style-type: none"> 1. Detailed documentary 	The following as appropriate: <ol style="list-style-type: none"> 1. Evidence, as listed for Design

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	<p>OR</p> <p>Compliant design stage evidence outlining the appliances to be provided with their applicable ratings under the EU Energy Efficiency Labelling Scheme and/or EST recommended labelling scheme. A printed copy of the EST website product list is required as the EST recommended products change over time.</p>	<p>Stage, representing the dwelling/s as refurbished.</p> <p>OR</p> <p>Written confirmation from the project manager that the dwelling/s have been refurbished in accordance with the evidence provided at the design stage.</p> <p>AND</p> <p>2. A building/site inspection report and photographic evidence.</p>
Req. 2	<p>If no white goods are provided, detailed documentary evidence as follows:</p> <ol style="list-style-type: none"> 1. A copy of the information that will be provided on the EU Energy Efficiency Labelling Scheme or EST recommended labelling scheme <p>AND</p> <ol style="list-style-type: none"> 2. Confirmation that leaflets will be provided to all dwelling/s 	
Req. 5	<ol style="list-style-type: none"> 1. Where washer dryers or tumble dryers will not be provided and the second credit is sought, provide evidence as detailed for requirement 2. 	
All	<ol style="list-style-type: none"> 1. Where any of the above evidence is not available, a compliant design stage commitment outlining the design specification that will be implemented. 	

Additional information

None.

This page is intentionally blank.

Ene 06 Drying Space

Number of credits available	Minimum standards
1	No

Aim

To provide a reduced energy means of drying clothes and so encourage reductions in energy demands.

Assessment Criteria

The following demonstrates compliance;

One credit

1. An adequate, secure internal or external space with posts and footings, or fixings holding:
 - a. 1-2 bedrooms: 4m+ of drying line
 - b. 3+ bedrooms: 6m+ of drying line

Assessment Procedure

Criteria	Procedure
Criterion	First Credit
1	<ol style="list-style-type: none"> a. Determine the number of bedrooms per dwelling b. Identify the length of drying line provided and confirm whether the drying space meets CN1 and CN2

Compliance notes

Ref	Terms	Description
CN1	Adequate internal space	This is either; a heated space with adequate, controlled ventilation, complying with Building Regulations Approved Document F Ventilation 2006 (rooms that commonly meet these requirements are a bathroom or utility room), or an unheated outbuilding, where calculations by an appropriate Chartered Institute of Building Services Engineer (CIBSE or equivalent professional) demonstrate that ventilation in the space is adequate to allow drying in normal climatic conditions and to prevent condensation/mould growth. The fixing/fitting needs to be a permanent feature of the room. Internal drying spaces in the following rooms do not comply:

Ref	Terms	Description
		<ul style="list-style-type: none"> — Living rooms — Kitchens — Dining rooms — Main halls — Bedrooms
CN2	Adequate external space	<p>This should be an enclosed space only accessible to the residents of the dwellings. The types of external spaces that may comply include a secure:</p> <ul style="list-style-type: none"> — Private or communal garden — Balcony (which is openable at least on the whole front side) — Roof terrace

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
All Req's.	<ol style="list-style-type: none"> 1. For internal drying space, detailed documentary evidence confirming: <ol style="list-style-type: none"> a. Location of drying fixings b. Details/location of ventilation provided c. The length of drying line d. Details of the lock provided (for communal drying space only) 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the project manager that the dwelling/s have been refurbished in accordance with the evidence provided at the design stage. AND 2. A building/site inspection report and photographic evidence.
	<ol style="list-style-type: none"> 1. For external drying space, detailed documentary evidence confirming: <ol style="list-style-type: none"> a. Location of fixings/footings or posts b. The length of drying line <p>OR</p> <p>Where evidence requirement 1 cannot be produced at this stage, compliant design stage commitment outlining the design specification that will be implemented.</p>	

Additional information

None

This page is intentionally blank.

Ene 07 Lighting

Number of credits available	Minimum standards
2	No

Aim

To encourage the provision of energy efficient lighting, thus reducing CO₂ emissions associated with the dwelling.

Assessment Criteria

The following demonstrates compliance;

One credit – External lighting

1. Where Energy Efficient Space lighting (including lighting in communal areas) and Energy Efficient Security lighting is provided
OR
2. Where Energy Efficient Space lighting (including lighting in communal areas) and no Security Lighting is provided

One credit - Internal Lighting

3. One credit is awarded where the energy required for internal lighting is minimised through the provision of a maximum average wattage across the total floor area of the dwelling of 9 watts/m²

Assessment Procedure

Criteria	Procedure
Criterion	First Credit
1 & 2	a. Determine the external space and security lighting specified for the dwelling. Assess whether the existing/specified lighting meets the definition of energy efficient space and security lighting.
Criterion	Second Credit
3	a. Determine the quantity of all internal lamps the wattage of each lamp and the m ² of the dwelling (from the Energy Performance Certificate), referring to the definition of internal lamps b. Obtain a copy of the Energy calculator c. For more information on the calculation procedures refer to Appendix B-4.

Compliance notes

Ref	Terms	Description
CN1	Extensions to existing dwellings	To meet the assessment criteria, in addition to any external lighting associated with the extension, external lighting for the rest of the dwelling will also need to meet the compliance requirements, whether it is newly specified or existing lighting.
CN2	Dual lamp luminaires	Dual lamp luminaires with both space and security lamps can be awarded the credit provided they comply with the definitions of energy efficiency.
CN3	Privately Managed Sites	External lighting managed by a Local Authority may be excluded from this issue.
CN4	Existing External Lighting	Where existing external lighting remains, the lighting that is retained has to comply with the requirements of the issue.
CN5	Statutory Safety Lighting	Statutory safety lighting is not covered by this requirement and can be omitted from the calculation.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
First credit		
Req's 1 & 2	<ol style="list-style-type: none"> 1. Detailed documentary evidence confirming: The types of light fitting for all external lamps <ol style="list-style-type: none"> a. The control systems applicable to b. each light fitting or group of fittings <p>OR</p> <p>Where the above cannot be produced at this stage, a compliant design stage commitment outlining the design specification that will be implemented</p>	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the project manager that the dwelling/s have been refurbished in accordance with the evidence provided at the design stage. AND 2. A building/site inspection report and photographic evidence.

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
Second credit		
Req. 3	1. Detailed documentary evidence confirming: <ol style="list-style-type: none"> a. The average watts/m² for all internal lights OR Where the above cannot be produced at this stage, a compliant design stage commitment outlining the design specification that will be implemented	

Additional information

None.

This page is intentionally blank.

Ene 08 Energy Display Devices

Number of credits available	Minimum standards
2	No

Aim

To encourage the provision of accessible equipment to display energy consumption data to dwelling occupants, thereby encouraging them to reduce energy use.

Assessment Criteria

The following demonstrates compliance;

One credit

- Where current electricity consumption data is displayed to occupants by a compliant energy display devices
OR
- Where current primary heating fuel consumption data is displayed to occupants by a compliant Energy Display Devices.

Two credits

- Where current electricity AND primary heating fuel consumption data are displayed to occupants by a compliant correctly specified Energy Display Devices.
OR
- Where electricity is the primary heating fuel and current electricity consumption data are displayed to occupants by a compliant Energy Display Devices.

Exemplary Performance

The following outlines the exemplary level criteria to achieve an innovation credit for this BREEAM issue:

- Where any specified Energy Display Devices is capable of recording consumption data

Assessment Procedure

Criteria	Procedure
Criterion	First and Second Credits
1-4	<ol style="list-style-type: none"> Confirm whether a Energy Display Devices is provided and whether it displays current electricity and/or primary heating fuel data Confirm whether the Energy Display Devices meets CN2

Compliance notes

Ref	Terms	Description
CN1	Existing Display Devices	Where there are existing energy display devices that are compliant the credits can be awarded by default
CN2	Compliant Energy Display Devices	<p>A system comprising a self-charging sensor(s) fixed to the incoming mains supply/supplies, to measure and transmit energy consumption data to a visual display unit. The visual display unit must be capable of displaying energy consumption data.</p> <p>To obtain the exemplary credit, any energy display device installed in the dwelling must be capable of recording and storing energy consumption data. The consumption data that the device should be capable of displaying in order to achieve any credits is as follows:</p> <ul style="list-style-type: none"> — Current energy consumption (Watts) — Current emissions (kg CO₂) — Current cost (£ per hour) — Projected cost (£ per month and £ per year).

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
All Req's	<ol style="list-style-type: none"> 1. Detailed documentary evidence confirming: <ol style="list-style-type: none"> a. That the energy display device is dedicated to each individual dwelling b. The consumption data displayed by the energy display device c. Whether the energy display device can record consumption data. <p>OR</p> 2. Where the above cannot be produced at this stage, a compliant design stage commitment outlining the design specification that will be implemented 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Evidence, as listed for Design Stage, representing the dwelling/s as refurbished. <p>OR</p> Written confirmation from the project manager that the dwelling/s have been refurbished in accordance with the evidence provided at the design stage. <p>AND</p> 2. A building/site inspection report and photographic evidence.

Additional information

None.

This page is intentionally blank.

Ene 09 Cycle Storage

Number of credits available	Minimum standards
2	No

Aim

To encourage occupants to cycle by providing adequate and secure cycle storage facilities, thus reducing the need for short car journeys.

Assessment criteria

The following demonstrates compliance:

One credit:

1. Where individual or communal compliant cycle storage is provided for the following number of cycles:
 - a. Studios or 1 bedroom dwellings – storage for 1 cycle for every two dwellings
 - b. 2 and 3 bedroom dwellings – storage for 1 cycle per dwelling
 - c. 4 bedrooms and above – storage for 2 cycles per dwelling

Two credits:

2. Where individual or communal compliant cycle storage is provided for the following number of cycles:
 - b. Studios or 1 bedroom dwellings – storage for 1 cycle per dwelling
 - c. 2 and 3 bedroom dwellings – storage for 2 cycles per dwelling
 - d. 4 bedrooms and above – storage for 4 cycles per dwelling

Assessment Procedure

Criteria	Procedure
Criterion	First and Second Credit
1 & 2	<ol style="list-style-type: none"> a. Determine the number of compliant cycle storage spaces required as detailed in the credit criteria b. Refer to CN1

Compliance notes

Ref	Terms	Description
CN1	Compliant cycle storage	<ul style="list-style-type: none"> — The space is covered overhead to protect from the weather — Where the cycle storage is to be located inside the dwelling, refer to compliance note 3 — Where cycle storage space is to be located externally, cycles can be secured within spaces in rack(s) or fixtures to allow cycles to be free-standing and locked. The rack(s) consists of fixings for one or more spaces. — The covered area and the cycle racks or fixings are set in or fixed to a permanent structure (building or hard-standing). Alternatively the cycle storage may be located in a locked structure fixed to or part of a permanent structure. — The distance between each cycle rack, and cycle racks and other obstructions (e.g. a wall), allows for appropriate access to the cycle storage space, to enable bikes to be easily stored and accessed including 1 m² space for tools, where cycles are to be stored in a shed. — Communal cycle storage is located within 100m of each dwellings main entrance (ideally within 50m), or within 100m of the main communal entrance in the case of flats <p>Where due to site constraints, the above distance requirements for communal cycle storage cannot be met and an alternative solution is proposed in order to provide reasonable provision, exceptions may be allowed. Full details should be provided to BRE Global.</p>
CN2	Communal cycle storage	<p>Where the dwelling is provided with communal compliant cycle storage, the number of cycle storage spaces can be provided on a sliding scale. Firstly calculate the total number of cycle storage spaces required according to the credit criteria. Next calculate the number of spaces required as follows:</p> <ul style="list-style-type: none"> — First 50 cycles spaces: 100% provision — Next 50 cycles spaces: 50% provision — Subsequent spaces, where more than 100 spaces are required: 25% of additional spaces required <p>For example, where 200 spaces are required:</p> <ul style="list-style-type: none"> — First 50 cycle spaces: 100% of cycle spaces (50 spaces) — 50 – 100 cycle spaces: 50% of cycle spaces (25 spaces) — 100 additional cycle spaces: 25% of cycle spaces (25 spaces) <p>Total number of spaces required = 100</p> <p>Note: where the above requirements cannot be met due to constraints with the existing site, and it can be demonstrated that reasonable provision has been made to meet these requirements as far as possible, there may be flexibility on the above requirements. Such cases should contact BRE Global for further advice.</p>
CN3	Cycle storage	Cycle storage can be provided within the dwelling, provided the

Ref	Terms	Description
	within the dwelling	<p>space is:</p> <ul style="list-style-type: none"> — of adequate size within a dedicated storage space such as a dedicated space within a hallway, adequately sized cupboard or other suitable space with adequate fixtures allowing the cycles to be freestanding — on the ground floor of the dwelling — not in a lounge/living room, bedroom, bathroom, dining room or kitchen — accessed without going through the lounge/living room, bedrooms (where located on the ground floor), dining room, bathroom or kitchen — there is adequate access to allow the cycle to be moved in and out of the dwelling taking account of the minimum width needed for a person pushing a bicycle (1.10m width), and 2.0m bike length for manoeuvring the cycle round corners. The storage space should not impede the intended use of that room.
CN4	Access to cycle storage through the dwelling	<p>Where the cycle storage is located at the rear of the property and there is no right of way to the rear of the property without going through the dwelling, this is acceptable, providing the following are met:</p> <ul style="list-style-type: none"> — access through the property to the cycle storage can be gained without going through the lounge/living room, bedrooms (where located on the ground floor) dining room, bathroom or kitchen — there is adequate access to allow the cycle to be moved in and out of the dwelling taking account of the minimum width needed for a person pushing a bicycle (1.10m width), accounting for furniture and 2.0m bike length for manoeuvring the cycle round corners.
CN5	Provision of folding cycles	<p>The provision of folding cycles stored within or outside the dwelling, would not achieve the credit. Folding cycles would be a temporary provision whereas the provision of cycle storage is a permanent feature for use by current and future occupants.</p>
CN6	Proprietary (manufactured) cycle storage	<p>The use of proprietary (manufactured) cycle storage systems is acceptable where it can be demonstrated that the installation will provide sufficient access to allow cycles to be moved in and out independently.</p>

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
Req. 1 & 2	<p>1. Detailed documentary evidence showing:</p> <ol style="list-style-type: none"> The number of bedrooms and the corresponding number of cycle storage spaces per dwelling Location, type and size of storage Convenient access to cycle storage Any security measures Details of the proprietary system (if applicable) <p>OR</p> <p>Where the above cannot be produced at this stage, a compliant design stage commitment outlining the design specification that will be implemented</p>	<p>The following as appropriate:</p> <ol style="list-style-type: none"> Evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the project manager that the dwelling/s have been refurbished in accordance with the evidence provided at the design stage. AND A building/site inspection report and photographic evidence.

Additional information

None.

Ene10 Home Office

Number of credits available	Minimum standards
1	No

Aim

To reduce the need to commute to work by ensuring residents have the necessary space and services to be able to work from home.

Assessment criteria

The following demonstrates compliance;

One Credit:

1. Where sufficient space and services have been provided which allow the occupants to set up a home office in a suitable room with adequate ventilation.

Assessment Procedure

Criteria	Procedure
Criterion	First Credit
1	a. Determine whether compliance notes 1 - 4 have been met

Compliance notes

Ref	Terms	Description
CN1	Suitable Room	<p>For dwellings with three or more bedrooms, a suitable room is defined as a room other than the kitchen, living room, master bedroom or bathroom.</p> <p>For dwellings with one or two bedrooms or studio homes, a suitable room is defined as a room other than the kitchen, living room or bathroom, however may be within the master bedroom.</p> <p>In all cases, the room must be large enough to allow the intended use of that room, e.g. if a home office is to be set up in the main bedroom, that room also needs to be able to fit in a double bed and other necessary furnishing.</p>

Ref	Terms	Description
CN2	Sufficient services	The following services must be provided in the suitable room intended as a home office: <ul style="list-style-type: none"> — Two double power sockets — Telephone point — Window (either of the width and height are to be less than 450mm) — Adequate ventilation (see compliance note 4).
CN3	Sufficient space	A minimum size space should be provided (1.8m wall length) to allow a desk, chair and filing cabinet or bookshelf to be installed, with space to move around the front and side of the desk, use the chair appropriately and operate the filing cabinet safely (the 1.8m wall size requirement can, in some circumstances, be altered if drawings can prove that a desk can be fitted in any other type of arrangement, i.e. alcove or similar, fulfilling all the above criteria).
CN4	Adequate ventilation	In all cases the room must have an openable window or alternative ventilation such as a passive stack etc. Where the room relies on a window for ventilation, the minimum openable casement must be 0.5 m ² . A room with only an external door does not meet the minimum requirements for adequate ventilation. Alternatively where at least one credit has been achieved under issue Hea 05 - Ventilation, this is deemed to meet the requirements for adequate ventilation.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
Req.1	<ol style="list-style-type: none"> 1. Detailed documentary evidence showing: <ol style="list-style-type: none"> a. Location of and sufficient space for the home office b. Location and number of sockets c. Location of telephone points d. That adequate ventilation will be provided e. Window (either of the width and height of less than 450mm) OR 2. Where the above cannot be produced at this stage, a 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Evidence, as listed for Design Stage, representing the dwelling/s as refurbished. <ul style="list-style-type: none"> OR Written confirmation from the project manager that the dwelling/s have been refurbished in accordance with the evidence provided at the design stage. AND 2. A building/site inspection report and photographic evidence.

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	compliant design stage commitment outlining the design specification that will be implemented	

Additional information

None.

This page is intentionally blank.

Water

Category overview

- Category weighting: 11%
- Minimum standards: Wat 01 Internal Water Use

Summary

The water category is focused on identifying means of reducing water consumption in the home including internal water use and external water use. The assessment covers all sanitary fittings in the home and the targets provide recognition for both small changes in the home (e.g. installing a low flow shower) all the way up to a complete replacement of sanitary fittings. Where sanitary fittings are replaced (e.g. a new bathroom), credits can be gained through use of fittings that meet the appropriate fittings standards, or through use of the water calculator. The water calculator looks at the impact that a fitting has on reducing water use, indicating whether a target has been met and the number of credits that can be awarded (subject to the provision of appropriate evidence).

An additional credit is also available for reducing outdoor water use, through the specification of a water butt or a similar device to collect rainwater rather than use mains potable water. Whilst all these measures are designed to reduce water use, it is up to the occupants to use water appropriately therefore an additional credit is gained for providing a water meter, to let occupants monitor their water use. Overall, the following aspects are covered in the water category:

- Fitting low use water fittings for sanitary applications
- Providing a water collection system for external water use
- Providing water metering systems including smart water meters or AMRs.

Category summary table

Issue	Issue name	Credits	Credit summary
Wat 01	Internal water use	3* + Exemplary Credit	<p>2 possible methods for assessment:</p> <ul style="list-style-type: none"> — terminal fittings meet the equivalent terminal fitting consumption standards — the Wat1 calculator – used as an alternative where the sanitary fittings specified do not have an exact match with the fittings standards <p>Credit allocation based on the water consumption of terminal fittings</p>
Wat 02	External Water Use	1	One credit – provision of a rainwater collection system that is compliant and meets the size requirements OR where there is no external space

Issue	Issue name	Credits	Credit summary
Wat 03	Water meter	1	One credit- For the existence or installation of an appropriate water meter

Minimum standards are denoted by *

Wat 01 Internal Water Use

Number of credits available	Minimum standards
3	Yes

Aim

To minimise the consumption of potable water in sanitary applications by encouraging the use of low water use fittings and water recycling systems.

Assessment Criteria

Up to three credits are available

- Where terminal fittings meet the equivalent terminal fitting consumption standards as detailed in Table - 18
OR
- Where the BREEAM Domestic Refurbishment Wat1 calculator is used to determine the dwellings water consumption, credits may be awarded depending on the calculated whole house water consumption as detailed in Table - 18

Table - 18: Allocation of credits for Wat 01

Credits	Calculated water consumption (litres/person/day)	Equivalent terminal fitting standards (see compliance note 5)	Minimum Standard
0	>150	Typical baseline performance	
0.5	140-150	<ul style="list-style-type: none"> — All showers specified to 'Good' OR — All taps and WCs to 'Good' OR — Kitchen fittings specified to 'Excellent' 	
1	129-139	<ul style="list-style-type: none"> — All showers specified to 'Excellent' OR — All showers and bathroom taps to 	

		'Good'	
1.5	118-128	<ul style="list-style-type: none"> — All bathroom and WC room fittings specified to 'Good' OR — All bathroom fittings specified to 'Excellent' 	
2	107-117	<ul style="list-style-type: none"> — All Bathroom and WC room fittings specified to 'Excellent' OR — All Bathroom fittings Specified to 'Excellent' and WC room fitting specified to 'Good' OR — All Bathroom fittings, kitchen and utility fittings specified to 'Good'. 	BREEAM Very Good
2.5	96-106	<ul style="list-style-type: none"> — All kitchen, bathroom, utility room and WC room fittings specified to 'Good' OR — All bathrooms, kitchens and utility rooms specified to 'Excellent' 	BREEAM Excellent
3	<95	<ul style="list-style-type: none"> — All bathroom fittings specified to 'Excellent' and WC room, kitchen and utility room fittings specified to 'Good' 	BREEAM Outstanding

Exemplary performance requirements

The following outlines the exemplary level criteria to achieve one innovation credit for this BREEAM issue:

1. Where the BREEAM Domestic Refurbishment Wat1 calculator is used to determine the dwellings water consumption and where through a combination of low water use fittings and the use of greywater and/or rainwater the dwelling achieves a whole house consumption of less than 80 litres per person per day

Assessment Procedure

Criterion	All Procedure
1	<ol style="list-style-type: none"> a. Refer to CN1, CN3 and CN5 b. Refer to Table - 19 c. Additional information - Existing fitting performance assumptions
2	<ol style="list-style-type: none"> a. Refer to CN2 and CN3 b. For information on default consumption data for existing fittings see Table - 19 c. Obtain a copy of the output from the Wat1 calculator.

Compliance Notes

Ref	Terms	Description
CN1	Bathroom and kitchen components	Bathroom and Kitchen components include the following: WCs, Wash hand basin taps, Showers, Baths, Kitchen taps, Dishwashers and Washing Machines. All of the above components (where present) both existing and newly fitted should be assessed within the Wat 1 calculator. Where one of these items is not present the calculator will not include it in the water consumption calculation.
CN2	Existing fittings	Where using the BREEAM Domestic Refurbishment Wat 1 calculator, any fittings being retained will need to be included within the calculation in order to determine the whole house consumption (litres/person/day). Evidence to demonstrate compliance of existing fittings would include manufacturers' product details. Where there is no consumption data available for existing fittings, default values (Table - 20) can be used which are provided in the additional information.
CN3	Component Water Consumption Data	<p>Water consumption figures will need to be collected from manufacturers' product information to determine the consumption of each type and specification of each terminal fitting. The details required are set out below however consumption figures may also be obtained from fittings which are labelled under the Bathroom Manufacturers Association 'Water Efficient Product Labelling Scheme' (WEPLS). http://www.water-efficiencylabel.org.uk</p> <ul style="list-style-type: none"> — WCs: Flushing capacity for the WC suite including consumption at full and part flush for dual flush WCs — Taps: Flow rate of each tap, at full flow rate in litres per minute measured at a dynamic pressure of 3 ± 0.2 bar (0.3 ± 0.02 MPa) for high pressure (Type 1) taps, or at a dynamic pressure of 0.1 ± 0.02 bar (0.01 ± 0.002 MPa) for low pressure (Type 2) taps (BS EN 200:2008, sanitary tapware, single taps and combination taps for supply systems of type 1 and 2. General technical specifications) including any reductions achieved with flow restrictions. — Showers: Flow rate of each shower at the outlet using cold water ($T = 30$ °C), in litres per minute measured at a dynamic pressure of 3 ± 0.2 bar (0.3 ± 0.02 MPa) for high pressure (Type 1) supply systems, or at a dynamic pressure of 0.1 ± 0.05 bar (0.01 ± 0.005 MPa) for low pressure (Type 2) supply systems (BS EN 1112:2008, Sanitary tapware. Shower outlets for sanitary tapware for water supply systems type 1 and 2. General technical specifications). — Baths: Total capacity of the bath to overflow, in litres (excluding displacement) — Dishwasher: Litres per place setting derived from the figures quoted on the EU Energy Label — Washing machine: Litres per kilogram of dry load derived from

Ref	Terms	Description
		the figure quoted on the EU Energy Label.
CN4	Pools, hot tubs or other large water-using features	Pools, hot tubs or other large water-using features, notifiable under the Water Supply (Water Fittings) Regulations 1991 [SI 1999/1148] which are fed by mains water will automatically mean that credits cannot be awarded for this issue. This rule applies whether it is an internal or external feature, with exception of internal hot tubs which should be assessed as a bath. Where such water features are present, credits can be awarded only where they use appropriately treated water from 100% rainwater or 100% greywater and all other criteria for this issue are met.
CN5	Equivalent terminal fitting consumption standards	<p>Equivalent terminal fitting consumption standards are based upon the performance indicators provided in BS8542:2011 as detailed in the additional information section of this issue. These equivalent standards provide a means of achieving the whole house water consumption targets set out in Table - 19. This is achieved through the specification of fittings to Good or Excellent standards or the specification of a whole bathroom, kitchen, utility room or WC rooms to a particular standard assuming the following fittings are present in each room and or dwelling as relevant:</p> <ul style="list-style-type: none"> — Bathroom fittings include: taps, showers, baths and WCs. — WC room fittings include: taps and WCs. — Kitchens and utility room fittings include: taps, washing machines and dishwashers. <p>Where one of the components listed above is not present this may change the water consumption per person per day and the number of credits awarded (e.g. where no bath present). In such cases, the Wat1 calculator should be used to determine the number of credits awarded. Where the terminal fittings vary from the equivalent terminal fitting consumption standards, the standard of performance can no longer be deemed equivalent to the whole house water consumption targets set out in Table - 19 and the Wat1 calculator should be used to determine the number of credits awarded. The standards make assumptions about the existing fittings within the dwelling based upon worse case scenarios. This is particularly relevant where there is only a partial replacement of fittings within the dwelling. The equivalent terminal fitting consumption standards make an assumption about the current performance of fittings that are not being replaced, based upon existing fitting performance assumptions. Where terminal fittings being retained have a lower consumption than these performance assumptions, the Wat1 calculator may be used to determine the number of credits. These standards are one of a number of scenarios that can gain credit at each level. It is up to the project team to decide the appropriate fittings for the dwelling. Where an alternative specification to these consumption standards is selected the Wat1 calculator must be used to determine the number of credits awarded for this issue.</p>
CN6	Water softeners	Where a water softener and or waste disposal unit is specified, the Wat1 calculator should be used to determine the number of credits

Ref	Terms	Description
	and waste disposal units	that should be awarded. The equivalent terminal fitting consumption standards do not account for water softeners and waste disposal units
CN7	Rainwater and greywater	Where rainwater and or greywater are specified, the Wat1 calculator should be used to determine the number of credits that should be awarded.

Schedule of evidence required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	All Credits	
Req. 1-2	<ol style="list-style-type: none"> 1. A copy of the Wat1 Calculator showing the internal potable water use per Dwelling Type. AND/OR Drawings describing the location, details and type of appliances/fittings that use water in the dwelling/s, including any specific water reduction equipment. OR 2. Where evidence 1 cannot be produced compliant design stage commitment to implement the specification required for the targeted credits. 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the design stage. AND 2. Building/site inspection report and photographic evidence.

Additional Information

Table - 19: Equivalent terminal fitting consumption standards

Equivalent terminal fitting standards (see compliance note 5)	Fitting Specification*
All fittings within the dwelling	<ul style="list-style-type: none"> — Bathroom and WC room taps 3 litres per minute — WC 3 litre effective flushing volume or less

Equivalent terminal fitting standards (see compliance note 5)	Fitting Specification*
including kitchen, bathroom, utility room and WC room fittings specified to 'Excellent'	<ul style="list-style-type: none"> — Shower 6 litres per minute — Bath 140 litre capacity to overflow — Kitchen and utility room taps 5 litre per minute or less — Dishwashers 0.83 litres per place setting or less — Washing Machine 4.85 litres per Kg or less
All fittings within the dwelling kitchen, bathroom, utility room and WC room fittings specified to 'Good'	<ul style="list-style-type: none"> — Bathroom and WC room taps 5 litres per minute or less — WC 4 litres effective flushing volume or less — Shower 8 litres per minute or less — Bath 140 litre capacity to overflow or less — Kitchen and utility room taps 5 litres per minute or less — Dishwasher 1 litre per place setting or less — Washing machine 6.47 litres per Kg or less
All Bathroom and WC room fittings specified to 'Excellent'	<ul style="list-style-type: none"> — Taps 3 litres per minute — WC 3 litre effective flushing volume or less — Shower 6 litres per minute — Bath 140 litre capacity to overflow — Kitchen and utility room fittings assumed as baseline
All bathroom and WC room fittings specified to 'Good'	<ul style="list-style-type: none"> — Taps 5 litres per minute or less — WC 4 litres effective flushing volume or less — Shower 8 litres per minute or less — Bath 140 litre capacity to overflow or less — Kitchen and utility room fittings assumed as baseline
All showers specified to 'Excellent'	<ul style="list-style-type: none"> — Showers 6 litres per minute — All other fittings assumed as baseline
All showers and bathroom taps to 'Good'	<ul style="list-style-type: none"> — Showers 8 litres per minute or less — Taps 4.5 litres per minute or less — All other fittings assumed as baseline
All showers specified to 'Good'	<ul style="list-style-type: none"> — Showers 8 litres per minute or less — All other fittings assumed as baseline
All taps and WC's to 'Good'	<ul style="list-style-type: none"> — Taps 4.5 litres per minute or less — Kitchen and utility taps 5 litres per minute or less — WCs with 4 litre effective flush volume or less — All other fittings assumed as baseline
Kitchen and utility room fittings specified to 'Excellent'	<ul style="list-style-type: none"> — Taps 5 litres per minute — Dishwashers 0.83 litres per place setting or less — Washing Machines 4.85 litres per kilogram or less — No water softener or waste disposal unit — All other fittings assumed as baseline

Equivalent terminal fitting standards (see compliance note 5)	Fitting Specification*
Typical baseline performance	<ul style="list-style-type: none"> — WC 6 litre effective flushing volume — Wash hand basin taps 12 litre per minute — Shower 14 litre per minute — Bath 200 litre capacity to overflow — Kitchen tap 12 litre per minute — Dishwasher 1.41 litres per place setting — Washing machine 14.5 litres per Kg

*all other fittings assumed as baseline

Default performance data

Where information on the performance of existing fittings is not available, default performance data from BS8542:2011, table B.7 should be used as detailed below (Wat 01 Internal Water Use). This default performance data should be used for fittings being retained where calculating the whole house water consumption using the BREEAM Domestic Refurbishment Wat1 calculator.

Table - 20: Default performance data

Terminal fitting type	Average usage	Terminal fitting type
Showers	Mixer – traditional mixer	8 litres per minute
	Mixer – integrated power	10 litres per minute
	Mixer – separate pump	12 litres per minute
	Mixer – pressurized systems	12 litres per minute
	Mixer – bath/shower mixers	6 litres per minute
	Electric 7–7.9 kW	3.5 litres per minute

Terminal fitting type	Average usage	Terminal fitting type
	Electric 8–8.9 kW	4 litres per minute
	Electric 9–9.9 kW	4.6 litres per minute
	Electric 10 kW+	5 litres per minute
Baths	Undersized bath – 1600 mm length	165 litres – volume to overflow
	Corner bath	140 litres – volume to overflow
	Shower bath	250 litres – volume to overflow
	Standard bath	225 litres – volume to overflow
	Roll top bath	205 litres – volume to overflow
	Whirlpool spa baths	225 litres – volume to overflow
WCs	Post 2001	6 litres
	1993–2000	7.5 litres
	Pre-1993	10 litres
Taps	Low pressure system (as defined in BSEN 200)	7.5 litres per minute per tap
	High pressure system (as defined in BSEN 200)	12 litres per minute per tap
Dishwashers	Domestic	14 litres per cycle
Washing machines	Domestic	55 litres per cycle

Wat 02 External Water Use

Number of credits available	Minimum standards
1	No

Aim

To encourage the recycling of rainwater and reduce the amount of mains potable water used for external water uses.

Assessment Criteria

One credit

1. Where a compliant rainwater collection system for external/internal irrigation use has been provided to dwellings.
OR
2. Where dwellings have no individual or communal garden space.

Assessment Procedure

Criteria	Procedure
Criterion	All Credits
1	<ol style="list-style-type: none"> a. Refer to CN1, CN3 and CN4 b. Refer to the definitions for; Garden; Compliant rainwater collection system; Rainwater butt; Central rainwater collection system
2	<ol style="list-style-type: none"> a. Refer to CN2

Compliance Notes

Ref	Terms	Description
CN1	Compliant rainwater collection system	<p>A compliant rainwater collection system should comply with all of the following:</p> <ul style="list-style-type: none"> — No open access at the top of the collector (a childproof lid is allowed) — Provision of a tap or other arrangement for drawing off water at a height suitable for filling a standard watering can. — Connection to the rainwater downpipes with an automatic overflow into the conventional rainwater drainage system — A means of detaching the rainwater downpipe and access pro-

Ref	Terms	Description
		<p>vision to enable cleaning of the interior</p> <ul style="list-style-type: none"> — Where the collection system is to be sited outside, and not buried, it must be stable and adequately supported; the material used for the container shall be durable and opaque to sunlight — Where the system is part of a rainwater collection system providing internal water, water for external use may be provided in a separate tank to water required for internal water. This could be an overflow pipe leading from the main tank to a compliant water butt for external water use
CN2	Dwellings with no individual or communal garden space or with no down pipes	<p>In the following cases the credit can be awarded as there will only be minimal demand for external water use or no feasible location for a compliant rainwater collection system:</p> <ul style="list-style-type: none"> — dwellings with no individual or communal garden space — dwellings only have balconies provided — the existing down pipe is not in individual or communal garden space and it is unfeasible to relocate the down pipe — there is no down pipe on the dwelling or no access to a down pipe and it is not feasible to relocate the water down pipe.
CN3	Requirements for homes with individual gardens, patios and terraces	<p>The rainwater collection system (e.g. rainwater butts) volume requirements for homes with individual gardens, patios and terraces are as follows:</p> <ul style="list-style-type: none"> — 1–2 bedroom home with private garden – minimum of 150 litres — Terraces and patios – minimum of 100 litres — 3+ bedroom home with private garden – minimum of 200 litres — Where there is no planting provided and the whole of the external space is covered by a hard surface the above volume requirements can be halved. — For houses with a front and a rear garden a rain water collection system is required only in the main (i.e. larger) garden but should meet the capacity requirements above.
CN4	Requirements for homes with communal Gardens	<p>The rainwater collection system (e.g. rainwater butts) volume requirements for homes with communal gardens are as follows:</p> <ul style="list-style-type: none"> — 1 litre/m² of land allocated to the dwelling with a minimum of 200 litres per communal garden. Where the communal garden is allocated to more than 6 dwellings, a maximum of 30 litres per dwelling can be applied. The allocated land can either be planted (including grass) or left as unplanted soil and can be either split into plots or communally maintained. <p>Where the rainwater collection system is providing internal demand for Wat 1 and also for irrigation to achieve credit under this issue, the system can only qualify for external use where:</p> <ul style="list-style-type: none"> — The Wat1 Calculator indicates that the demand of internal fittings to be supplied with rainwater has been met and where an excess volume of water is being collected to meet external

Ref	Terms	Description
		<p>water use of 5 litres per person per day (in line with the external water consumption assigned in the Wat 1 Calculator for compliance with Building Regulations Part G).</p> <p>— Where gardens are covered entirely by hard landscaping, the above requirement can be halved.</p>

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	All Credits	
Req. 1-2	<ol style="list-style-type: none"> Detailed documentary evidence stating the : type, size and location of any rainwater collection systems OR A building/site inspection report and photographic evidence to demonstrate there is no individual or communal garden space OR Where evidence 1 cannot be produced compliant design stage commitment outlining the design specification that will be implemented. 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the design stage. AND building/site inspection report and photographic evidence.

Additional Information

None.

This page is intentionally blank.

Wat 03 Water meter

Number of credits available	Minimum standards
1	No

Aim

To encourage the provision of equipment to measure water consumption of dwelling occupants, thereby encouraging them to reduce water use.

Assessment Criteria

One credit

1. Where an appropriate water meter for measuring usage of mains potable water has been provided to dwelling/s in accordance with CN1 or CN2

Assessment Procedure

Criteria	Procedure
	One Credit
1	a. Check the type of water meter to be provided and ensure it meets the requirements of compliance note 1 in accordance with the schedule of evidence required. Where there is an existing water meter in place refer to compliance note 2.

Compliance notes

Ref	Terms	Description
CN1	An appropriate water meter	A meter that provides a visible display of mains potable water consumption to occupants. The meter should be a permanent feature secured within the home in a location visible to occupants (i.e. not hidden within a cupboard) and capable of recording and displaying historic water consumption to allow water consumption to be monitored over time. The meter should be capable of displaying current consumption either instantaneously or at half hourly intervals.
CN2	Existing Water Meters	Where an existing water meter is in place, one credit can be awarded where it meets the requirements of CN1

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	All Credits	
All reqs	<ol style="list-style-type: none"> 1. Detailed documentary evidence confirming: <ol style="list-style-type: none"> a. The water meter make and model b. The consumption data displayed by the water meter c. The location of the water meter OR 2. Where the above cannot be produced at this stage, a compliant design stage commitment outlining the design specification that will be implemented 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Evidence, as listed for Design Stage, representing the dwelling/s as refurbished. <p>OR</p> <p>Written confirmation from the project manager that the dwelling/s have been refurbished in accordance with the evidence provided at the design stage.</p> <p>AND</p> <ol style="list-style-type: none"> 2. A building/site inspection report and photographic evidence.

Additional Information

None.

Materials

Category overview

Category weighting: 8%

Minimum standards:

- Mat 02 Responsible Sourcing of Materials

Summary

The materials category focuses on the procurement of materials that are sourced in a responsible way and have a low embodied impact over their life including how they have been extracted and manufactured. Overall it aims to encourage the retention of existing materials and where new materials are procured that they have the lowest environmental impact and the greatest potential impact on reducing the dwellings operational energy demand including the following aspects during refurbishment:

- Using thermal insulation which has a low embodied environmental impact relative to its thermal properties
- Sourcing responsibly sourced materials with appropriate certification e.g. FSC, ISO14001 etc.
- Sourcing materials with a high Green Guide rating

Table - 21 : Category summary table

Issue	Issue name	Credits	Credit summary
Mat 01	Environmental Impact of Materials	25	Up to 25 credits available for the embodied impact and the thermal performance of; roofs, external walls, internal walls, windows and upper and ground floors. This issue is assessed using the Mat1 calculator, depending on the Green Guide rating of new materials and the impact of those materials on improving the thermal performance of the materials that make up these elements.
Mat 02	Responsible Sourcing of Materials	12*	Minimum standards - that all new timber is legally sourced. This issue is assessed using the Mat2 calculator - up to 12 credits are available depending on the responsible sourcing tier levels of the applicable new materials.
Mat 03	Insulation	8	Any new insulation in external walls, ground floors, roofs and building services is assessed as a minimum requirement. First four credits – embodied impact of new insulation – assessed using the Mat3 calculator based on the insulation index.

Issue	Issue name	Credits	Credit summary
			Second four credits – responsible sourcing of a minimum of 80% of insulation OR where no new insulation is specified and the dwelling achieves a minimum of 2.5 credits in issue Ene 02.

Minimum standards are denoted by *

Mat 01 Environmental Impact of Materials

Number of credits available	Minimum standards
25	No

Aim

To encourage the retention and enhancement of existing elements and where new materials are required the use of materials with lower environmental impacts over their lifecycle whilst optimising the thermal performance of key building elements.

Assessment criteria

Up to 25 credits available:

- The BREEAM Domestic Refurbishment Mat 1 calculator is used to determine the number of credits awarded. Credits are awarded according to the impact of new materials according to their Green Guide Rating and their impact on improving the thermal performance of the dwelling for the following elements:
 - Roof
 - External walls
 - Internal walls (including separating walls)
 - Upper and ground floors
 - Windows
- Up to a maximum of 25 credits can be awarded through achieving a combination of the credits available for each element,

Table - 22: The number of credits available for each element

Elements	Green Guide Rating credits available	Thermal performance credits available*
Roof	5	3
External walls	5	3.8
Internal walls (including separating walls)	5	-
Upper and Ground Floor	5	1.2
Windows	5	2
* Thermal performance credits are only available to retained elements undergoing refurbishment to recognise thermal improvements made to existing retained elements.		

- Retained elements, where no work is being carried out on them, are assessed against the Refurbishment Green Guide Calculator. Typically they will be counted as being very low impact by the

- calculator. A maximum of 5 credits are available with elements rated from A+ (6) to E
4. Retained elements undergoing refurbishment (e.g. the installation of solid wall insulation) are assessed against the Refurbishment Green Guide Calculator. A maximum of 5 credits are available for refurbished elements depending on their Refurbishment Green Guide rating from A+ (6) to E.
 5. New elements such as new windows, a newly constructed roof or walls are assessed against the Green Guide to Specification with a maximum of 3 credits available depending on their Green Guide rating from A+ to E
 6. Additional credits are awarded for retained elements undergoing refurbishment as detailed in the calculation procedure (Materials) depending on the thermal improvement made as a result of refurbishment based upon the U value of elements before and after refurbishment.

Assessment Procedure

Criteria	Procedure
Criterion	All Credits
1 - 6	<ol style="list-style-type: none"> a. Determine the Green Guide rating of elements, using: <ul style="list-style-type: none"> — Refurbishment green guide calculator for retained elements undergoing refurbishment (e.g. new roof coverings etc.) and retained elements, where no work is being carried out — Green Guide Calculator for new building elements (e.g. new windows, new external walls etc.) b. Determine the U value for retained elements before and after refurbishment to assess the number of thermal performance credits awarded using the BREEAM Domestic Refurbishment Mat1 calculator c. Refer to the definition for Mat1 Calculator. d. Obtain a copy of the output from the Mat1 calculator. e. Refer to the relevant definition for Retained materials; New materials; Green Guide to specification; Using the Green Guide to Specification; Online Green Guide Calculator; Refurbishment Green Guide Calculator; Green Guide Element Number. f. For more information on the calculation procedures refer to Appendix B-6

Compliance Notes

Ref	Terms	Description
CN1	Element not present	Where the refurbishment does not contain an element listed above the BREEAM Domestic Refurbishment Mat1 calculator allows the element to be excluded from the assessment. In such instances the BREEAM Domestic Refurbishment Mat1 calculator will re-calculate the number of credits awarded based on the remaining applicable elements.
CN2	Flats	Where the assessment covers only some of the floors in the building, (e.g. ground floor flats), the roof and/or ground floor may be indicated as an element not present in the Mat1 calculator where relevant. Where the assessment includes all floors in a block of flats, the flats should be assessed against this issue on a whole building

Ref	Terms	Description
		level.
CN3	Element consisting of more than one specification	Where more than one specification is present for a given element, the Green Guide rating and area for each specification should be entered into the BREEAM Domestic Refurbishment Mat1 calculator. The calculator will then determine the total credits score on the basis of each specifications rating and area as a proportion of the whole element.
CN4	Finding exact Green Guide Ratings	Whilst exact matches in specifications are not always found, it should be possible to identify a similar specification and use its rating for the purposes of assessment. Where no similar specification can be found, guidance should be obtained from BRE on the appropriate rating (also see CN5).
CN5	No similar Green Guide rating available	Whilst exact matches in specifications are not always found, it should be possible to identify a similar specification and use its rating for the purposes of the assessment. Where the required component is not listed in the Refurbishment Green Guide Calculator, a Bespoke Green Guide Query proforma will need to be submitted, from which BRE Global will calculate the rating and confirm the result. Where no similar specification can be found for a newly constructed element, the online Green Guide calculator can be used to determine a bespoke Green Guide rating. The calculator can be accessed via www.thegreenguide.org.uk . If a required component is not present via the online Green Guide calculator, a Bespoke Green Guide Query proforma will need to be submitted, from which BRE Global will calculate the rating and confirm the result.
CN6	Environmental Profile Certification of products	Products with certified Environmental Profiles and with a “product specific” Green Guide rating can be used to demonstrate compliance with this BREEAM issue. Products are certified with a “product specific” Green Guide rating as part of a relevant elemental specification, e.g. a manufacturer’s concrete block as part of an external wall specification. This rating can be used in the same way as a generic Green Guide rating for this BREEAM issue. Where a certified product forms part of a different specification, for the same or different element type (i.e. different to that described on the Environmental Profile certificate), the guidance within Appendix B concerning Environmental Product Declaration types should be followed. This procedure outlines how BREEAM gives additional recognition for materials with robust Environmental Product Declaration types. A copy of the Environmental Profile Certificate and its appendix (which contains characterised data, normalised data and the Ecopoints score) can be sourced from the manufacturer or via the Environmental Profiles listing on www.greenbooklive.com .
CN7	Roof lights, patio doors and glazed	For the purpose of this issue any doors with a large expanse of glazing (>30% of the door area) and patio doors where glazed areas make up >70% of the door area, should be assessed as

Ref	Terms	Description
	conservatories	windows. Similarly, glazed areas of conservatories and roof lights should be assessed as windows (8).
CN8	Environmental Product Declaration	Where an independently verified third-party Environmental Product Declaration, covering part of or the whole life cycle, is available for a material/product that forms part of an assessed building element, this can be used to increase the contribution of that element to the building's Mat 1 performance (refer to Appendix B for more information).
CN9	Environmental product declarations and Environmental Profile Certification	BRE's Environmental Profile Methodology is an example of an independently verified third party EPD. Products are certified with a "product specific" Green Guide rating as part of a relevant elemental specification, e.g. a manufacturer's concrete block as part of an external wall specification. This rating can be used in the same way as a generic Green Guide rating for this BREEAM issue. Where a certified product forms part of a different specification, for the same or different element type (i.e. different to that described on the Environmental Profile certificate), the guidance within Appendix B concerning Environmental Product Declaration types should be followed. A copy of the Environmental Profile Certificate and its appendix (which contains characterised data, normalised data and the Ecopoints score) can be sourced from the manufacturer or via the Environmental Profiles listing on www.greenbooklive.com .

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
All Req.	<ol style="list-style-type: none"> 1. Specification providing a detailed description of each applicable element and its constituent materials. AND 2. Design drawings or specification detailing the location and area (m²) of each applicable element. AND 3. A copy of the output from the Mat1 calculator tool, including Green Guide/ Refurbishment Green Guide ratings and ele- 	<ol style="list-style-type: none"> 1. Where Post Refurbishment assessment only OR where documentary evidence differs from that provided at the Design Stage, then provide detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR A building/site inspection report and photographic evidence confirming dwell-

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	<p>ment numbers for each specification assessed.</p> <p>4. And where relevant:</p> <ul style="list-style-type: none"> a. Copies of Environmental Product Declarations b. A link/reference to the EPD's Product Category Rules c. Online Green Guide and or refurbishment calculator output d. Environmental Profile certificate(s) (or certificate number) 	<p>ing/s have been refurbished in accordance with the detailed documentary evidence provided at the Design Stage.</p> <p>OR</p> <p>Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at Design Stage.</p> <p>OR</p> <p>On-site measurements (methodology detailed in BRE IP 23/93 (6)) in the same rooms assessed at Pre-refurbishment stage (required when scale model measurements were carried out at Pre-refurbishment Stage)</p>

Additional information

None.

This page is intentionally blank.

Mat 02 Responsible Sourcing of Materials

Number of credits available	Minimum standards
12	Yes (Criterion 3 only)

Aim

To recognise and encourage the reuse of materials and the specification of responsibly sourced materials for use where required in the refurbishment process.

Assessment criteria

Up to 12 credits available:

- Where the applicable new materials for refurbished building elements are assigned a responsible sourcing tier level with points awarded as follows:

Table - 23: The number of points available for each tier level

Tier level	Points
1	4.0
2	3.5
3	3.0
4	2.5
5	2.0
6	1.5
7	1.0
8	0

- The number of credits achieved is determined as follows using the BREEAM Domestic Refurbishment Mat2 calculator:

Table - 24: The number of credits available for the number of points achieved

BREEAM credits	% of available points achieved
12	≥54%

BREEAM credits	% of available points achieved
10	≥45%
8	≥36%
6	≥ 27%
4	≥ 18%
2	≥ 9%

3. Where all new timber used in the project is sourced in accordance with the UK Government's Timber Procurement Policy, as detailed in CN3.
 - a. Copies of Environmental Product Declarations
 - b. A link/reference to the EPD's Product Category Rules
 - c. Online Green Guide calculator output
 - d. Environmental Profile certificate(s) (or certificate number)

Assessment Procedure

Criteria	Procedure
Criterion	All Credits
1 & 2	<ol style="list-style-type: none"> a. Determine the applicable Refurbished Building Elements - compliance note 1 b. Determine the applicable new materials -CN2 c. Identify the tier rank of each applicable new material in accordance with Table - 25 and Table - 26 based upon the rigour of responsible sourcing demonstrated by the supplier of the material, through evidence of certification against responsible sourcing certification schemes. d. Where an EMS is used to represent the Responsible Sourcing Certification Scheme, refer to the following definitions: Green Dragon Environmental Standard; Key Process; Chain of Custody. e. Use the Mat2 calculator to determine the number of credits and points. Note: to achieve points for any given building element, at least 80% of the new applicable materials for that element must be responsibly sourced i.e. classified in tier 1-7 (Table - 25).. f. Refer to CN4, CN6, CN7 and CN12 g. Management
3	<ol style="list-style-type: none"> a. Refer to the CN3, CN8, CN9 and CN11 b. Refer to CN3

Compliance Notes

Ref	Terms	Description
CN1	Refurbished building elements	Where new applicable materials are specified, the following refurbished building elements must be included in the assessment:

Ref	Terms	Description
		<ul style="list-style-type: none"> — Structural Frame — Ground floor — Upper floors (including separating floors) — Roof — External walls — Internal walls (including separating walls) — Foundation/substructure (excluding sub-base materials) — Staircase — Windows, External and internal doors — Secondary fixes including skirting, panelling, fascias and balustrades — Fixed furniture — Any other significant use <p>Where any of the above building elements have no new materials specified (e.g. the ground floor is undergoing no refurbishment work), they can be omitted from the assessment by selecting “0” specifications for that particular element in the BREEAM Domestic Refurbishment Mat2 Calculator. The calculator will re-distribute the points accordingly on a pro-rata basis as detailed in the Calculation Procedures. Refer to Appendix B for more information.</p>
CN2	Applicable Materials	<p>The following materials should be assessed within the Mat2 calculator where they form part of any building element listed in CN1;</p> <ul style="list-style-type: none"> — Brick (including clay tiles and other ceramics) — Resin-based composite materials, including GRP and polymeric render — Concrete (including in-situ and pre-cast concrete, blocks, tiles, mortars, cementitious renders etc.) — Glass — Plastics and rubbers (including EPDM, TPO, PVC and VET roofing membranes including polymeric renders) — Metals (steel, aluminium etc.) — Dressed or building stone including slate — Timber, timber composite and wood panels (including structural laminated timber components, plywood, OSB, MDF, chipboard and cement bonded particleboard) — Plasterboard and plaster — Bituminous materials, such as roofing membranes and asphalt — Other mineral-based materials, including fibre cement and calcium silicate — Products with recycled content <p>The following materials are excluded;</p> <ul style="list-style-type: none"> — Insulation materials — Fixings (such as screws/nails/brackets etc) — Adhesives — Additives <p>For any other materials that form a part of an applicable building element, but do not fit into the applicable materials list or the exclusions list, please contact BRE who will identify the relevant Key Process and Supply Chain Process or Processes.</p>

Ref	Terms	Description
CN3	Government's Policy for UK Timber Procurement	<p>The UK Government's timber procurement policy requires that all timber and wood-derived products must be from only:</p> <ul style="list-style-type: none"> — Independently verifiable legal and sustainable sources OR — FLEGT (forest law enforcement, governance and trade)-licensed timber or equivalent sources <p>Further information on the UK Timber Procurement Policy and compliant responsible sourcing certification schemes is available from the CPET (Central Point of expertise for timber procurement) website: www.cpet.org.uk. For further information, refer to the definition of legally sourced timber.</p>
CN4	Checking responsible sourcing claims	<p>Confirmation of claims should be sought from the relevant scheme provider. Many of the organisations who administer certification schemes will, via their website, list companies and products that have been certified against their standards, including the scope of any such certification. Some schemes, including BES6001 via www.greenbooklive.com, will provide downloadable copies of the relevant certificate, which can in turn be used as evidence of compliance with this BREEAM issue.</p>
CN5	Building element not present	<p>Where an element is not present in a project (e.g. an assessment of a ground floor of a building only and therefore no roof in the scope of the assessment), the points for this/these element(s) will be redistributed by the calculator to reward only the elements being assessed.</p>
CN6	Retained elements not undergoing refurbishment	<p>Building elements undergoing no alteration, do not need to be accounted for in this assessment issue with "0" specifications indicated in the Mat 02 Responsible Sourcing Calculator for any elements where this is the case. The aim of this issue is to focus on the responsible sourcing of new specified materials.</p>
CN7	Specified reused Materials	<p>Reused materials specified for the development e.g. recycled aggregates are considered equivalent to materials covered by certification schemes that fall within tier 3 of Responsible Sourcing Tier levels and Criteria (Table - 25). See also CN12 on pre or post consumer waste.</p>
CN8	CITES list	<p>CITES (Convention on International Trade in Endangered Species) (1) Appendices I and II of the CITES list (1) illustrate species of timber that are protected outright. Appendix III of the CITES list (1) illustrates species that are protected in at least one country. If a timber species used in the refurbishment project is on Appendix III it can be included as part of the assessment as long as the timber is not obtained from the country(ies) seeking to protect this species. For further information on the CITES list refer to the definition of CITES.</p>
CN9	Forest Stewardship	<p>This Central Point of Expertise on Timber Procurement (CPET) document may be helpful for determining the validity of FSC and PEFC certificates http://www.cpet.org.uk/files</p>

Ref	Terms	Description
	Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) validity	
CN 10	Insulating materials	The responsible sourcing of materials used for insulating the building fabric and services is assessed as part of BREEAM issue Mat3 Insulation. Therefore insulating materials are not assessed as part of this issue, but they are still subject to the BREEAM responsible sourcing requirements.
CN 11	A Government licence	A Government licence e.g. UK Forestry Commission felling licence certificate, does not comply as a third party timber certification scheme for this credit, but can be used as evidence of legally sourced timber.
CN 12	Pre or post consumer waste	Where materials being assessed (including timber) are part of a pre- or post-consumer waste stream, the EMS sections of the credit can be applied for; however, using an EMS scheme (ISO, EMAS etc.) for new timber does not demonstrate timber certification and therefore does not qualify for any of these BREEAM credits.
CN 13	Variance Between Tier Levels	Where variance between tier levels is achieved for materials within a given element a pro-rata calculation of the points total for the given element is required.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
Req. 1	<ol style="list-style-type: none"> 1. Design drawings and/or specification confirming: <ol style="list-style-type: none"> a. the location of elements and materials specified b. Details of the materials specified for each element. 	<ol style="list-style-type: none"> 1. Copies of purchase orders or receipts or certificate/letter of conformity for all applicable materials, including those recycled or reused AND 2. Confirmation the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the Design Stage in

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
		<p>the form of: Written confirmation from the developer OR Drawings or specifications</p>
2.	<ol style="list-style-type: none"> 1. A copy of the output from the BREEAM Domestic Refurbishment Mat 02 Calculator. AND 2. If the material has been ordered, supplied or the supplier is known: <ol style="list-style-type: none"> a. A copy of the purchase order from the supplier including (as appropriate) Chain of Custody (CoC) number and/or BES6001:2008 (2) Certificate number and/or EMS Certificate number OR b. Compliant design stage commitment from the contractor or developer that the product shall be sourced from suppliers capable of providing certification to the level required for the particular tier claimed 	<ol style="list-style-type: none"> 1. Where Post Refurbishment assessment only OR where documentary evidence differs from that provided at the Design Stage, then provide detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR For Small companies, (see Relevant Definitions) confirmation that the company EMS is structured in compliance with either: <ol style="list-style-type: none"> a. BS8555 2003 (3) (or equivalent) and the EMS has completed phase audits one to four as outlined in BS8555. This evidence can be found from company documentation demonstrating the process and typical outputs from phase four audits such as an EMS manual/paperwork and guidance to staff. Where independent certification exists to demonstrate these phases, it can be used as evidence. b. Green Dragon Environmental Standard ® 2006 (Safon Amgylcheddol Y Ddraig Werdd ®) completed up to and including Level 4. Confirmation is taken from a Green Dragon Standard certificate stating the company's achievement of Level 4. As company's achieving Level 4 will normally be required to under-

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
		<p>take annual audits, this certification should be dated within 1 year at the point of the last purchase made from the company.</p> <p>NOTE: For smaller companies with low environmental impacts, a renewal date of within 2 years is acceptable. For clarification on whether a company is certified against the Green Dragon Environmental Standard please see the Register of companies available at the Green Dragon website.</p>
3.	<p>1. Written confirmation that: All timber will/has come from a 'legal source' and is not on the CITES list OR in the case of Appendix III of the CITES list, it has not been sourced from the country seeking to protect this species as listed in Appendix III.</p>	<p>1. Detailed documentary evidence as listed for design stage</p>

Additional information

None.

Tables

Table - 25: Responsible Sourcing Certification Schemes and their tier levels

Scheme	Certification level/scope	Tier level
BRE Global, BES6001 Product certification	Excellent	2
	Very Good	3

Scheme	Certification level/scope	Tier level
	Good	4
	Pass	5
BRE Global, BES6001 Standard certification	Excellent	2
	Very Good	3
	Good	4
	Pass	5
Canadian Standards Association's (CSA) Chain of Custody Scheme	Chain of custody certification	3
Environmental Management System (EMS) (certified)	Key process and supply chain extraction process ⁴	6
Environmental Management System (EMS) (certified)	Key process	7
Forest Stewardship Council (FSC)	Chain of custody certification	3
Green Dragon Environmental Standard	Level 4 and above	7
Recycled materials	Certified EMS for key process	6
Re-used materials	-	3
Malaysian Timber Certification Council (MTCC)	Chain of custody certification	6
Programme for the Endorsement of Forest Certification (PEFC)	Chain of custody certification	3
Sustainable Forestry Initiative (SFI)	Chain of custody certification	3
Société Générale de Surveillance's (SGS) 'Timber Legality and Traceability' scheme	Timber Legality & Traceability Verification (TLTV)	6
Rainforest Alliance's 'Verification of Legal Origin and Compliance' scheme (supersedes SmartWood Verified)	Verification of Legal Origin and Compliance (VLO/VLC)	6

NB There is no existing scheme that currently meets the tier 1 requirements

- In BES6001:2008 to achieve a 'Pass', level 'a' must, as a minimum, be achieved for clauses 3.3.1, 3.3.2 and 3.3.3. Under clause 3.3.2 level 'a' requires a documented EMS system following the principles of ISO14001, but not formal certification. To achieve higher ratings such as 'Good', 'Very Good' and Excellent a minimum number of points from a combination of clauses 3.3.1, 3.3.2 and 3.3.3 must be achieved. It is possible therefore to get a 'Good' or 'Very good' rating by only complying with level 'a' for clause 3.3.2 and levels 'c' and 'd' for the other two clauses without necessarily having in place a formal independently certified EMS (as required above). If the BES 6001 assessor, in conducting the BES6001 assessment, confirms full compliance with clause 3.3.2 level 'a' then the requirement for an independently certified EMS is deemed to have been met.
- Performance ratings for schemes compliant with BES6001:2008 (or similar) can only be used to demonstrate compliance with the assessment criteria for this issue where certification covers the key process and supply chain processes for the material being assessed.
- Where an EMS is used to assess products made from recycled timber, 100% of the timber content must be recycled or sourced from one of the recognised timber certification schemes in Mat 02 Responsible Sourcing of Materials. A timber product with 50% recycled timber and 50% legally sourced timber will not comply with the criteria and will not be awarded any points. Using an EMS for new timber does not demonstrate timber certification and therefore does not qualify for points.

Table - 26: Environmental Management System (EMS) Criteria: list of the key process and supply chain (extraction) processes (by material type) that the scope of the EMS must cover

Material	Key Process	Supply Chain Processes
Brick (including clay tiles and other ceramics)	Product Manufacture	Clay Extraction
Resin-based composites and materials (including GRP and polymeric render but excluding timber based composites)	Composite product manufacture	Glass fibre production (or other principle matrix material) Polymer production
In situ Concrete (including ready mix and cementitious mortars and renders)	Ready mixed concrete plant	Cement production Aggregate extraction and production
Precast concrete and other concrete products (including blocks, cladding, precast flooring, concrete or cementitious roof tiles)	Concrete product manufacture	Cement production Aggregate extraction and production
Glass	Glass production	Sand extraction Soda Ash production or extraction
Plastics and rubbers (including polymeric renders, EPDM, TPO, PVC and VET roofing membranes)	Plastic/rubber product manufacture	Main polymer production
Metals (steel, aluminium)	Metal Product manufacture -	Metal production:

Material	Key Process	Supply Chain Processes
etc)	e.g. cladding production, steel section production	Steel: Electric arc furnace or Basic oxygen furnace process, Aluminium, ingot production, Copper: ingot or cathode production.
Dressed or building stone (including slate)	Stone product manufacture	Stone extraction
Plasterboard and plaster	Plasterboard or plaster manufacture	Gypsum extraction Synthetic gypsum (from flue gas desulphurisation) by default (recycled content)
Virgin timber	Timber from certified sources	Timber from certified sources
Cement Bonded Particle Board	Due to the significant cement content, in addition to requiring timber certification, the key supply chain process must also be considered to obtain the relevant tier: Timber from certified sources	Cement production Timber from certified sources
Wood panel and wood based composite products such as Oriented Strand Board, plywood, HPL, chipboard/particle, glulam, LVL, etc.)	Wood products, including those with recycled content, can only use the Timber Certification route	
Bituminous materials, such as roofing membranes and asphalt	Product manufacture	Bitumen production Aggregate extraction and production
Other mineral-based materials, including fibre cement and calcium silicate	Product manufacture	Cement production lime production other mineral extraction and production
Products with 100% recycled content	Product manufacture	Recycled input by default
Products with lower % of recycled content	Product manufacture	Supply chain process/processes for any virgin material in the relevant product type above. Recycled input by default
Any other product	Key processes is likely to be	1 or 2 main inputs with

Material	Key Process	Supply Chain Processes
	product manufacture	significant production or extraction impacts should be identified
Excluded products: insulation materials, fixings, adhesives, additives	N/A	N/A

Note: Where cement and aggregate, or dry mix concrete are mixed on site, (i.e. not concrete previously certified as pre-cast concrete products or wet ready mix concrete), certification must cover the manufacture of the cement as the primary process, and the extraction of the aggregate and limestone used to make the cement as the supply chain process.

This page is intentionally blank.

Mat 03 Insulation

Number of credits available	Minimum standards
8	No

Aim

To recognise and encourage the use of thermal insulation which has a low embodied environmental impact relative to its thermal properties and has been responsibly sourced.

Assessment Criteria

Up to 8 credits may be awarded for this issue as follows:

Pre-requisite

Any new insulation specified for use within the following building elements must be assessed:

1. External walls
2. Ground floor
3. Roof
4. Building services

4 Credits - Embodied Impact

1. Where the Insulation Index for new insulation used in the buildings is ≥ 2 and is calculated using the BREEAM Domestic Refurbishment Mat3 Insulation Calculator with reference to CN1, CN2 and CN3.
2. Where Green Guide ratings, required by the BREEAM Domestic Refurbishment Mat3 Insulation Calculator are determined using the Green Guide to specification tool.

4 Credits - Responsible Sourcing

3. Where $\geq 80\%$ of the new thermal insulation used in the building elements is responsibly sourced.

Assessment Procedure

Criteria	Procedure
	Four Credits
1	<ol style="list-style-type: none"> a. Refer to the definitions of: Insulation Index; Environmental Product Declaration; BREEAM Domestic Refurbishment Mat3 Insulation Calculator b. For more information on the Calculation procedures and using the calculator see Appendix B; Calculation Procedure B-7. c. Refer to CN2 and CN4 d. Obtain a copy of the output from the Mat3 Insulation Calculator.

Criteria	Procedure
2	a. Refer to CN4 and the definition for Green guide to specification under the Mat 1.
	Four Credits
3	a. Refer to definition of Responsible Sourcing b. Refer to Mat 2 CN4 c. Refer to the Assessment Criteria for responsible sourcing in Mat2. When clarifying EMS criteria instead refer to the criteria outlined in Management B-7.

Compliance Notes

Ref	Terms	Description
CN1	Refurbishment and materials reused in-situ	For each element that is reused in-situ, BREEAM allocates an 'A+' rating. For the purpose of responsible sourcing, existing and reused in-situ insulating materials are not assessed.
CN2	Insulation incorporated as part of an off-site manufactured element	If the insulation is incorporated as a component of an element that has been manufactured offsite e.g. a wall or roof, and that element has been assessed as part of Mat 1, then for the purpose of assessing the insulation for this BREEAM issue, a Green Guide rating of A+ should be used. The same rule applies to insulation that has a significant additional function, such as providing supporting structure e.g. structural insulated panels (SIPS). In the Green Guide the actual insulation will be listed within the element title, rather than under the generic insulation category.
CN3	Awarding credits	Each of the four credits can be awarded independently of each other i.e. it is not a requirement of the second four credits that the first four are achieved, and vice-versa.
CN4	Element consisting of more than one insulation type	Where more than one insulation type is present for a given element, the rating, area and conductivity for each insulation should be entered into BREEAM Domestic Refurbishment Mat3 Insulation Calculator and an average is calculated (by Volume).
CN5	Finding exact Green Guide Ratings	Where no similar insulation can be found BRE should be contacted for guidance on the appropriate rating.
CN6	Environmental Profile Certification of Products	Refer to BREEAM issue Mat 01 Compliance notes
CN7	Specifications that will	Where all insulation materials have a Green Guide rating of A or A+. Where there is a mixture of materials, at least 67% of the area

Ref	Terms	Description
	achieve an insulation index of 2	weighted thermal resistance has a rating of A+
CN8	Specifications that will not achieve an insulation index of 2	An insulation material with a Green Guide rating of 'B', 'C', 'D' or 'E' A mixture of materials with Green Guide ratings of 'A', 'B', 'C', 'D' or 'E'
CN9	Specifications which require the use of the Mat3 Calculator	Where there is a mixture of insulation materials with Green Guide Ratings of 'A+', 'A' and 'B', 'C', 'D' or 'E' with different area weightings and/or thermal conductivities.
CN 10	Where no new insulation is being installed	Where no new insulation is specified and where a minimum of 2.5 credits have been achieved in BREEAM Domestic refurbishment issue Ene 02, eight credits may be awarded for this issue.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	Pre- requisite and First four credits	
All reqs.	<ol style="list-style-type: none"> Text (on drawings or in a specification) describing the location and area (m²) and thickness (m) or volume (m³) of insulation specified AND Manufacturer's technical details confirming the thickness and thermal conductivity of the insulating materials specified. AND A copy of the output from the BREEAM Domestic Refurbishment Mat3 Insulation Calculator. AND The Green Guide rating and element number for the assessed 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the design stage. AND A building/site inspection report and photographic evidence.

insulation specifications including Green Guide ratings and element numbers for each new insulation specification assessed. And where relevant:

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	<ul style="list-style-type: none"> a. Copies of Environmental Product Declarations b. A link/reference to the EPD's Product Category Rules c. Online Green Guide calculator output d. Environmental Profile certificate(s) (or certificate number) 	
	Second Four Credits	
1	1. Evidence (as outlined in Mat2 req. 2 and 3) confirming compliance for the insulating materials and carried out using the BREEAM Refurbishment Mat3 Calculator.	2. Detailed documentary evidence as listed for the design stage.

Additional Information

None.

Waste

Category overview

- Category weighting: 5%
- Minimum standards: none

Summary

The waste category covers issues that aim to reduce the waste arising from refurbishment work and from the operation of the home, encouraging waste to be diverted from landfill including the following:

- Providing recycling storage facilities
- Providing composting facilities
- Implementing a site wide waste management plan (SWMP) to reduce refurbishment waste

Category summary table

Issue	Issue name	Credits	Credit summary
Was 01	Household waste	2	First credit – provision of recycling storage facilities Second credit – provision of composting facilities Within this issue there are different criteria depending on the collection scheme the dwelling is served by and if the dwelling has external space.
Was 02	Refurbishment Site Waste Management	3 + Exemplary credit	Credits are awarded for the implementation of a SWMP. The requirements of the SWMP differ depending on the value of the project. Exemplary credits are available for implementing a more comprehensive SWMP than required by the standard criteria.

This page is intentionally blank.

Was 01 Household Waste

Number of credits available	Minimum standards
2	No

Aim

To recognise and encourage the provision of dedicated storage facilities for a dwellings recyclable or compostable waste streams, so that waste is diverted from landfill or incineration.

Assessment criteria

First credit – Recycling facilities

- One credit can be awarded where the dwelling complies with one of the scenarios detailed in Table - 27 below:

Table - 27: Recycling storage requirements

Criterion	Scenario	Internal recycling storage requirements
1.	— Compliant collection scheme in place	<ol style="list-style-type: none"> Three internal recycling containers provided where recycling is not sorted post collection One internal recycling container provided where recycling is sorted post collection Minimum thirty litre total capacity, no single container less than seven litre capacity Dedicated position in accordance with compliance note 1
2.	<ul style="list-style-type: none"> — No compliant collection scheme in place — No adequate external storage 	<ol style="list-style-type: none"> Three internal recycling containers provided Minimum sixty litre total capacity Dedicated position in accordance with compliance note 1
3.	<ul style="list-style-type: none"> — No compliant collection scheme in place — Adequate external storage provided 	<ol style="list-style-type: none"> Three internal recycling containers provided Minimum thirty litre total capacity, no single container smaller than seven litre capacity Dedicated position in accordance with compliance note 1

Second credit – Composting Facilities

Dwellings with significant external private space - all of the following are met:

2. Where a composting service or facility is provided for green/garden waste
3. Where a composting service or facility is provided for kitchen waste
4. Where an interior container is provided for kitchen composting waste of at least seven litres

Dwellings without significant external private space - all of following are met:

5. Where a composting service or facility is provided for kitchen waste
6. Where an interior container is provided for kitchen composting waste of at least seven litres

Assessment Procedure

Criteria	Procedure
	First Credit
1	<ol style="list-style-type: none"> a. Determine whether there is a local authority or private collection scheme in place in accordance with CN4 b. Determine whether there is adequate external recyclable storage space in accordance with CN3 c. Identify the internal recycling provision required in accordance with Table - 27. d. Determine whether the internal recycling provided meets the credit requirements and is in accordance with CN1
	Second Credit
2-4	<ol style="list-style-type: none"> a. Refer to the definition for Significant External Private space b. Refer to CN5 c. Confirm if there is an internal container for kitchen composting waste of at least 7 litres
5-6	<ol style="list-style-type: none"> a. Refer to the definition for Significant External Private space b. Refer to CN5 c. Confirm if there is an internal container for kitchen composting waste of at least 7 litres

Compliance Notes

Ref	Terms	Description
CN1	Dedicated recycling containers	<ul style="list-style-type: none"> — in a dedicated, non unobtrusive position located in a cupboard in the kitchen, close to the non-recyclable waste bin, or located adjacent (within 10m) to the kitchen in a utility room, storage room or connected garage — the storage containers for recycling are provided in addition to non-recyclable waste storage — The storage containers are a fixture of the dwelling
CN2	Adequate external recyclable storage space	<p>To demonstrate adequate external recyclable storage space the following must be met:</p> <ul style="list-style-type: none"> — 3 external bins for recyclable materials with a minimum total capacity of 180 litres — The storage containers for recycling are provided in addition to

Ref	Terms	Description
		<p>non-recyclable external waste storage</p> <ul style="list-style-type: none"> — Communal recyclable storage is provided in a dedicated external space or in a dedicated communal space within the building, sized according to the frequency of collection, based on guidance from the recycling scheme operator, with space for at least 3 types of recyclable waste.
CN3	Existing Local Authority or Private Collection Scheme	<p>The Scheme provided privately or by the Local Authority must have a minimum collection frequency of at least fortnightly, with a minimum of 3 recyclable materials collected.</p> <p>If there is a proposed scheme that meets the above, the credit can be awarded.</p>
CN4	Internal kitchen composting container	<p>Internal kitchen composting containers must demonstrate all of the following to comply:</p> <ul style="list-style-type: none"> — Be located in a dedicated position — have a Home composting information leaflet that is delivered to each dwelling or as part of the dwellings Home Users Guide including the following: <ul style="list-style-type: none"> — How composting works and why it is important — The materials that can be composted (e.g. raw vegetable peelings and fruit, shredded paper, teabags, etc.) — Details of the operation and management plan for the communal composting scheme <p>Where a green/garden and kitchen composting collection scheme is in operation, the information leaflet provided by the Local Authority is sufficient to meet the information leaflet criteria</p>
CN5	Composting service or facility	<p>This must include one of the following:</p> <ul style="list-style-type: none"> — An exterior home composting facility is provided for the dwelling for composting green/garden waste and kitchen waste within 30 metres from an entrance door to the dwelling — A Local Authority green/garden and kitchen waste collection system — A local communal or community composting service is in place, which the Local Authority runs or there is a management plan in place
CN6	Automated waste collection system	<p>Where an automated waste collection system is in place, this is compliant provided that at least three different types of recyclable waste can be collected (see definition of recyclable materials).</p>

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All credits		
Recycling Facilities	<ol style="list-style-type: none"> 1. Detailed documentary evidence highlighting: <ol style="list-style-type: none"> a. the type and sizes of internal storage bins b. the location of internal and external storage bins and distance to kitchen c. the types and sizes of external storage bins <p>AND</p> <p>Where there is a local authority collection scheme or private recycling scheme:</p> <ol style="list-style-type: none"> 2. A letter, leaflet, website or other published information from the Local Authority or private recycling scheme operator describing: <ol style="list-style-type: none"> a. the types of waste collected b. the frequency of collection c. type of collection sorting 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. <p>OR</p> <p>Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the design stage.</p> <p>AND</p> <ol style="list-style-type: none"> 2. building/site inspection report and photographic evidence.

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
Composting facilities	<ol style="list-style-type: none"> 1. Detailed documentary evidence highlighting: <ol style="list-style-type: none"> a. the location and size of external composter b. distance of external storage and/or composter from external door c. Location of the sufficiently sized internal space. <p>AND</p> <ol style="list-style-type: none"> 2. Where there is a local authority collection scheme or private recycling scheme: A letter, leaflet, website or other published information from the Local Authority or private scheme describing details of the scheme location 	

Additional information

None.

This page is intentionally blank.

Was 02 Refurbishment Site Waste

Management

Number of credits available	Minimum standards
3	No

Aim

To promote resource efficiency via the effective management and reduction of waste related to the refurbishment process.

Assessment criteria

Credits are awarded depending on the scale and the estimated cost of refurbishment. Up to three credits may be awarded for this issue along with the opportunity for an innovation credit as follows:

Projects up to £100k: three credits are awarded:

1. Where waste generated through the refurbishment process is managed in accordance with Checklist A-9; Refurbishment Site Waste Management – up to £100k value

Projects up to £300k: three credits are awarded:

2. Where a compliant Level 1; Site Waste Management Plan See Criteria (SWMP) is in place in accordance with CN3.

Projects over £300k: up to three credits are available:

First credit - management plan

3. Where a compliant Level 2; SWMP is in place in accordance with CN4

Second credit - good practice waste benchmarks

4. Where the first credit has been achieved
5. Where Non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the resource efficiency benchmark in accordance with CN7
6. Where the amount of waste generated against £100,000 of project value is recorded in the SWMP
7. Where a pre-refurbishment audit of the existing building is completed in accordance with CN10
8. Where the demolition is included as part of the refurbishment programme, then the audit should also cover demolition materials

Third credit - best practice waste benchmarks

9. Where the first two credits have been achieved
10. Where Non-hazardous demolition waste generated by the dwellings refurbishment meets or exceeds the refurbishment & demolition waste diversion benchmarks in accordance with CN8

Exemplary Level Requirements

Projects less than £100k

11. Where a compliant Level 1; Site Waste Management Plan (SWMP) is in place in accordance with CN3

Projects up to £300k

12. Where a compliant Level 2; SWMP is in place in accordance with CN4
13. Where Non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the resource efficiency benchmarks in accordance with CN7
14. The percentage of non-hazardous construction waste and demolition waste (where applicable) generated by the project has been diverted from landfill and meets or exceeds the refurbishment & demolition waste diversion benchmarks in accordance with CN8

Projects over £300k

15. Where non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the exemplary level resource efficiency benchmark in accordance with CN11
16. Where Non-hazardous demolition waste generated by the dwellings refurbishment meets or exceeds the exemplary level diversion benchmarks in accordance with CN12

Assessment Procedure

Criteria	Procedure
Projects up to £100k – Three credits	
1	<ol style="list-style-type: none"> a. Confirm the sites waste is managed in accordance with Checklist A-9 b. Refer to CN1
Projects up to £300k – Three credits	
2	<ol style="list-style-type: none"> a. Confirm the sites waste is managed in accordance with a compliant level 1 SWMP in accordance with CN3
Projects over £300k – First credit	
3	<ol style="list-style-type: none"> a. Confirm the sites waste is managed in accordance with a compliant level 2 SWMP in accordance with CN4
Projects over £300k – Second credit	
4-8	<ol style="list-style-type: none"> a. Confirm the first credit has been achieved b. Obtain evidence to confirm criterion 3-6 have been met with resource efficiency benchmarks in accordance with CN7 and a pre-refurbishment audit in accordance with CN10
Projects over £300k – Third credit	
9-10	<ol style="list-style-type: none"> a. Confirm the first two credits have been achieved b. Obtain evidence to confirm the refurbishment & demolition waste diversion benchmarks have been met in accordance with CN8

Criteria	Procedure
	Exemplary Credit
11	a. Confirm the sites waste is managed in accordance with a compliant level 1 SWMP in accordance with CN3
12	a. Confirm the sites waste is managed in accordance with a compliant level 2 SWMP in accordance with CN4
13	a. Obtain evidence to confirm the resource efficiency benchmarks have been met in accordance with CN7
14	a. Obtain evidence to confirm the refurbishment & demolition waste diversion benchmarks have been met in accordance with CN8
15	a. Obtain evidence to confirm the Exemplary Level resource efficiency benchmark has been met in accordance with CN11
16	a. Obtain evidence to confirm the Exemplary Level Diversion Benchmarks have been met in accordance with CN12

Compliance Notes

Ref	Terms	Description
CN1	Checklist A-9; Refurbishment Site Waste Management – up to £100k value	Checklist A-9 must to include the following to comply: <ul style="list-style-type: none"> — Waste is taken away by a licensed carrier — Waste is taken to a site with an appropriate permit or exemption — Options are considered for reusing and recycling waste.
CN2	SWMP	Since April 2008, construction projects being carried out on one site in England costing over £300,000 require a SWMP. For projects over £300,000 the SWMP must be legally compliant.
CN3	Level 1; SWMP	To demonstrate a compliant SWMP for refurbishments up to £300,000 the following must be met: <ul style="list-style-type: none"> — Procedures and commitments for minimising non-hazardous construction waste — Procedures for sorting, reusing and recycling construction waste and demolition waste (if generated) into key defined waste groups. See Table - 32 (according to the waste streams generated by the scope of the works), either on site or through a licensed external contractor and measuring the amount generated and diverted from landfill.

Ref	Terms	Description						
		<ul style="list-style-type: none"> — Licence details for the waste carrier, and permit details for the site the waste is taken to, if waste is removed offsite. — The name or job title of the individual responsible for implementing the above. 						
CN4	Level 2; SWMP	<p>To demonstrate a compliant SWMP for refurbishments over £300,000 the following must be met:</p> <ul style="list-style-type: none"> — A target benchmark for resource efficiency i.e. m³ of waste per £100,000 of project value or tonnes of waste per £100,000 of project value (in line with the credit available). — Procedures and commitments for minimising non-hazardous construction waste in line with the benchmark and best practice — Specify waste minimisation actions relating to at least 3 key waste groups as referenced in Table - 32 and recording decisions taken — Procedures for minimising hazardous waste — Procedures for sorting, reusing and recycling construction and demolition waste (if generated) (according to the waste streams generated by the scope of the works) either on site or through a licensed external contractor — Procedures for measuring the amount of construction and demolition waste (if generated) diverted from landfill. — Licence details for the waste carrier, and permit details for the site the waste is taken to, if waste is removed offsite. — The name or job title of the individual responsible for implementing the above. 						
CN5	Construction waste	This refers to all waste that is generated as a result from the refurbishment process. This will be waste that is from the removal of item e.g. bathrooms, kitchens, plumbing, electrics etc and waste that is generated from the installation of products e.g. surplus, offcuts and packaging						
CN6	Demolition waste	This refers to all waste that is generated as a result of demolishing a structure or part of a structure.						
CN7	Resource Efficiency Benchmarks	<p>To demonstrate compliance, the following resource efficiency benchmark has been met or exceeded:</p> <p>Table - 28: Resource efficiency benchmarks</p> <table border="1"> <thead> <tr> <th colspan="2">Amount of non-hazardous construction waste generated per £100,000 of project value</th> </tr> <tr> <th>m³</th> <th>Tonnes</th> </tr> </thead> <tbody> <tr> <td>26.52</td> <td>16.90</td> </tr> </tbody> </table> <p>Note – Volume (m³) is the actual volume of waste, not bulk</p>	Amount of non-hazardous construction waste generated per £100,000 of project value		m ³	Tonnes	26.52	16.90
Amount of non-hazardous construction waste generated per £100,000 of project value								
m ³	Tonnes							
26.52	16.90							

Ref	Terms	Description									
		volume									
CN8	Refurbishment Demolition Waste Diversion Benchmarks	<p>To demonstrate compliance, the following diversion benchmarks have been met or exceeded:</p> <p>Table - 29: Refurbishment & demolition waste diversion benchmarks</p> <table border="1"> <thead> <tr> <th>Waste types</th> <th>Volume</th> <th>Tonnes</th> </tr> </thead> <tbody> <tr> <td>Non-hazardous construction waste</td> <td>70%</td> <td>65%</td> </tr> <tr> <td>Non-hazardous demolition waste</td> <td>80%</td> <td>90%</td> </tr> </tbody> </table> <p>Where diversion from landfill includes:</p> <ul style="list-style-type: none"> — Reusing the material on site (in-situ or for new applications) — Reusing the material on other sites — Salvaging or reclaiming material for reuse — Returning material to supplier via a 'take-back' scheme — Recovery of material from site by an approved waste management contractor and recycled, composted or sent for energy recovery 	Waste types	Volume	Tonnes	Non-hazardous construction waste	70%	65%	Non-hazardous demolition waste	80%	90%
Waste types	Volume	Tonnes									
Non-hazardous construction waste	70%	65%									
Non-hazardous demolition waste	80%	90%									
CN9	Limited site space for segregation and storage	Where space on site is too limited to allow waste materials to be segregated, a waste contractor may be used to separate and process recyclable materials off site. Similarly, manufacturers' take-back schemes could also be used. Where this is the case, sufficient documentary evidence must be produced which demonstrates that segregation of materials is carried out to the agreed levels and that materials are reused/recycled as appropriate.									
CN10	Pre-refurbishment audit/pre-demolition audit	<p>The pre-refurbishment/pre-demolition audit must be carried out to determine how to maximise the recovery of material from the refurbishment for subsequent high-grade/value applications. It should be carried out using an appropriate methodology. The ICE has produced guidance on pre-demolition audits, including 'The Demolition Protocol' (24) and the Waste Resources Action Programme (WRAP) (7) also provides guidance. The audit must be referenced in the SWMP and cover the following:</p> <ul style="list-style-type: none"> — Identification and amounts of the key refurbishment materials. — Potential applications and any related issues for the reuse and recycling of the key refurbishment materials. 									
CN11	Exemplary level Resource Efficiency	<p>To demonstrate compliance the following resource efficiency benchmark has been met or exceeded:</p> <p>Table - 30: Exemplary resource efficiency benchmarks</p>									

Ref	Terms	Description									
	Benchmarks	<p>Amount of non-hazardous construction waste generated per £100,000 of project value</p> <table border="1"> <tr> <td>m³</td> <td>Tonnes</td> </tr> <tr> <td>17.32</td> <td>8.78</td> </tr> </table> <p>Note – Volume (m³) is the actual volume of waste, not bulk volume</p>	m ³	Tonnes	17.32	8.78					
m ³	Tonnes										
17.32	8.78										
CN12	Exemplary Level Diversion Benchmarks	<p>To demonstrate compliance the following diversion benchmarks have been met or exceeded:</p> <p>Table - 31: Exemplary refurbishment & demolition waste diversion benchmarks</p> <table border="1"> <thead> <tr> <th>Waste types</th> <th>Volume</th> <th>Tonnes</th> </tr> </thead> <tbody> <tr> <td>Non-hazardous construction waste</td> <td>80%</td> <td>85%</td> </tr> <tr> <td>Non-hazardous demolition waste</td> <td>85%</td> <td>95%</td> </tr> </tbody> </table> <p>Where diversion from landfill includes:</p> <ul style="list-style-type: none"> — Reusing the material on site (in-situ or for new applications) — Reusing the material on other sites — Salvaging or reclaiming material for reuse — Returning material to supplier via a 'take-back' scheme — Recovery of material from site by an approved waste management contractor and recycled, composted or sent for energy recovery 	Waste types	Volume	Tonnes	Non-hazardous construction waste	80%	85%	Non-hazardous demolition waste	85%	95%
Waste types	Volume	Tonnes									
Non-hazardous construction waste	80%	85%									
Non-hazardous demolition waste	85%	95%									

Schedule of Evidence

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits and Exemplary Credit		
All	<p>1. A copy of the compliant Site Waste Management Plan/Checklist A-9 containing the appropriate benchmarks, commitments and procedures.</p>	<p>1. Where no design stage assessment has been carried out a copy of the compliant Site Waste Management Plan/Checklist A-9 containing the appropriate benchmarks, commitments and procedures. OR A copy of the SWMP (22) summary datasheets or equivalent monitoring records/report confirming:</p>

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	<p>AND</p> <p>2. Where appropriate, a copy of the pre-refurbishment audit.</p> <p>OR</p> <p>3. Compliant design stage commitment that requires the principal contractor to produce a SWMP/complete Checklist A-9 in line with the criteria and to outline in detail the criteria with respect to resource efficiency and target(s) and procedures to be included in the SWMP.</p>	<p>a. The waste arising for the development for non-hazardous construction and demolition waste.</p> <p>b. Comparison of the waste arising against the targets</p> <p>c. Quantities of waste produced, segregated via the key waste groups</p> <p>d. Where required, the amount and proportion of waste arising that was reused, recycled and sent to landfill</p> <p>e. Custody/application/destination of reused/recycled materials.</p>

Table - 32: Waste groups

European Waste Catalogue (EWC)	Key Group	Examples
Key groups common to refurbishment		
17 01 01 17 01 02 17 01 03 17 01 07 17 02 02	Inert to include; Concrete, Bricks, Tiles and ceramics, Mixture of concrete, bricks, tiles & ceramics, Glass	Pipes, kerb stones, paving slabs, concrete rubble, precast and in situ Bricks Ceramic tiles, clay roof tiles, ceramic, sanitary ware.
17 02 01	Timber	Softwood, hardwood, boards products such as plywood, chipboard, medium density fibreboard (MDF)
17 02 03	Plastics	Pipes, cladding, frames, non- packaging sheet
17 04 07 17 04 01 17 04 02 17 04 03 17 04 04 17 04 05 17 04 06	Mixed metals and categories: Copper, bronze, brass Aluminium Lead Zinc Iron and Steel Tin	Radiators, cables, wires, bars, sheet

European Waste Catalogue (EWC)	Key Group	Examples
17 06 04	Insulation	Glass fibre, mineral wool, foamed plastic
17 08 02	Gypsum	Plasterboard, render, plaster, cement, fibre cement sheets, mortar
Most relevant EWC	Hazardous	Defined in the Hazardous Waste List (HWL) of the European Waste Catalogue (EWC)
17 09 04 (Mixed)	Mixed	Efforts should be made to categorise waste into the above categories wherever possible
20 03 07	Furniture	Tables, chairs, desks, sofas
Most relevant EWC under Chapter 15	Packaging	Paint pots, pallets, cardboard, cable drums, wrapping bands, polythene sheets
Most relevant EWC under Chapter 16	Electrical and electronic equipment	Electrical & electronic TVs, fridges, air-conditioning units, lamps equipment
Most relevant EWC	Floor coverings (soft)	Carpets, vinyl flooring
Most relevant EWC	Architectural Features	Roof tiles, reclaimed bricks, fireplaces
Other groups		
17 03 02	Asphalt and tar (non hazardous)	Bitumen, coal tars, asphalt
17 05 04	Soils and stones	Soils, clays, sand; gravel, natural stone
20 03 01	Mixed municipal waste	Office waste, canteen waste, vegetation
Most relevant EWC	Oils	Hydraulic oil, engine oil, lubricating oil
Most relevant EWC	Liquids	Non-hazardous paints, thinners, timber treatments

Additional information

None.

References

1. British Standards Institution. Code of Practice for Storage and On-Site Treatment of Solid Waste from Buildings. British Standard BS 5906. London. BSI. 2005
2. Department for Communities and Local Government. Building Regulations Approved Document H Drainage and waste Disposal ODPM (2002)
3. Household Waste Recycling Act; 2003
4. Department of Environment Food and Rural Affairs (DEFRA) www.defra.gov.uk
5. Communities and Local Government - Building Regulations Approved Document H – Drainage and waste disposal (2002) www.planningportal.gov.uk
6. Recycle Now: www.recyclenow.com
7. WRAP (The Waste and Resources Action Programme) www.wrap.org.uk
8. The Animal By Products Regulations 2005, Regulation (EC) No 1774/2002
9. Defra, "Guidance on the treatment in approved composting or biogas plants of Animal by-Products and catering waste.", Version 8: September 2008, www.defra.gov.uk
10. Community Composting www.communitycompost.org
11. Community Recycling Network UK www.crn.org.uk/ (further information to set up community composting)
12. Compost Information Sheet. 2005: Composting and disposing of garden and kitchen waste. www.wasteonline.org.uk
13. Composting troubleshooting www.compostguide.com
14. Project: 'Growing with compost', which contains a technical guidance library on different subjects regarding community composting, in www.growingwithcompost.org
15. BRE: SMARTWaste Plan (Site waste management planning tool), SMARTStart, waste benchmarks/EPs and guidance: Reduction of Site Construction Waste, Recycling and Reuse of materials: A Site Guide and A Project Management Guide. www.smartwaste.co.uk
16. BREMAP, a geographical information system of waste management facilities www.bremap.co.uk
17. Constructing Excellence, Annual benchmarks for KPIs, www.constructingexcellence.org.uk
18. DEFRA (Department of Environment, Food and Rural Affairs), Non Statutory Guidance for Site Waste Management Plans: www.defra.gov.uk
19. DEFRA: Site Waste Management Plans Regulations 2008 (2008/314) www.opsi.gov.uk
20. Environment Agency: technical guidance available at: www.environment-agency.gov.uk
21. European Waste Catalogue available at: www.environment-agency.gov.uk
22. Site Waste Management Plans, Guidance for Construction Contractors and Clients, Voluntary Code of Practice, DTI, 2004
23. WRAP: SWMP templates, tools for designing out waste, case studies and guidance on setting requirements and for pre-refurbishment/demolition audits www.wrap.org.uk
24. ICE Demolition Protocol, provides information on pre-refurbishment and demolition audits: www.ice.org.uk

This page is intentionally blank.

Pollution

Category overview

- Category weighting: 8%
- Minimum standards: Pol 03 Flooding

Summary

The pollution category covers issues that aim to reduce the homes impact on pollution as well as reducing risk from flooding. This includes the following aspects being considered during refurbishment:

- The use of low NO_x space heating and hot water systems
- Having a neutral impact on runoff or reducing or eliminating runoff from the dwelling as a result of refurbishment
- Providing flood resistance and resilience strategies, where dwellings are in a medium or high flood risk zone
- Rewarding dwellings which are located in a low flood risk zone

Table - 33: Section summary table

Issue	Issue name	Credits	Credit summary
Pol 01	Nitrogen Oxide Emissions	3	Credit allocation is tiered and awarded based on the amount of NO _x emissions arising from the operation of space heating and hot water systems.
Pol 02	Surface water runoff	3	First credit – where the refurbishment has had a neutral impact on surface water from the site Second credit – basic level of reducing run-off from site Third credit – advanced level of reducing run-off from site including an allowance for climate change Exemplary credits – eliminating all runoff from site and including an allowance for climate change
Pol 03	Flooding	2*	Minimum standards – requirement of two or more credits under this issue to achieve an excellent or outstanding rating Criteria are based on the results of a flood risk assessment. Where the site is defined as medium or high flood risk there are additional requirements for flood resilience and resistance strategies.

Minimum standards are denoted by *

This page is intentionally blank.

Pol 01 Nitrogen Oxide Emissions

Number of credits available	Minimum standards
3	No

Aim

To reduce the emission of nitrogen oxides (NO_x) into the atmosphere.

Assessment criteria

Up to 3 credits – Low NO_x space heating and hot water systems

1. Credits are awarded on the basis of NO_x emissions arising from the operation of space heating and hot water systems for each refurbished dwelling as follows:
 - a. One credit where the dry NO_x emissions of space heating and hot water systems are 100 mg/kWh (NO_x class 4 boiler).
 - b. Two credits where the dry NO_x emissions of space heating and hot water systems are 70 mg/kWh (NO_x class 5 boiler).
 - c. Three credits where the dry NO_x emissions of space heating and hot water systems are 40 mg/kWh.

Assessment Procedure

Criteria	Procedure
	All Credits
1	<ol style="list-style-type: none"> a. Determine the space heating and hot water system specified in the home, where the space heating and hot water system is to be retained, refer to compliance note 1, b. Refer to CN2, CN3 and CN4 to determine how to assess the heating system which may be one of three types: <ul style="list-style-type: none"> — a system which typically achieves credits under this issue — a system which typically has high NO_x emissions and does not typically achieve credits under this issue — a system which requires an average NO_x calculation to be carried out referring to the Pol Calculator and Appendix B; Calculation Procedures B-8

Compliance Notes

Ref	Terms	Description
CN1	Existing heating and hot water systems	If the heating and hot water demand is being met by an existing system being retained, then the NO _x emission level for the existing system must be assessed against the criteria of this issue as detailed in compliance notes 2 - 4.
CN2	Systems which typically meet the requirements of this issue	<p>The following combination of systems will typically gain credits under this issue provided that the boiler is a recent installation (installed in the last 10 year). The NO_x emissions can be determined simply from the boiler manufacturers' product literature or manufacturers/SEDBUK web sites (www.SEDBUK.com). Note that the dry NO_x emissions must be quoted in mg/kWh to determine the number of credits that may be awarded. Where this is not the case a calculation will be required to give a figure in these units (see CN11).</p> <ul style="list-style-type: none"> — Gas heating and hot water — Gas heating and hot water with solar thermal — Gas heating and hot water with secondary heating less than 8% of the combined heating and hot water demand — Where all space heating and hot water energy requirements are fully met by systems which do not produce NO_x emissions, three credits can be awarded.
CN3	Systems typically requiring average NO _x calculations	<p>Average NO_x emission calculations are typically required where the following heating and hot water systems are specified. Calculations should be carried out using the Pol calculator as detailed in Appendix B; Calculation Procedures B-8.</p> <ul style="list-style-type: none"> — Gas heating and hot water with secondary heating that contributes greater than 8% of the combined heating and hot water demand — Air Source Heat Pump with PV (to determine whether electricity generated offsets grid electricity consumed by the heat pump) — Ground source heat pump with PV (as per Air Source Heat Pumps) — Ground source heat pump with auxiliary heating
CN4	Systems that will typically not meet the requirements of this issue:	<ul style="list-style-type: none"> — Grid powered Air Source and Ground Source Heat Pumps – due to the use of grid electricity which has NO_x emissions equivalent to 1200 mg/kWh supplied energy (unless NO_x combined with solar PV, where average NO_x emission calculations may demonstrate a lower NO_x level). These will, however, contribute towards achieving credits in the energy category — Biomass Boilers – typically have NO_x emissions well above 100mg/kWh. These will, however, typically gain credits in the energy category — Electric heating systems including direct heaters (including convector and radiators) and storage heaters where powered from grid electricity due to the NO_x emissions associated with

Ref	Terms	Description
		<p>the grid</p> <p>— Oil heating systems</p>
CN5	Gas and biomass CHP	<p>Provided the NO_x emissions per unit of electricity generated is lower than the NO_x emissions per unit of electricity supplied from the grid (which should be set at 1200mg/kWh_{elec}), Gas and Biomass CHP will always achieve 3 credits by default. This is because the electricity generation offset from the grid by the CHP unit, will always reduce the average NO_x emissions for the CHP unit to less than zero.</p>
CN6	Community Heating	<p>In the case of a District Heating System, the dry NO_x rating figure in mg/kWh for the community heating system should be used to assess the credit. In practice, this figure may be very high, therefore preventing achievement of the credits. The figure cannot be scaled down based on the number of dwellings served by the system since the same amount of NO_x will be produced in supplying 1 kWh whether or not the system services 1 dwelling or 100 dwellings.</p> <p>Where communal heating systems intended to supply a dwelling under assessment are due to be commissioned within 18 months from completing the dwelling, then they should be used as the heat energy source for calculations under this credit, rather than the interim heat energy supply measure (which should also be noted). The communal system (eg CHP, District Heating etc) must be the primary heating energy source for the dwelling once in operation. Evidence to confirm that future activation of such plant will occur within a reasonable period must be provided in the form of developer commitments and other pertinent technical documentation such as local service strategies.</p> <p>Community heating systems that incinerate waste usually have NO_x emission rates higher than the levels set to achieve any BREEAM credits.</p>
CN7	Zero NO _x Emission Energy Sources	<p>Any zero NO_x emission energy source which directly contributes to the total space heating and hot water energy supply can be added to the total space heating and hot water energy demand from SAP in order to further reduce the average figure for NO_x emissions. An example of this might include on-site wind power generation directly linked into secondary electrical space heating.</p>
CN8	Other Systems	<p>For any other system not covered, or for clarification on how to estimate dry NO_x levels, please contact BREEAM Technical Support.</p>
CN9	Secondary Space/Water Heating Systems	<p>If a secondary space and / or water heating system supplies less than 8% of the dwelling's combined total space heating and hot water demand, it can be ignored.</p>
CN 10	Grid electricity	<p>Where some of the building's space heating is fuelled by electricity from the National Grid, however small the incidence is on the overall consumption, the credits will not be achievable as the average level of NO_x emitted by power stations is approximately 1200 mg/kWh. This figure is a UK average recognising the integrated nature of the UK</p>

Ref	Terms	Description
		grid and therefore also applies to all UK areas including those with a higher proportion of local renewable sources like Scotland.
CN 11	NO _x Figures	If the figures are not stated in dry NO _x and/or in mg/kWh as required, apply any necessary conversion/correction factors required to convert the NO _x figure(s) stated for the heating system/s accordingly. (See Appendix B-8, calculation procedures for further guidance.)
CN 12	Open Flue	No credits may be awarded for open flue heating or hot water systems
CN 13	Green Tariff	Commitments to use a Green tariff to supply electricity to heat the building or power heat pumps are not recognised in this issue due to the uncertainty that this electricity will be zero emission.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
Req.1	<ol style="list-style-type: none"> 1. Detailed documentary evidence describing: <ol style="list-style-type: none"> a. The primary and any secondary heating systems and flue type b. Dry NO_x levels and/or boiler class of the primary and any secondary heating systems <p>AND</p> 2. Where NO_x averaging is required due to multiple heating systems within the dwelling/s, provide the following detailed documentary evidence: <ol style="list-style-type: none"> a. Copy of calculations as detailed in Appendix B OR b. Copy of Pol 01 calculator 3. Where evidence 1 and 2 can- 	<p>The following as appropriate:</p> <ol style="list-style-type: none"> 1. Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the design stage. AND 2. Building/site inspection report and photographic evidence.

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	not be produced compliant design stage commitment outlining the design specification that will be implemented.	

Additional information

None.

This page is intentionally blank.

Pol 02 Surface Water Runoff

Number of credits available	Minimum standards
3	No

Aim

To encourage domestic refurbishments to have a neutral impact upon site run-off and recognise refurbishments that adopt opportunity measures to reduce and delay the discharge of rainfall to the public sewers and watercourses. This will protect the watercourses and reduce the risk of localised flooding, pollution and other environmental damage.

Assessment criteria

First credit – neutral impact on surface water

1. Where any new hard standing areas are permeable, this must include all new pavements, driveways and where applicable public rights of way, car parks and non-adoptable roads (e.g. community scale refurbishment projects).
2. Where the building is being extended onto any previously permeable surfaces, or an impermeable surface that drains onto a permeable surface (e.g. paving slabs set on concrete that drained onto soft landscaped areas) the additional run-off for rainfall depths up to 5 mm caused by the area of the extension must be managed on site using appropriate Sustainable Drainage Systems (SuDS) such as Soakaways.
3. Any calculations necessary to demonstrate that criterion 2 will be achieved should be carried out by an Appropriately Qualified Professional (AQP) see CN6.

Second credit – reducing run-off from site: basic

4. Where all run-off from the roof for rainfall depths up to 5 mm, have been managed on site using source control methods (e.g. through infiltration, soakaways etc.). This should include runoff from all existing and new parts of the roof.
5. Where required, an appropriately qualified professional should be used to design an appropriate drainage strategy for the site, ensuring criterion 1 is achieved

Third Credit – reducing run-off from site: advanced

6. An appropriately qualified professional should be used to design an appropriate drainage strategy for the site.
7. Where run-off as a result of the refurbishment is managed on site using source control achieving the following requirements:
 - a. The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event has been reduced by 75% from the existing site.
 - b. The total volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration has been reduced by 75%.

- c. An allowance for climate change must be included for all of the above calculations, in accordance with the current best practice (PPS25, 2010)

Exemplary level requirements

The following outlines the exemplary level requirements to achieve an innovation credit for this BREEAM issue.

8. Where all run-off from the developed site is managed on site using source control. The following must be achieved to confirm compliance:
 - a. The peak rate of run-off as a result of the refurbishment for the 1 in 1 year event is reduced to zero.
 - b. The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event is reduced to zero.
 - c. There is no volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration.
 - d. An allowance for climate change must be included for all of the above calculations, in accordance with current best practice (PPS25, 2010).
9. Where an appropriately qualified professional has been employed to provide the above calculations and design an appropriate drainage strategy for the site, ensuring all above criteria are achieved.

Assessment Procedure

Criteria	Procedure
	First and Second Credits
All	<ol style="list-style-type: none"> a. Refer to the following definitions; Impermeable surfaces; Infiltration; Permeable Pavements; Permeable Surfaces; 5mm event; Run-off; Run-off Rate; Surface water runoff; SuDs; SuDs management train; SuDS devices; Soakaway b. Refer to CN3, CN4, CN6 and CN10. c. Use the calculation for 5mm events listed in the additional information to calculate the volume of precipitation from a 5mm event. d. Obtain the necessary calculations in order to demonstrate compliance
	Third and Exemplary Credits
All	<ol style="list-style-type: none"> a. Refer to the following definitions; Peak rate of run-off; Infiltration; Permeable Pavements; Permeable Surfaces; Volume of run-off b. Refer to CN3, CN5, CN6 and CN7 c. Obtain the necessary calculations in order to demonstrate compliance

Compliance Notes

Ref	Terms	Description
CN1	Extensions to existing dwellings	Where an extension is taking place, it may be more challenging to achieve credits in this issue as the use of source control methods will be required.
CN2	Material	There are no additional or different requirements to those outlined

Ref	Terms	Description
	change of use	above specific to material change of use assessments.
CN3	Source Control	<p>The control of run-off at or very near to its source. Source control measures acceptable as defined in the SuDS manual include:</p> <ul style="list-style-type: none"> — Permeable pavements — Filter drains — Filter Strips — Swales — Soakaways — Infiltration trench — Green Roofs — Bioretention areas — Rainwater Harvesting systems
CN4	5mm event	<p>The discharge from all rainfall events up to a depth of 5 mm. See additional information section for further details on the calculation. This calculation can be carried out by the assessor or the client. However, when designing solutions to deal with any additional discharge, an appropriately qualified professional must be employed.</p>
CN5	Peak rate of run-off:	<p>The calculation of pre refurbishment run-off rates must be in accordance with the 'Preliminary rainfall run-off management for developments' (EA/DEFRA, 2007) method.</p>
CN6	Appropriately qualified professional	<p>A professional with the skills and experience to champion the use of SuDS within the overall design of the development at an early stage. The professional must be capable of understanding the site's particular surface water management needs and opportunities. In addition, they must have knowledge and experience in using SuDS-based solutions to influence the holistic design of a development's drainage system and provide the robust hydraulic design calculations referred to in key guidance documents such as The SuDS manual (CIRIA C697, 2007) and Preliminary rainfall run-off management for developments (EA/DEFRA, 2007). Suitable professionals may be found in a variety of disciplines, such as engineering, landscape design or hydrology. Geotechnical advisers or specialists may be required for SuDS techniques that allow infiltration.</p>
CN7	Climate change	<p>When carrying out calculations an allowance for climate change must be made for all sites in accordance with current best practice (PPS25, 2010). The climate change allowance must be added to the post-development run-off calculations only. Information regarding the percentage allowance can be found in PPS25 Development and Flood Risk, Annex B.</p> <p>Equivalent national standard to PPS25 are available including PPS15 in Northern Ireland, SPP, Part 8 in Scotland and TAN15 in Wales. However, as there is currently no specific guidance on allowances for Climate Change in these national standards, the guidance in PPS25 should be followed throughout the UK as detailed above.</p>

Ref	Terms	Description
CN8	Discharge directly to the sea or estuaries	If all run-off is discharged directly from the site to either the sea, the foreshore, estuaries covered by a shoreline management plan or designated wildlife/SSSI areas (as part of habitat management) then three credits can be awarded without the need to specify additional attenuation measures. The site must discharge run-off directly into the tidal estuary or the sea, if the credits are to be awarded. Typically, this would mean that drainage pipes would only carry run-off from the site and that they would not need to cross privately owned land outside the boundary of the site before reaching the sea.
CN9	Tidal estuary	A semi-enclosed coastal body of water which has a free connection with the open sea and within which seawater is measurably diluted with fresh water derived from land drainage. Tidal rivers (i.e. where low levels of measurable seawater content is present during normal tidal movements) cannot be included as part of the estuary.
CN10	Existing SuDS	Where existing SuDS techniques (on site prior to any refurbishment works began) are sufficiently sized to infiltrate the run-off from any new hard surfaces permeable paving is not required. Evidence must still be supplied to confirm that the existing SuDS technique(s) is appropriately sized to cope with any additional run-off caused by the increase in the hard standing
CN11	Garden Paths	For hard surfaces such as garden paths, which will drain onto a naturally permeable surface (e.g. flower beds and grassed areas), these can be excluded from the assessment.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
First Credit		
All	1. Copy of all relevant calculations and information necessary to meet the requirements. AND Drawings showing the impermeable areas pre and post refurbishment OR Where evidence 1 cannot be	The following as appropriate: <ol style="list-style-type: none"> Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished. OR Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence pro-

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
	<p>produced compliant design stage commitment outlining the design specification that will be implemented.</p> <p>AND</p> <p>2. Written confirmation of the appointment of an appropriately qualified professional to carry out the calculations and provide design criteria for all relevant elements.</p>	<p>vided at the design stage.</p> <p>AND</p> <p>2. building/site inspection report and photographic evidence.</p> <p>AND</p> <p>3. Evidence as listed for the Design Stage</p>
Second and third Credits		
All	<p>1. Copy of all relevant calculations and information necessary to meet the requirements.</p> <p>AND</p> <p>2. Copies of any drawings and specification text necessary to support the claims made.</p>	<p>The following as appropriate:</p> <p>1. Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished.</p> <p>OR</p> <p>Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the design stage.</p> <p>AND</p> <p>2. building/site inspection report and photographic evidence.</p>
Exemplary Credit		
All	<p>1. Calculations (as outlined in the assessment criteria) which confirm compliance with the exemplary credit requirements.</p>	<p>The following as appropriate:</p> <p>1. Detailed documentary evidence, as listed for Design Stage, representing the dwelling/s as refurbished.</p> <p>OR</p> <p>Written confirmation from the developer that the dwelling/s have been refurbished in accordance with the detailed documentary evidence provided at the design stage.</p> <p>AND</p> <p>2. building/site inspection report and photographic evidence.</p>

Additional information

5mm Event:

The following formula should be used when calculating the volume of precipitation from a 5mm event when showing compliance with the criteria.

Calculation:

$$0.005 \times (\text{ADDITIONAL IMPERMEABLE AREA}) = \text{m}^3$$

Pol 03 Flooding

Number of credits available	Minimum standards
2	Yes

Aim

To reward dwellings located in low flood risk areas and where dwellings are located in medium to high flood risk zones, to recognise where they are refurbished in accordance with a flood resilience/resistance strategy.

Assessment Criteria

The following demonstrates compliance;

Two Credits - low flood risk or flood mitigation

Minimum standards

1. A minimum of two credits must be achieved for this issue at the Excellent and Outstanding levels

Option 1 - Low flood risk

2. Where a Flood Risk Assessment (FRA) has been carried out and the assessed dwellings are defined as having a low annual probability of flooding.

Option 2 - Medium/High Flood Risk

3. Where a Flood Risk Assessment (FRA) has been carried out and the assessed dwellings are defined as having a medium or high annual probability of flooding.
4. 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.
5. Where avoidance is not possible, two credits are achieved where a full flood resilience/resistance strategy is implemented for the dwellings in accordance with recommendations made by a Suitably Qualified Building Professional

Assessment Procedure

Criteria	Procedure
	Option 1
All	<ol style="list-style-type: none"> a. Refer to the following definitions; Annual Flood Probability; Annual Flow rate Probability b. Refer to CN1 and CN4 c. Obtain a copy of the Flood Risk Assessment (FRA)
	Option 2

Criteria	Procedure
3-4	<ol style="list-style-type: none"> a. Complete Checklist A-10; Pol03 b. Refer to CN1, CN2.
5	<ol style="list-style-type: none"> a. Refer to the following definitions; Flood resilience/resistance strategy; Flood repairable b. Refer to CN1, CN5 and CN6 c. Obtain a copy of the Flood Resilience Strategy Document

Compliance Notes

Ref	Terms	Description
CN1	Definition of flood zones	See BREEAM definitions
CN2	Sources of flooding	<p>Sources of flooding and flood risk:</p> <ul style="list-style-type: none"> — Streams and Rivers: Flooding that can take place from flows that are not contained within the channel due to high levels of rainfall in the catchment. — Coastal or Estuarine: Flooding that can occur from the sea due to a particularly high tide or surge, or combination of both. — Groundwater: Where the water table rises to such a height where flooding occurs. Most common in low-lying areas underlain by permeable ground (aquifers), usually due to extended periods of wet weather. — Sewers and highway drains: Combined, foul or surface water sewers and highway drains that are temporarily over-loaded due to excessive rainfall or due to blockage. — Surface water: The net rainfall falling on a surface (on or off the site) which acts as run-off which has not infiltrated into the ground or entered into a drainage system. — Infrastructure failure: canals, reservoirs, industrial processes, burst water mains, blocked sewers or failed pumping stations.
CN3	Environment Agency flood maps	The Environment Agency flood map and associated information is intended for guidance, and cannot provide details for individual properties. In addition the EA map only covers the likelihood of flooding from the rivers or sea and not all sources of flooding (listed above). EA flood maps cannot solely be used as evidence to demonstrate compliance with the requirements of this credit.

Ref	Terms	Description
CN4	Flood Risk Assessment (FRA)	<p>For large scale domestic refurbishment projects greater than or equal to 1 ha (10,000 m²) a study to assess the risk of a site flooding and the impact that any changes or development on the site will have on flood risk on the site and elsewhere. A flood risk assessment must be prepared according to good practice guidance as outlined in PPS25 Development and Flood Risk: Practice Guide (available from www.communities.gov.uk).</p> <p>For domestic refurbishment projects of less than 1 ha (10,000 m²), the level of detail required in an acceptable FRA will depend on the size and density of build. This will range from a brief report for small, low-density developments, to a more detailed assessment for a high-density development of 2000–10,000 m². For example, for very small developments (2000 m² and less), an acceptable FRA could be a brief report carried out by the contractor's engineer, including information obtained from:</p> <ul style="list-style-type: none"> — The Environment Agency — Water company/sewerage undertaker — Other relevant statutory authorities — Site investigation (including basic surveys looking at the topography of the site) — Local knowledge (including speaking to people who have lived in the area for a long time) <p>Details should be obtained from each of the above groups, regarding the history of flooding in the area. From this it should be established whether there is a likely risk of flooding from these areas.</p>
CN5	Flood Resilience Strategy	<p>This should be a full report carried out by a 'Suitably Qualified Building Professional' detailing appropriate solutions for the development and making clear recommendations. All recommendations made by the consultant must be implemented in order for the refurbishment to comply.</p> <p>The report must have considered as a minimum:</p> <ul style="list-style-type: none"> — Appropriate method of protection depending on flood level, i.e. water exclusion or water entry strategy. — Structure — Floors — Walls — Electrics — Fixed Furniture — Doors and windows — Removal of debris — Recommendations
CN6	Suitably Qualified Building	<p>This should be an individual who has the appropriate training and relevant experience to be able to implement</p>

Ref	Terms	Description
	Professional	<p>a full flood resilience strategy for a building. This could be a building surveyor, architect or a specialist contractor who should confirm that they have the necessary knowledge and experience to complete the task. The chosen professional should have good knowledge of flood resilience techniques and how these can be implemented for domestic dwellings. The individual should be familiar with BS8533, Assessing and managing the flood risk in development – code of practice and the guidance in 'Improving the Flood Performance of new Buildings' document (May 2007), published by CLG. Whilst these references are more appropriate to new developments, the key principles relating to flood mitigation can be implemented when refurbishing existing dwellings. Note that due to the scarcity of performance data on flood resistant materials in construction, the recommendations for resistant materials to be used should be based on sound experience from the professional(s) involved, and decisions must be justified within the report.</p>
CN7	Pre-existing flood defences	<p>To determine whether a sites flood risk is downgraded to a lower flood risk category, refer to the Environment Agency flood risk maps (CN3) or alternative gain confirmation from the Environment Agency as detailed below:</p> <p>A site's flood risk may be downgraded to a lower flood risk category as a result of flood defence installations. This may occur in the following circumstances:</p> <ol style="list-style-type: none"> 1. Where permanent new flood defences are planned* to minimise the risk of flooding to the site and its locality. Mentioned in formal planning documents with budgets allocated. <p>OR</p> <ol style="list-style-type: none"> 2. Where the development is located on a site benefiting from existing maintained flood defences <p>In these circumstances, flood risk will be downgraded from medium to low flood risk, as defined in PPS25, and two credits can be awarded. The following evidence will be needed to demonstrate compliance:</p> <ol style="list-style-type: none"> 1. Confirmation from the flood defence agency (e.g. Environment Agency) that the flood risk level for the site will be reduced to less than 0.1% probability of flooding in any one year. <p>AND</p> <ol style="list-style-type: none"> 2. Confirmation from the flood defence agency that there are plans to maintain the defences for the lifetime of the development. (For private flood defences, evidence must be provided that there is a contractual agreement to cover the maintenance of the defences for the lifetime of the development.) <p>AND</p>

Ref	Terms	Description
		<p>3. The Flood Risk Assessment clearly demonstrates that the residual risks have been identified and will be managed appropriately.</p> <p>Where sites are downgraded from high or medium flood risk to a low flood risk as a result of flood defences, full credits can be awarded (where the above evidence is supplied to support this).</p> <p>Where sites are downgraded from high to medium flood risk as a result of flood defences, Checklist A-10; Pol03 must still be used, and a flood resilience strategy implemented if applicable.</p>
CN8	Third-party defences	There are many defences, owned by third parties, which due to their location, act as a flood defence by default e.g. motorway, railway embankments, walls etc. It can be assumed that embankments will remain in place for the lifetime of the development, unless the assessor or project team have reason to believe otherwise. For walls, assurance must be sought that the wall is likely to remain in place for the design life of the building and is capable of acting to prevent penetration by flood waters.
CN9	Recommendations from an appropriate statutory body	None of the credits can be awarded where the proposed refurbishment works have proceeded against the recommendation of the statutory body on the basis that the flooding implications are too great.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
Two Credits – All Options		
All	<ol style="list-style-type: none"> 1. A copy of a flood risk assessment confirming Flood zone or annual probability of flooding in the site location. AND 2. Where appropriate, correspondence from the appropriate statutory body confirming Reduced annual probability of flooding due to existing flood defences. 	<ol style="list-style-type: none"> 1. Detailed documentary evidence as outlined for the Design Stage. AND 2. Written confirmation from the developer confirming the FRA has not changed or required updating in the intervening period between the Design Stage and Post construction.

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
Two credits - Option 2		
Req. 4	<ol style="list-style-type: none"> Detailed Documentary Evidence demonstrating how Checklist A10: decision strategy flow chart has been used to assess the site. 	<ol style="list-style-type: none"> Detailed documentary evidence as outlined for the Design Stage.
Req. 5	<ol style="list-style-type: none"> Flood Resilience Strategy Document completed by a Suitably Qualified Building Professional. AND Detailed documentary evidence confirming how the recommendations will be implemented. 	<ol style="list-style-type: none"> Written confirmation from the Suitably Qualified Building Professional that all recommendations have been implemented.

Additional information

None.

Innovation

Category overview

- Category weighting: 10%
- Minimum standards: none

Summary

The innovation category provides opportunities for exemplary performance and innovation to be recognised that are not included within, or go beyond the requirements of the credit criteria. This includes both exemplary performance credits, for where the refurbishment meets the exemplary performance levels of a particular issue. It also includes innovative products and processes for which an innovation credit can be claimed, where they have been approved by BRE Global.

Section summary table

Issue	Issue name	Credits	Credit summary
Inn 01	Innovation	10	Up to 10 credits available for a collection of innovative products or techniques used in the refurbishment process. Each issue is assigned an number of credits that can be awarded for showing innovation. One innovation credit can be awarded for each individual BREEAM issue exemplary performance level complied with and one innovation credit can be awarded for each innovation application approved by BRE Global

This page is intentionally blank.

Inn 01 Innovation

Number of credits available	Minimum standards
10	No

Aim

To support innovation within the construction and refurbishment industry through the recognition of sustainability related benefits which are not rewarded by standard BREEAM issues.

Assessment criteria

The following is required to demonstrate compliance;

Up to a maximum of 10 credits are available in aggregate from a combination of the following:

Exemplary level requirements in existing BREEAM issues

1. Where the building demonstrates exemplary performance by meeting defined exemplary level performance criteria in one or more of following BREEAM assessment issues:
 - a. Ene 2 Energy Efficiency Rating (2 credits available)
 - b. Ene 8 Display Energy Devices (1 credit available)
 - c. Wat 1 Internal Water Use (1 credit available)
 - d. Was 2 Refurbishment Site Waste Management (1 credit available)
 - e. Pol 2 Surface Water Run-off (1 credit available)
 - f. Man 2 Responsible Construction Practices (1 credit available)
 - g. Man 5 Protection and Enhancement of Ecological Value (1 credit available)
 - h. Man 6 Project Management (2 credits available)
 - i. Hea 4 Inclusive Design (1 credit available)

One innovation credit can be awarded for each individual BREEAM issue exemplary performance level complied with. Please refer to the relevant BREEAM issue within this Scheme Document for the exemplary level performance assessment criteria.

Approved Innovations

One innovation credit can be awarded for each innovation application approved by BRE Global, where the building complies with the criteria defined within an Approved Innovation application form.

Compliance Notes

Ref	Terms	Description
CN1	Exemplary level requirements	Refer to the Compliance notes within the individual assessment issues that contain exemplary performance levels.

Ref	Terms	Description
CN2	Applying for Innovation credits	Any new technology, design or refurbishment method or process can potentially be recognised as 'innovative', provided it demonstrates it meets the BREEAM eligibility criteria for Innovation credits. Applications for innovations can be submitted to BRE Global Ltd by Licensed BREEAM Assessors using the formal Innovation Application Form. BREEAM Assessors/refurbishment professionals can obtain the application form from BRE Global or via the BREEAM Assessor Extranet. Relevant details of the BREEAM Innovation application and approval process, application fees, innovation credit eligibility criteria and details of previously approved innovations are available separately from the BREEAM Assessor Extranet and BRE Global Ltd.

Schedule of Evidence Required

Ref	Design Stage (Third party certification only)	Post-refurbishment Stage (Third party and self declaration certification)
All Credits		
Req. 1	1. As defined within existing BREEAM issues.	1. As defined within existing BREEAM issues.
Req. 2	1. A copy of the Approved Innovation application or confirmation of the Approved Innovation reference number. AND 2. Relevant documentary evidence demonstrating specification of the approved innovation.	1. As pre-refurbishment stage. AND 2. Relevant documentary evidence confirming that the project has achieved/installed the approved innovation as described and quantified within the approved innovation application form.

Additional information

None.

Appendices

This page is intentionally blank.

Appendix A: Checklists

Checklist A-1; Existing Features

BREEAM Domestic Refurbishment Pilot

Property/survey details,
Property Details
Date of survey:
Property:
Survey carried out by:

Pre-Refurbishment Site Survey

Issue ID	Issue Title	Q.No	Question	Notes
Ene 02	Energy Efficiency Rating Post Refurbishment	1	Does the Pre refurbishment Energy efficiency rating meet the EER benchmarks?	
Ene 04	Renewable Technologies	2	How much (%) of the dwellings Primary Energy Demand per annum is supplied by low or zero carbon technologies?	
		3	Is the dwellings Primary Energy Demand within the maximum levels?	
Ene 05	Energy Labelled White Goods	4	What is the rating for existing appliances under the EU energy labelling scheme OR EST Recommended labelling scheme?	
Ene 06	Drying Space	5	What is the performance of these appliances?	
		6	Is there drying space of sufficient size and location with adequate and secure space?	

Issue ID	Issue Title	Q.No	Question	Notes
Ene 07	Lighting	7	Is there energy efficient space lighting?	
		8	Is security lighting provided?	
		9	If security lighting is provided, is it energy efficient?	
		10	Is the maximum average wattage across the total floor area of the dwelling 9 watts/m ² or less?	
Ene 08	Display Energy Devices	11	Is there a correctly specified energy display device displaying electricity and/or heating fuel consumption?	
Ene 09	Cycle Storage	12	Is there cycle storage present?	
Ene 01	Home Office	13	How many cycle storage spaces are provided for the following dwelling sizes?	

Issue ID	Issue Title	Q.No	Question	Notes
		14a	Does the cycle storage meet the following definitions?	
		14b	Adequately sized	
		14c	Secure	
		14d	Convenient	
		14e	Weather-proof	
		15	Is there space in the dwelling containing space suitable for a home office?	
		16a	Does the home office comply with the following?	
		16b	Suitable room	
		16c	Sufficient Services	
		16d	Sufficient Space	
		16e	Adequate Ventilation	

Issue ID	Issue Title	Q.No	Question	Notes
Wat 01	Internal Water Use	17	Do the terminal fittings meet the equivalent terminal fitting consumption standards?	
Wat 02	External Water Use	18	What is the water consumption of the terminal fittings?	
		19	Does the dwelling have an individual or communal garden?	
		20	Does the dwelling have a correctly specified and sufficiently sized rainwater collection system?	
Pol 01	Nitrogen Oxide Emissions	21	What are the NOx emissions arising from the operation of space heating and hot water systems?	
Pol 03	Flooding	22	What is the annual probability of flooding for the site?	
		23	If there is a medium/high flood risk are there avoidance or resilience/resistance strategies in place?	
Was 01	Household Waste	24	Is there a Local Authority collection scheme in place?	
		25	What space is provided for internal recycle bins?	
		26	Is there a composting facility provided?	
Hea 01	Daylighting	27	Are the daylight levels of the kitchen, living room, dining room and study within the minimum levels?	

Issue ID	Issue Title	Q.No	Question	Notes
Hea 02	Sound Insulation	28	Is sound testing feasible and required by the appointed Building Control Body?	
		29	Has sound testing met or gone beyond the regulations?	
Hea 05	Ventilation	30	Is there at least a minimum level of background, extract and purge ventilation?	
		31	Does the dwellings ventilation meet the all of the requirements of Section 5 of Building Regulations Part F?	
Hea 06	Safety	32	Is there a fire detection and alarm system and carbon monoxide detection provided that meets the relevant recommendations?	
Man 01	Home Users Guide	33	Is the fire alarm system powered from the main electricity supply?	
		34	Is there a home users guide that contains all the information listed in the User guide contents list?	
Man 04	Security	35	Do the external doors and accessible windows comply with the minimum security standards?	
Man 05	Protection and Enhancement of Ecological Features	36	Are there any ecological features present on site?	

This page is intentionally blank.

Checklist A-2; Considerate Constructors Scheme

For each of the eight sections (below) the Considerate Constructors Scheme awards a score on a scale of 0 to 5 (with half points). The score achieved or required must be entered into boxes 1-8 below i.e. EITHER 0; 0.5; 1; 1.5; 2.0; 2.5; 3.0; 3.5; 4.0; 4.5; OR 5.0.

- When a firm commitment is made to achieve certification under the Considerate Constructors Scheme without reference to particular scores, a score of 3 should be entered in each of the boxes 1-8 below. This gives a total score of 24 in box 9 below and subsequently one credit can be awarded.
- When a firm commitment is made to require the constructor to achieve certification AND a score greater than 3 is required in one or more sections, the scores required should be added in boxes 1 to 8 below and totalled accordingly.

Section	Score achieved	Reference
Considerate Section		1
Environmentally Aware Section		2
Site Cleanliness Section		3
Good Neighbour Section		4
Respectful Section		5
Safe Section	Score achieved	6
Responsible Section		7
Accountable Section		8
TOTAL Considerate Constructors Score		9 (sum of 1-8)
Assessor to award credits based on committed CCSScore and table below		10
Signed:	Date:	
Name [PRINT]:	Organisation:	

Score Achieved	Credits
Total CC score achieved is less than 24	0 credits
Total CC score is between 24 to 31.5 incl	1 credit
Total CC score is between 32 and 35.5 incl	2 credits
Total CC score is greater than 36	2 + Innovation credit

Checklist A-3; Large Scale Refurbishment: Responsible Construction Practices

Compliance with an alternative to the Considerate Constructors Scheme

- 1 credit can be awarded where the assessment stakeholder confirms in writing that the alternative scheme is to be independently assessed and the assessor confirms that the alternative scheme addresses all the mandatory items plus 50% of the optional items in Checklist A-3 (complete box 1).
- 2 credits can be awarded where the assessment stakeholder confirms in writing that the alternative scheme is to be independently assessed and the assessor confirms that the alternative scheme addresses all the mandatory items plus 80% of the optional items in Checklist A-3 (complete box 2).
- An additional innovation credit can be awarded where post refurbishment, the site has complied in full with the alternative, independently assessed scheme, and the alternative scheme addresses all the mandatory and optional items in Checklist A-3 (complete box 3).

POST refurbishment REVIEW

When certification can be demonstrated the actual items achieved in each section should be quoted.

		Reference number
Where the mandatory criteria + 50% of optional criteria are complied with/committed to Score achieved: 1 credit		1
OR		
Where the mandatory criteria + 80% of optional criteria are complied with/committed to Score achieved: 2 credits		2
OR		
Where post-refurbishment ALL the mandatory and optional items are complied with. Score achieved: Innovation credit (in addition to the two credits achieved for complying with the standard BREEAM requirements.		3
The assessor must ensure that the		

Compliance with an alternative to the Considerate Constructors Scheme

commitment is to specific to the BREEAM requirements and not a general commitment to satisfy the above statements.		
Total Credits for Alternative Independently Assessed Scheme		

Checklist A-3; Considerate Constructors Scheme

Mandatory

Ref	Compliance	Guidance	P
a	Where introductory letters have been sent / are to be sent to all the neighbours.	See copies of letters to be sent or sent with a list of the addresses	
b	Where there is provision for parking on site OR Buses are provided from local transport nodes OR The nearest transport links are within 500m and run every 30 minutes OR An area offsite has been designated for site parking.	See copies of parking plan, check local vicinity for transport links.	
c	Where there are ramps and signs, indicating footpaths AND Where pathways are wide enough for wheelchair access AND Where pedestrians who are mobility impaired or who have sight/hearing difficulties can still gain access around the site boundary.	View on site.	
d	Where there are barriers and signposts indicating footpaths around the site. Where footpaths are clean Where the passageways are safe and protected.	View on site.	
e	Where all the road signs / names can be seen OR Where a road sign /name is obstructed a replacement has been erected.	Is there a temporary works plan highlighting these items. View on site.	

Optional

Ref	Compliance	Guidance	P
e	Does the site have a traffic plan?	Request a copy of the plan.	
f	Where site entrances / exits clearly marked AND These are clear for lorry/delivery drivers and other visitors to see.	View on site.	
g	Where there is a clearly signed site reception AND. Where appropriate, visitors are inducted into	Check on arrival for the signs. See copy of the induction procedure.	

Ref	Compliance	Guidance	P
	the site AND Where visitors are escorted to the member of staff they are visiting.		
h	Where there are areas of high minority communities and English is not the first language, notices are printed in the common local language.	Check the area, local shops and members of the public, community centres for a minority culture community. Where this is present check for signs in the communities language.	
i	Where the site is near a school, community centre / or other building and delivery times are outside peak times.	School peak times considered to be 8-9.30am and 3-5pm Residential peak times 7-9am and 4-6pm. Other shops / industries may have regular deliveries, this should also be considered by the Contractor.	
j	Where the site manager is authorised to reimburse minor financial complaints.	Ask the site manager what authorisation he needs to reimburse financial complaints.	
k	Where the parish registry has been checked to establish the names of neighbours to personalise your letters.	List of names and addresses to be viewed on site.	
l	Where a map has been sent to suppliers indicating where they should access the site by a particular route.	Check a copy of the map sent to all suppliers with accompanying letter.	
m	Where the post box has been placed on the pavement to avoid the postman from entering the site.	View on site.	

Environmentally Aware

Mandatory

Ref	Compliance	Guidance	P
a	Where site hours and noisy work restrictions are appropriate to the area.	Consider particularly areas near; <ul style="list-style-type: none"> — Houses -Schools - Hospitals — Industrial Units -Public Transport Nodes — City centres -Shopping facilities — Copy of statement of intent, policy, agreement etc to be provided. 	
b	Where the Contractor has made	Are reasonable sound restrictions in force	

Ref	Compliance	Guidance	P
	provisions to reduce the noise.	e.g. whispering generators, straw bales, sound barriers etc Has the Contractor demonstrated that noise/plant have been considered and measures implemented to reduce the disturbance?	
c	Where there is a written commitment from the Contractor to protect any sensitive ecological features such as plants and trees. AND This is demonstrated onsite. NOTE: Plants cannot be removed and replanted as part of this work.	Written commitment to be provided, along with a copy of “before and after” drawings. The commitment should include how the features will be protected and how the protection measures were determined. Temporary works procedures to include the appropriate protective measures. View on site.	
d	Where the site boundary is clearly and safely marked and appropriate to the environment. AND Where the colour of the hoarding has been considered in terms of the surrounding environment.	Ask site manager if any thought was given to the hoarding and the location of the site. Is the hoarding clearly /safely marked, clean, neat and well maintained?	
e	Where protected wild life issues in the local area have been addressed by the company.	Speak to the site manager about the local wildlife issues and how the site are addressing them and how they are monitored See evidence of drawings or specification clauses that back up the claims.	
f	Where the site has an environmental policy AND The site manager can relate the environmental policy to the procedures on his site AND The site staff are aware of the environmental policy and how it relates to their work	Request a copy of the policy. Ask the site manager what the policy includes and how this relates to the site. Ask members of staff at different levels how the policy relates to work at their level.	
g	Where there is a procedure and adequate equipment for protecting watercourses from site pollution (i.e. oils, paints and chemicals).	Bunds, absorbent material to soak up any spillages, must be present at risk areas on site. If there is a site specific environmental policy which commits to preventing water pollution and describes how this is to be on the site this point can be awarded.	
h	Where fuel oil spillage equipment is available.	View on site. Ensure the spillage equipment is located where spillages may occur to ensure a rapid response time.	

Ref	Compliance	Guidance	P
i	Have local suppliers and materials, and also recycled materials been considered?	If a list of recycled/local suppliers and materials has been produced the point can be awarded..	
j	Where there are restrictions on the effects of light pollution and all lights are directional and non-polluting	View on site. If there is a site specific environmental policy which sets restrictions on lighting, this point can be awarded.	
k	Where the site is segregating, recycling or re-using waste (including canteen and office waste).	This can be viewed on site. A company wide policy promising to segregate, recycle and re-use waste will NOT satisfy this credit. If there is a site specific environmental policy which commits to segregating, recycling and re-using waste then the inspector can award this point.	
l	Where the site has a system to monitor the amount of material waste produced, and provides feedback as to how much is recycled.	This can either be viewed on site. If there is a site specific environmental policy which commits to monitoring site waste and providing feedback on recycling, indicating how this is to be carried out, then this point can be awarded.	
m	Where energy saving measures implemented on site.	Examples of this include: — low energy lighting — switching off equipment when not in use, — Installing thermostats — Installing timers, — choosing energy efficient equipment	
n	Are the carbon emissions from the site activities monitored?	Where a site specific environmental policy monitors the carbon emissions of site activities the point can be awarded.	
o	Where areas with dust problems are enclosed, or alternative methods of mitigating dust have been provided.	Check how dust mitigation has been considered with the Site Manager; check that this will be effective.	
p	Where sumps are provided in cases of heavy water run off.	View on site. If there is a site specific environmental policy which indicates how heavy water run off will be minimised and dealt with on site, this point can be awarded.	
q	Where a site with severe congestion has a delivery point remote from a	View procedures on site. Where a site specific environmental policy	

Ref	Compliance	Guidance	P
	site. Deliveries from the remote site can then be made in smaller vehicles at times to cause the least inconvenience.	addresses the problem of deliveries to a severely congested site, then the point can be awarded.	
r	Where permission has been obtained to use a fire hydrant or fire brigade to damp down.	Written permission to be provided.	
s	Where an impact minimisation strategy review is in place for the site.	The review should consider the impact of the site in environmental terms and how any adverse effects are being minimised.	
t	Where there is adequate space for new materials to be stored in secured covered areas to avoid damage, theft and to protect from weather.	View on site. Ensure that where space has been provided, it is being used correctly.	
u	Where visible stacked materials are sheeted out.	View on site.	

Clean

Mandatory

Ref	Compliance	Guidance	P
a	Where all accesses to the site are clean, mud free and safe.	View on site. Where a site specific policy indicates measure that will be implemented to maintain clean, mud free, safe accesses, then this point can be awarded.	
b	Where the roads adjacent to the site that are used by site vehicles are swept.	Evidence in the form of a contract with a road sweeping company. View on site.	
c	Where there is an area specified within the site boundary for the storage of materials and plant.	The area must be clean and dry where necessary, and the space should be sufficient for the materials / plant stored. For the material storage part, this could be replaced on congested sites by a "just in time" delivery policy View on site.	
d	Where there are dust prevention measures present.	Where there is a regular damping down of the roads during the hot weather AND Where dust sheets are provided where areas are	

Ref	Compliance	Guidance	P
		being demolished. OR Where any other measures can be demonstrated to meet this point.	
e	Where materials and equipment are tidily stacked and protected / covered where necessary.	View on site.	
f	Where areas around the canteen, offices and skips are tidy and clean AND Areas are screened where necessary.	View on site. Check all the areas ensure screening is in place where necessary.	
g	Where covered rubbish bins are available.	View on site. The inspector should ensure that where bins are provided they are spaced at intervals which will facilitate staff using them	
h	Where a free car cleaning service is offered, where dirt or dust is a problem.	View on site. Check procedures, notice boards, with staff to see if this is in operation.	
i	Where the wind direction is checked and the work pattern is varied to suit, if dust is a problem.	View whether dust is a problem on site, this should be checked in the driest season. If dust is a problem then ask the site manager how work is varied depending on the wind direction.	
j	Where a hard road is provided into the site to reduce mud problems.	View on site.	
k	Where site welfare facilities well maintained and clean?	View on site.	
l	Where areas around the site cleaned, including the collection of rubbish not related to site?	View on site.	
m	Where measures in place to deal with graffiti?	View on site.	

Good Neighbour

Mandatory

Ref	Compliance	Guidance	P
a	Where there is a single line entry complaints book.	Copy of the book to be provided or seen AND the book should be kept in an easily accessible place.	
b	Are complaints responded to immediately and dealt with correctly.	Look through the complaints book and check the responses. Ensure all complaints were dealt with and responded to in a polite, considerate and timely manner.	
c	Where there is light shielded from the neighbours.	Copy of the temporary works including lighting to be provided. These must either indicate light shielding or the site manager must demonstrate how the light shielding works or is not applicable.	

Optional

Respectful

Mandatory

Ref	Compliance	Guidance	P
a	Where there is a dress code specified in the induction.	Check the induction content for items related to dress code. N.B. This does not relate to PPE, this is to prevent "builders bum" syndrome	
b	Where there is an enforcement procedure i.e. someone does check that operatives are dressed considerately,	Check the induction content for these details. Ask how operatives who are not dressed "appropriately" are dealt with? Is the procedure rigorous Check the complaints book for any items on this issue and see how quickly they were dealt with.	
c	Where inappropriate behaviour is dealt with in site policy. AND; Where this is highlighted in the site induction.	Copy of the policy to be provided. Check the induction content for these details. Ask the site manager what the enforcement procedures are and how they are carried out. Check the complaints book for any items on this issue and see how quickly they were dealt with.	
d	Where there is a no offensive calendar policy.	Check how this policy is implemented.	

Optional

Ref	Compliance	Guidance	P
d	Does the site have female toilets. Does the site have disabled toilets.	View on site.	
e	Where operatives are prevented from having their breaks in view of the public.	Examples of how this might be achieved include: — A site canteen — A common room available for operatives to eat in. View on site.	
f	Where toilets are screened from public view.	View on site	
g	Where lockers are provided in the drying room.	View on site	
h	Are working usable showers available and suitable changing areas are available.	View on site.	
i	Where site personnel are discouraged from using local facilities in their site clothes.	Examples of how this might be achieved include : — A canteen. — Staggered breaks for different gangs. — Provision of showers / wash rooms. — Provision of lockers. — A request to leave PPE on site. — View on site. — Check procedures with the Site Manager.	
j	Where there is a volume restriction on radio use or there is a radio ban.	Check if restrictions/ban is in place and how it is enforced.	
k	Where operatives are provided with suitable clothing with the companies logo.	Check company policy to do this and check with operatives on site that they have clothing with the companies logo.	
l	Provide operatives with a clip on ID card with photo.	Check company policy and procedures for issuing clip on ID cards. Check if there is a mandatory requirement for operatives to wear these when on site. Check operatives in site are wearing them.	
m	Where the site encourages only 1 person to visit the local shop at any one time.	— Examples of how this can be achieved include : — Where there are facilities on site to buy newspapers, confectionary and snacks	

Ref	Compliance	Guidance	P
		<ul style="list-style-type: none"> — Where breaks are staggered to prevent large groups of operatives visiting local shops together. — One person is nominated to go to the local shop for the team. 	
n	Is there sufficient action taken regarding operatives' exposure to the sun?	Check company policy and procedure and if it is being implemented on site.	

Safe

Mandatory

Ref	Compliance	Guidance	P
a	Where there are well lit warning signs for the benefit of the pedestrian and road user.	Check if the signs are indicated on the temporary works / other plans OR if they are being implemented on site.	
b	Where the temporary works are safe and are erected only after they have been checked by an experienced engineer.	See copy of the temporary works checking procedure, check the responsible engineer has the relevant qualifications. Check that the temporary works are checked by a visual or physical inspection on a regular basis. Carry out a site inspection.	
c	Are the temporary works near adjacent buildings likely to produce a security risk.	Ask if a risk assessment was carried out when designing the works and check if this was identified. View on site.	
d	Pedestrians have a suitable, safe and protected passage around the site boundary.	View on site.	

Optional

Ref	Compliance	Guidance	P
e	Is safe access to the site office provided by; good lighting AND Adequate barriers AND Uniform surfaces i.e. no trip hazards AND Being a minimum of 1m wide.	View on site.	
f	Where work has interrupted the pavement ensure ramps are provided.	View on site.	

Ref	Compliance	Guidance	P
g	Where the scaffolding is boxed in or taped where likely to obstruct pedestrians.	View on site.	
h	Where the hoarding or scaffold is properly lit externally at night?	View on site.	
i	Where scaffold netting is in place and well maintained.	View on site.	
j	Where emergency escape routes are well identified?	View on site.	
k	Are even the most minor accidents recorded.	Check first aid book for minor accidents. Minor considered to be e.g. small cuts (plaster only necessary), dust in eyes.	
l	Where others use the site and there is a regular fire drill.	Check times of drill and visit a day the drill should be carried out.	
m	Where there is a procedure to report serious incidents and near misses.	Copy of procedure to be provided. Procedure to cover internal QA reporting format, and notifying HSE.	
n	Where there is satisfactory out of hours security.	Examples of satisfactory out of hours security include: <ul style="list-style-type: none"> — Locked gates. — Night lighting. — 24 hour on site security. — An alarm linked directly to a police station or 24 hour (local) off site security. — The security guard has an emergency number and knows who to call in an emergency. 	
o	Where non English speaking operatives are tested during their induction, to ensure that their levels of reading, writing and speaking do not pose a safety risk to those that they work with.	This needs to be robust enough to ensure that in a health and safety risk environment, the operative would be capable of warning others or contacting help.	
p	Where temporary road crossings are in a suitable safe place.	Check: Road crossings away from corners. The design has been checked by a traffic expert. There is a risk assessment for these areas, are the remaining risks	

Ref	Compliance	Guidance	P
		acceptable?	
q	Where the site office is well sign posted and easily accessible.	View on site.	
r	Where safety helmets are positioned close to the entrance to the site office.	View on site.	
s	Where the visitors book is to be filled in on all occasions.	View on site.	
y	Where safety and other requirements in connection with deliveries are given to suppliers.	Check this information is given to suppliers; AND Check that this is enforced at every delivery, not just a one off letter to the company at the beginning of the project.	
u	Where there is a procedure for recording operative concerns and near misses.	Check if this is in place and how it operates.	
v	Where all site hazards are advertised at the site entrance (s).	View on site. Check that the list of site hazards is complete.	
w	Where there is an initiative to provide incentives to promote and improve safety on site.	Check this document and how it is disseminated.	
x	There are clear fire points, an assembly station and fire drills take place.	View on site and ask for written proof of a fire drill procedure.	

Responsible

Mandatory

Ref	Compliance	Guidance	P
a	Where the Environmental Officer has been informed of your presence on site.	See a copy of the letter, informing the Environmental Officer of the project, including start and finish construction dates.	
b	Where there is well posted material indicating nearest Police Station and Hospital (with A&E facilities)	Are there posters indicating the nearest Police Office, Hospital with A&E facilities in key areas e.g. site reception, site canteen, main site office. Spot check managers, operatives, reception staff to check they know this information or at least where they would find it. Check Induction talk	

Optional

Ref	Compliance	Guidance	P
c	Where a record of your immediate neighbours names and telephone numbers are known.	A copy of this list should be provided.	
d	Where all subcontractors first aiders are recorded in a formal document and a copy of this record provided.	Check for the formal document which has all sub-contractors first aiders registered.	
e	Where an in-house newsletter is distributed to the neighbours.	Where a copy of this letter can be provided and evidence that this has been distributed, e.g. accompanying letters, recorded minutes etc.	
f	Where a local person provides out of hours cover.	If there is 24 hour security this is automatically awarded. Where there is no 24 hour security, but someone is identified as living local to the site and can act quickly in the event of an emergency on site.	
g	Where the workforce hold CSCS (Construction Skills Certification Scheme) cards.	Where the company has procedures in place to ensure that the majority of their workers hold CSCS cards.	
h	Where your company is recognised as having either ISO 9001, 14001 or IIP status.	Evidence that this has been achieved must be provided.	
i	Where operatives skills and medical conditions are recorded.	Check records and /or procedures to demonstrate this.	
j	Where there are the appropriate number of first aiders and first aid equipment for the site.	The HSE produce guidance on the number of required first aiders for a site. A copy of the trained first aider list should be provided and their qualifications, ensure that the qualifications are all still valid (i.e. in the last 3 years). Check that each first aider have a box with basic equipment in. Check that each first aider has access to more equipment is necessary and that they know where this is.	
k	Where local schools have been contacted and asked to participate in visits, talks or competitions.	Evidence should be provided that this has or will be occurring e.g. copies of press cuttings, letters etc. If there are no schools within a 3km radius this is not applicable.	

Ref	Compliance	Guidance	P
l	Where the site has a static gate man, he is trained in first aid.	Check with the static gate man that he is trained, see his certificates and ensure they are current.	
m	Where up to date information on site performance is posted in public view.	View on site. Check this is up to date and ask how regularly this is changed.	
n	Where you have a web page link to demonstrate your commitment to being a considerate neighbour throughout the refurbishment project.	The link must highlight what the scheme includes and its aim.	
o	Where procedures are in place to enable the employment of disabled operatives.	A copy of the procedure should be provided in order to award the point.	

Accountable

Mandatory

Ref	Compliance	Guidance	P
a	Where there are posters in a public space displaying your local scheme for considerate construction and the main bodies involved.	Posters must identify the client, consultant, architect, and contractor. Posters must be well distributed over the site, as well as in the public eye.	
b	The scheme is mentioned in the site induction.	Check documentation.	
c	There has been a safety inspection and report, and any points raised have been dealt with.	Check report and view on site.	

Optional

Ref	Compliance	Guidance	P
d	Where an inspection has been carried out by HSE.	Only applicable if HSE have carried out an inspection, Where there are recommendations, there is a commitment to implement them.	
e	Where the company sign board is prominently displayed with telephone number / Web Site / Email address.	View on site.	

Ref	Compliance	Guidance	P
f	Where the site personnel and sub-contractors are familiarised with the local / national scheme at induction or other.	Check if induction procedures cover this item and if not how operatives are aware that they are involved in the scheme.	
g	Where the Client is aware of the Scheme.	This can be demonstrated by a letter or endorsement etc.	
h	Where frames and Perspex covers for posters advertising this Scheme are provided.	View on site.	
i	Where a suggestion box is provided for the general public.	View on site. This must be in a place accessible to the general public AND well advertised.	
i	Where all site signage and posters are illuminated at night.	View on site.	
j	Where a 24 hour hotline is provided and this is displayed to the public.	View on site. Check how this is manned and how phone calls, queries, complaints are dealt with.	
k	Where your operatives/subcontractors are given points for infringement of your safety and considerate standards. Record these on a card held by the operative. X points and you're out.	Check if this system is operating. 'X' must be decided by the company, however the aim is to encourage operatives to work safely and considerately. This point can also be awarded where there is an incentive scheme for exemplar behaviour.	
l	Training/toolbox talks are provided for site operatives.	Ask for copies of a schedule of talks.	
m	The site has a record of social/community activities.	See documentation to check compliance.	

Checklist A-4; Small Scale Refurbishment: Responsible Construction Practices

Compliance for small scale projects and projects with less than 6 weeks duration

- 1 credit can be awarded where the assessment stakeholder confirms in writing that the alternative scheme is to be independently assessed and the assessor confirms that the alternative scheme addresses all the mandatory items plus 50% of the optional items in Checklist A-4 (complete box 1).
- 2 credits can be awarded where the assessment stakeholder confirms in writing that the alternative scheme is to be independently assessed and the assessor/refurbishment professional confirms that the alternative scheme addresses all the mandatory items plus 80% of the optional items in Checklist A-4 (complete box 2).
- An additional innovation credit can be awarded where post refurbishment, the site has complied in full with the alternative, independently assessed scheme, and the alternative scheme addresses all the mandatory and optional items in Checklist A-4 (complete box 3).

POST REFURBISHMENT REVIEW

When certification can be demonstrated the actual items achieved in each section should be quoted.

		Reference number
Where the mandatory criteria + 50% of optional criteria are complied with/committed to Score achieved: 1 credit		1
OR		
Where the mandatory criteria + 80% of optional criteria are complied with/committed to Score achieved: 2 credits		2
OR		
Where post-refurbishment ALL the mandatory and optional items are complied with. Score achieved: Innovation credit (in addition to the two credits achieved for complying with the standard BREEAM requirements.		3
The assessor/refurbishment professional must ensure that the commitment is to specific to the BREEAM requirements and not a general commitment to satisfy the above statements.		
Total Credits for Alternative Independently Assessed Scheme		

To be applied for refurbishment projects of less than five dwellings, or shorter than 6 weeks.

Considerate

Mandatory

Ref.	Compliance	Guidance	P
a	Where introductory letters have been sent/are to be sent to all of the neighbours.	See copies of letters to be sent or sent with a list of addresses.	
b	Where there is provision for parking on site OR an area off-site has been designated for site parking.	View on site/photographic evidence. Ensure the parking of vehicles is safe and considerate.	
c	Where pathways around the site are safe, protected, clean, accessible for wheelchair access, and shown using the correct signage where necessary.	View on site/photographic evidence.	

Optional

Ref.	Compliance	Guidance	P
d	Where deliveries are made outside of peak times.	School peak times considered to be 8-9.30am and 3-5pm. Residential peak times 7-9am and 4-6pm. Other shops/industries may have regular deliveries, so this should also be considered by the Contractor.	

Environmentally Aware

Mandatory

Ref.	Compliance	Guidance	P
a	Where the Contractor has made provisions to work within appropriate site hours and reduce the noise.	Copy of statement of intent, policy, agreement, etc. to be provided. Reasonable sound restrictions in place. Has the Contractor demonstrated that relevant issues have been considered and measures implemented to reduce the disturbance, including issues such as radio usage?	
b	Where there is a written	Written commitment to be provided, along with	

Ref.	Compliance	Guidance	P
	commitment from the Contractor to protect any sensitive ecological features such as plants and trees AND this is demonstrated on site. NOTE: Plants cannot be removed and replanted as part of this work.	a copy of “before and after” drawings. The commitment should include how the features will be protected and how the protection measures were determined. Temporary works procedures to include the appropriate protective measures. View on site.	
c	Where protected wildlife issues in the local area have been addressed by the company.	Speak to the site manager about the local wildlife issues and how the site is addressing them and how they are monitored. See evidence of drawings or specification clauses that back up the claims.	
d	Where the site boundary is clearly and safely marked and appropriate to the environment AND where the colour of the hoarding has been considered in terms of the surrounding environment.	View on site/photographic evidence. Is the hoarding clearly/safely marked, clean, neat and well maintained?	
e	Where there is a procedure and adequate equipment for protecting watercourses from site pollution (i.e. oils, paints and chemicals).	If there is a site specific environmental policy which commits to preventing water pollution and describes how this is to be on the site this point can be awarded.	
f	Where local suppliers and materials, and also recycled materials have been considered.	A list of recycled/local suppliers and materials has been produced.	
g	Where the site is segregating, recycling or re-using waste.	View on site/photographic evidence. If there is a site specific environmental policy which commits to segregating, recycling and re-using waste then this point can be awarded.	
h	Where the site has a system to monitor the amount of material waste produced, and provides feedback as to how much is recycled.	View on site. If there is a site specific environmental policy which commits to monitoring site waste and providing feedback on recycling, indicating how this is to be carried out, then this point can be awarded.	
i	Where energy saving measures are implemented on site.	Examples of this include: <ul style="list-style-type: none"> — low energy lighting — switching off equipment when not in use — choosing energy efficient equipment 	

Ref.	Compliance	Guidance	P
j	Where methods of mitigating dust have been provided.	Check how dust mitigation has been considered with the Site Manager; check that this will be effective.	
k	Where an impact minimisation strategy review is in place for the site.	The review should consider the impact of the site in environmental terms and how any adverse effects are being minimised.	
l	Where there is adequate space for new materials to be stored in secured covered areas to avoid damage, theft and to protect from weather AND where visible stacked materials are sheeted out.	View on site/photographic evidence. Ensure that storage space is being used correctly.	

Optional

Ref.	Compliance	Guidance	P
m	Where the site has an environmental policy AND the site manager can relate the environmental policy to the procedures on his site AND the site staff are aware of the environmental policy and how it relates to their work	Request a copy of the policy. Ask the site manager what the policy includes and how this relates to the site. Ask members of staff how the policy relates to work at their level.	

Clean

Mandatory

Ref.	Compliance	Guidance	P
a	Where access to the site is clean, mud-free and safe.	View on site/photographic evidence. Where a site specific policy indicates measures that will be implemented to maintain clean, mud-free and safe access, then this point can be awarded.	
b	Where there is an area specified within the site boundary for the storage of materials and plant.	The area must be clean and dry where necessary, and the space should be sufficient for the materials/plant stored. For the material storage part, this could be replaced on congested sites by a "just-in-time" delivery policy. View on site/photographic evidence.	
c	Where materials and equipment are tidily stacked and protected/covered where necessary.	View on site/photographic evidence.	

Ref.	Compliance	Guidance	P
d	Where areas around the offices and skips are tidy and clean AND areas are screened where necessary.	View on site/photographic evidence. Check all the areas and ensure screening is in place where necessary.	
e	Where covered rubbish bins are available.	View on site/photographic evidence. The inspector should ensure that where bins are provided they are spaced at intervals which will facilitate staff using them.	
f	Where site welfare facilities are well maintained and clean.	View on site/photographic evidence.	
g	Where areas around the site are cleaned, including the collection of rubbish not related to site.	View on site/photographic evidence.	

Good Neighbour

Mandatory

Ref.	Compliance	Guidance	P
a	Where there is a single line entry complaints book.	Copy of the book to be provided or seen AND the book should be kept in an easily accessible place.	
b	Where complaints are responded to immediately and dealt with correctly.	Ensure all complaints were dealt with and responded to in a polite, considerate and timely manner.	

Optional

Ref.	Compliance	Guidance	P
c	Where the site and its surroundings are seen by the public as tidy AND clean.	Ensure that there are no complaints about the site being untidy or dirty or that if there were this was quickly rectified and not repeated.	
d	Where local people are informed of site progress by the use of a notice board.	View on site/photographic evidence.	
e	Where there is a commitment to write and thank neighbours at the end of the contract for their forbearance.	A copy of this commitment should be provided or a copy of a standard letter that is always sent at the end of a project.	

Respectful

Mandatory

Ref.	Compliance	Guidance	P
a	Where there is a dress code specified in the induction AND there is an enforcement procedure.	Check the induction content for items related to dress code. Check the complaints book for any items on this issue and see how quickly they were dealt with.	
b	Where inappropriate behaviour is dealt with in site policy AND where this is highlighted in the site induction.	Copy of the policy to be provided. Check the induction content for these details. Ask the site manager what the enforcement procedures are and how they are carried out. Check for any complaints on this issue and see how quickly they were dealt with.	

Safe

Mandatory

Ref.	Compliance	Guidance	P
a	Where there are well lit warning signs for the benefit of the pedestrian and road user.	Check if the signs are indicated on the temporary works / other plans OR if they are being implemented on site.	
b	Are the temporary works near adjacent buildings likely to produce a security risk?	Ask if a risk assessment was carried out when designing the works and check if this was identified. View on site/photographic evidence.	
c	Where the temporary works are safe and are erected only after they have been checked by an experienced engineer.	See copy of the temporary works checking procedure, check the responsible engineer has the relevant qualifications. Check that the temporary works are checked by a visual or physical inspection on a regular basis. Carry out a site inspection.	

Optional

Ref.	Compliance	Guidance	P
d	Where all site hazards are advertised at the site entrance(s).	View on site/photographic evidence. Check that the list of site hazards is complete.	
e	Where the scaffolding is boxed in or taped where likely to obstruct pedestrians AND where necessary, scaffold netting is in place	View on site/photographic evidence.	

Ref.	Compliance	Guidance	P
	and well maintained.		
f	Where work has interrupted the pavement ensure ramps are provided.	View on site/photographic evidence.	
g	Where the site office is well sign-posted and easily accessible, with good lighting AND adequate barriers AND uniform surfaces i.e., no trip hazards AND being a minimum of 1m wide.	View on site/photographic evidence.	
h	Where safety helmets are positioned close to the entrance to the site office.	View on site/photographic evidence.	
i	Where the visitors book is to be filled in on all occasions.	View on site/photographic evidence.	
j	Where there is a procedure to report minor accidents, serious incidents and near misses.	Check first aid book for minor accidents. Copy of procedure to be provided. Procedure to cover internal QA reporting format, and notifying HSE.	
k	Where there is a procedure for recording operative concerns and near misses.	Check if this is in place and how it operates.	
l	Where any language barriers are assessed for operatives on site to ensure there are no safety risks for communicating on site between operatives, other members of the project team and members of the public	This needs to be robust enough to ensure that in a health and safety risk environment, the operative would be capable of warning others or contacting help.	

Responsible

Optional

Ref.	Compliance	Guidance	P
a	Where the Environmental Officer has been informed of your presence on site.	See a copy of the letter, informing the Environmental Officer of the project, including start and finish dates.	
b	Where there are the appropriate	The HSE produce guidance on the number of required first aiders for a site. A copy of the trained first aider list should be provided and their qualifications, to ensure that the qualifications are all still	

Ref.	Compliance	Guidance	P
	number of first aiders and first aid equipment for the site.	valid (i.e. in the last 3 years). Check that each first aider has a box with basic equipment. Check that each first aider has access to more equipment if necessary and know of its location.	
c	Where procedures are in place to enable the employment of disabled operatives.	A copy of the procedure should be provided in order to award the point.	

Accountable

Mandatory

Ref.	Compliance	Guidance	P
a	The scheme is mentioned in the site induction.	Check documentation.	

Optional

Ref.	Compliance	Guidance	P
b	Where an inspection has been carried out by HSE.	If HSE have carried out an inspection and where there are recommendations, there is a commitment to implement.	
c	Where the company sign board is prominently displayed with telephone number / website / email address.	View on site/photographic evidence.	
d	Where the Client is aware of the guidance.	This can be demonstrated by a letter or endorsement etc.	

Checklist A-5; Large Scale Refurbishments

Large Scale Refurbishments – Construction Site Impacts

a. Monitor, report and set targets for CO₂ production of energy use arising from site activities

Compliance requirement	Tick	Evidence/Reference
Monthly measurements of energy use will be/has been recorded and displayed on site.		
Appropriate target levels* of energy consumption will be/were set and displayed (targets could be annual, monthly, or project targets).		
As a minimum, monitoring will/did include checking the meters and displaying some form of graphical analysis in the site office to show consumption over the project duration and how actual consumption compares to the targets set.		
The design/site management team will/did nominate an individual who will be responsible for the monitoring and collection of data.		
<p>Notes:</p> <ul style="list-style-type: none"> — Targets for energy consumption during the refurbishment process should be set using DTI's Environmental KPI benchmarks. These documents do not specify targets but facilitate projects in setting appropriate targets (see references section of main credit for further details). — BREEAM does not require targets to be met but is encouraging the process of setting, monitoring and reporting against targets. 		

b. Monitor, report and set targets for water consumption arising from site activities

Compliance requirement	Tick	Evidence/Reference
Monthly measurements of water consumption will be/were recorded and displayed on site.		
Appropriate target* levels of water consumption will be/were set and displayed (targets could be annual, monthly or project targets).		
As a minimum, monitoring will/did include checking the meters and displaying some form of graphical analysis in the site office to show consumption over		

b. Monitor, report and set targets for water consumption arising from site activities

the project duration and how actual consumption compares to targets set.		
The design/site management team will/did nominate an individual responsible for the monitoring and collection of data.		
<p>Notes: Targets for water consumption during the refurbishment process should be set using DTI's Environmental KPI benchmarks. These documents do not specify targets but facilitate projects in setting appropriate targets (see References and Further Information for details). BREEAM does not require targets to be met but is encouraging the process of setting, monitoring and reporting targets.</p>		

c. A main contractor with an environmental materials policy

Compliance requirement	Tick	Evidence/Reference
<p>The main contractor operates an environmental materials policy, used for sourcing of construction materials to be utilised on site. The policy should cover/promote the following:</p> <ul style="list-style-type: none"> — Use of local materials (where possible) — Use of responsibly sourced materials — Re use of materials — Use of materials with a high recycled content — Waste minimisation and recycling — Use of non-toxic materials & refrigerants with a high global warming potential — Use of materials with a low embodied impact — Use of durable materials 		
Post refurbishment: indicative examples have been provided to demonstrate the policy in action.		

d. A main contractor that operates an Environmental Management System

Compliance requirement	Tick	Evidence/Reference
<p>The main contractor operates an Environmental Management System covering their main operations. The EMS must be either:</p> <ul style="list-style-type: none"> — Third party certified, to ISO14001/EMAS or equivalent standard. OR — The structure of the EMS is in compliance with British Stand- 		

d. A main contractor that operates an Environmental Management System

ard 8555 2003 and has reached phase four of the implementation stage, 'implementation and operation of the environmental management system', and completed phase audits one to four, as defined in BS8555.

e. 80% of site timber is reclaimed, re-used or responsibly sourced

Compliance requirement	Tick	Evidence/Reference
80% of timber used during construction, including formwork, site hoardings and other temporary site timber used for the purpose of facilitating construction, will be/was procured from sustainably managed sources, independently certified by one of the top two levels as set out in the Responsible Sourcing of Materials Issues (BREEAM credit Mat 2).		
Additionally 100% of all site timber will be/was legally sourced.		
Notes: <ul style="list-style-type: none"> — Re-used timber from off site can be counted as equivalent but re-usable formwork only complies if it meets the above criteria. — This credit can be awarded where all the timber used is reclaimed timber. 		

Checklist A-6: Small-Scale Refurbishments- Constructions Site Impacts

a. Set objectives for reducing CO₂ production from energy use arising from site activities

Compliance requirement	Tick	Evidence/Reference
An estimate of the energy use required for site activities throughout the refurbishment works.		
Outline measures which could be used in order to reduce the energy use required for site activities.		
Highlight suitable measures which will be implemented on-site in order to reduce energy use.		
Estimate how much energy will be saved as a result of implementing reduction measures.		

b. Set objectives for reducing water use arising from site activities

Compliance requirement	Tick	Evidence/Reference
An estimate of the water use required for site activities throughout the refurbishment works.		
Outline measures which could be used in order to reduce the water use required for site activities.		
Highlight suitable measures which will be implemented on-site in order to reduce water use.		
Estimate how much water will be saved as a result of implementing reduction measures.		

c. Main contractor environmental materials statement

Compliance requirement	Tick	Evidence/Reference
The main contractor produces an environmental materials statement, considering the sourcing of construction materials to be utilised on site. The statement should cover/promote the following:		

c. Main contractor environmental materials statement

<ul style="list-style-type: none"> — Use of local materials — Use of responsibly sourced materials — Re-use of materials — Use of materials with a high recycled content — Waste minimisation and recycling — Use of non-toxic materials — Use of materials with a low embodied impact — Use of durable materials <p>Where any of the issues above are not feasible, a suitable explanation is required.</p>		
<p>Post Refurbishment: indicative examples have been provided to demonstrate how each of the issues above has been addressed on-site, where possible.</p>		

d. 80% of site timber is reclaimed, re-used or responsibly sourced

Compliance requirement	Tick	Evidence/Reference
<p>All timber used during construction is reclaimed or re-used from off-site. Re-usable formwork only complies if it meets the criteria below.</p>		
<p>80% of timber used during construction, including formwork, site hoardings and other temporary site timber used for the purpose of facilitating refurbishment, will be/was procured from sustainably managed sources, independently certified by one of the top two levels as set out in the Responsible Sourcing of Materials Issues (BREEAM credit Mat2 and 3).</p>		
<p>Additionally, 100% of all site timber will be/was legally sourced.</p>		

This page is intentionally blank.

Checklist A-7; Daylight Factor

Part 1: Daylight factor

Item	Factor	Question	Before refurbishment	After refurbishment
1	Transmittance	Has the transmittance factor reduced as a result of refurbishment?	Transmittance factor e.g. 0.8 for clear single glazing (from BS 8206 Part 2)	Transmittance factor e.g. 0.8 for clear single glazing
		No		
2	Net Glazing area (accounting for the frame factor)	Has the net glazing area reduced as a result of refurbishment	Net glazing area (m ²)	Net glazing area (m ²)
		No		
3	Area of Room Surface	Has the area of room surfaces increased as a result of refurbishment	Area of room surfaces (m ²)	Area of room surfaces (m ²)
		No		
4	Reflectance	Has the area weighted reflectance of room surfaces reduced as a result of refurbishment	Area weighted reflectance of room surfaces e.g. 0.5 for light coloured walls (from BS 8206 Part 2)	Area weighted reflectance of room surfaces e.g. 0.5 for light coloured walls (from BS 8206 Part 2)
		No		
5	Angle of visible sky	Has the area of visible sky reduced as a result of refurbishment	Angle of visible sky (e.g. 65°)	Angle of visible sky (e.g. 65°)
		No		

Part 2: No-sky line

Item	Factor	Question	Before refurbishment	After refurbishment
1	Height of the window head above the working plan	Has the height of the window head above the working plan reduced?	Height of the window head above the working plan (m)	Height of the window head above the working plan (m)
		No		
2	Distance from obstruction	Has the distance from obstruction reduced?	Distance from obstruction (m)	Distance from obstruction (m)
		No		
3	Height of obstruction over window head	Has the height of obstruction over window height increased?	Height of obstruction over window height (m)	Height of obstruction over window height (m)
		No		
4	Height of working plane	Has the height of working plane decreased?	Height of working plane (m)	Height of working plane (m)
		No		

Part 3: Daylight factor: change of use projects

For retained windows, confirm whether 'no' can be answered for the following:

Item	Factor	Question	Before refurbishment	After refurbishment
1	Transmittance	Has the transmittance factor for windows reduced to below that of clear low emissivity double glazing as a result of refurbishment?	Transmittance factor e.g. 0.8 for clear single glazing (from BS8206 Part 2)	Transmittance factor e.g. 0.68 for clear low emissivity double glazing
2	Net Glazing area (accounting for the frame)	Has the net glazing area reduced by more than 10% as a result of refurbishment?	Net glazing area (m ²)	Net glazing area (m ²)

Item	Factor	Question	Before refurbishment	After refurbishment
	factor)			
3	Reflectance	Are room surface finishes darker on average as a result of refurbishment?	Colour of finishes (floor, walls, ceiling) before	Colour of finishes (floor, walls, ceiling) after
4	Angle of visible sky	Are there additional external obstructions, or has the angle of visible sky reduced as a result of refurbishment?	Angle of visible sky (e.g. 65°)	Angle of visible sky (e.g. 65°)

Part 4: No-sky line: change of use projects

Item	Factor	Question	Before refurbishment	After refurbishment
1	Height of the window head above the working plane	Has the height of the window head above the working plane reduced?	Height of the window head above the working plane (m)	Height of the window head above the working plane (m)
2	Distance from obstruction	Has the distance from obstruction reduced?	Distance from obstruction (m)	Distance from obstruction (m)
3	Height of obstruction over window head	Has the height of obstruction over window height increased?	Height of obstruction over window height (m)	Height of obstruction over window height (m)

This page is intentionally blank.

Checklist A8; Access Statement Template

Section A to be completed by the Assessor
A) Contact Details
Assessor details
Company Name:
Company Address:
Contact Name:
Contact Telephone Number:
Access expert details
Company Name:
Company Address:
Contact Name:
Contact Telephone Number:
Project details
Project Name:
Project Address:
BRE Reference Number:
Client Reference Number:

Section B - E to be completed by access expert
B) Description of Project To include description of proposed works (general project brief)

Section B- E to be completed by access expert

Section 1

1. Means of access into the dwelling

Requirement
2 Access into
the dwelling

An accessible threshold is provided into the entrance.
Note: The design of an accessible threshold should also satisfy the requirements of Part C2: Dangerous end offensive substances and Part C4: Resistance to weather and ground moisture.

Provision at pre-development, along with details of restrictions or limitations:

Description of practical solution achieved at post-development to meet requirement:

Note: General guidance on design considerations for accessible thresholds has been published separately by The Stationery Office as 'Accessible thresholds in

Section 1	
	new housing: guidance for house builders and designers!
2. Accessible switches and socket outlets in the dwelling(s)	
1 Accessible switches and socket outlets in the dwelling(s)	Provides switches and socket outlets for lighting and other equipment in habitable rooms at appropriate heights between 450mm and 1200mm from finished floor level (see diagrams 29 within Approved Document.
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
3. WC provision in the entrance storey of the building	
1 WC provision in the entrance storey of the building	<ol style="list-style-type: none"> 1. a WC is provided in the entrance storey of a dwelling which contains a habitable room; or where the dwelling is such that there are no habitable rooms in the entrance storey, if a WC is provided in either the entrance storey or the principal storey 2. the door to the WC compartment opens outwards, and is positioned to enable wheelchair users to access the WC and has a clear opening width in accordance with (door openings wider than the minimum in accordance with the table allow easier manoeuvring and access to the WC by wheelchair users); and 3. the WC compartment provides a clear space for wheelchair users to access the WC (see diagrams 31 and 32 within Approved Document) and washbasin is positioned so that it does not impeded access

Section 1	
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
	<p>4. All entrances should:</p> <ul style="list-style-type: none"> a. be illuminated b. have level access over the threshold and c. have a covered main entrance
Criterion 4 Entrances	<p>The threshold upstand (any vertical change in level at the threshold) should not exceed 15mm.</p> <p>Applicability: All forms of dwelling –</p> <p>4 a. All entrances to dwellings and all communal entrances to blocks of dwellings</p> <p>4 b. All entrances to dwellings, all communal entrances to blocks of dwellings and all associated communal doors</p> <p>4 c. Main entrances to dwellings and main entrances to blocks of dwellings</p>
	Provision at pre-development, along with details of restrictions or limitations:

Section 1	
	Description of practical solution achieved at post-development to meet requirement:
5. Walls in bathrooms and toilets should be capable of taking adaptations such as handrails	
Criterion 11 Bathroom & WC Walls	Wall reinforcements should be located between 300 and 1500mm from the floor Applicability: All forms of dwelling
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:

Section 1	
6. The bathroom should be designed to incorporate ease of access to the bath, WC and wash basin	
Criterion 14 Bathroom Layout	Although there is not a requirement for a turning circle in bathrooms, sufficient space should be provided so that a wheelchair user can use the bathroom Applicability: All forms of dwelling
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
7. Switches, sockets, ventilation and service controls should be at a height usable by all (i.e. between 450 and 1200mm from the floor)	
Criterion 16 Controls Fixtures & Fittings	This applies to all rooms including the kitchen and bathroom Applicability: All forms of dwelling
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:

Section 2

1. Means of access to the dwelling

1) Approach to the dwelling	<p>Within the plot of the dwelling, a suitable approach is provided from the point of access to the entrance. The point of access should be reasonably level and the approach should not have crossfalls greater than 1 in 40. The whole, or part, of the approach may be a driveway.</p>
	<p>Provision at pre-development, along with details of restrictions or limitations:</p>
	<p>Describe the approach to the dwelling before project work commenced. Site layout plans or other design documentation may be referred to. Identify areas of non-conformity with the requirements of Part M.</p>
	<p>Description of practical solution achieved at post-development to meet requirement:</p>
	<p>Describe improvements made to meet Part M requirement as far as practical, explaining why further improvements to achieve the required / desired Standard for each element were not possible due to pre-development restrictions.</p>

Section 2		
2) Access Doors	An external door providing access for disabled people has a minimum clear opening width of 775mm.	
	Provision at pre-development, along with details of restrictions or limitations:	
	Description of practical solution achieved at post-development to meet requirement:	
2. Circulation within the entrance storey of the dwelling(s)		
1) Corridors, passageways and internal doors within the entrance storey	A corridor or other access route in the entrance storey or habitable room containing a WC (which may be a bathroom) on that level, has an unobstructed width in accordance with the following table:	
	: Minimum Widths of Corridors and Passageways for a Range of Doorway widths	
	Doorway Clear Opening Width (mm)	Corridor/Passageway width (mm)
	750 or narrower	900 (when approached head-on)
750	1200 (when approached not head-on)	

Section 2

: Minimum Widths of Corridors and Passageways for a Range of Doorway widths	
775	1050 (when approached not head-on)
800	900 (when approached not head-on)
<p>A short length (no more than 2m) of local permanent obstruction in a corridor such as a radiator, would be acceptable provided that the unobstructed width of the corridor is not less than 750mm for that length and the local permanent obstruction is not placed opposite a door to a room if it would prevent a wheelchair user turning into or out of the room; and Doors to habitable rooms and a room containing a WC have minimum clear opening widths shown in, when accessed by corridors or passageways whose widths are in accordance with those listed in the table.</p>	
<p>Provision at pre-development, along with details of restrictions or limitations:</p>	
<p>Description of practical solution achieved at post-development to meet requirement:</p>	
2) Vertical circulation	In exceptional circumstances, where severely sloping plots are involved, a stepped change of level within the entrance storey may be unavoidable. In

Section 2	
within the entrance storey	<p>those instances, the aim should be to provide a stair of reasonable width for ambulant disabled people to negotiate the steps with assistance and for handrails on both sides. Approved Document K of the Building Regulations contains guidance on the design of private stairs in dwellings. A stair providing vertical circulation within the entrance storey of the dwelling will satisfy requirement M1 if:</p> <ol style="list-style-type: none"> a. it has flights whose clear widths are at least 900mm; b. there is a suitable continuous handrail on each side of the flight and any intermediate landings where the rise of the flight comprises three or more rises: and c. the rise and going are in accordance with the guidance in the Approved Document for part K for private stairs.
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
3. Passenger lifts and common stairs in blocks of flats	
1) Passenger lifts and common stairs in blocks of flats	<p>A building containing flats, in which a passenger lift is not be installed, is provided with a suitable stair, with:</p> <ol style="list-style-type: none"> 1. all step nosings distinguishable through contrasting brightness; 2. top and bottom landings whose lengths are in accordance with Part K1; 3. steps with suitable tread nosing profiles (see Diagrams 30 within Approved Document) and uniform rise of each step, which is not more than 170mm; 4. uniform going of each step, which is not less than 250mm, which for

Section 2

	<p>tapered treads should be measured at a point 270mm from the inside of the tread;</p> <p>In a building, or part of a building which contains flats above the entrance storey, any lift access with a minimum load capacity of 400kg must:</p> <ol style="list-style-type: none"> 1. has a clear landing at least 1500mm wide and at least 1500mm long in front of its entrance; 2. has a door or doors which provide a clear opening width of at least 800mm 3. has car whose width is at least 900mm and whose length is at least 1250mm (other dimensions may satisfy Requirement M1 where shown by test evidence or experience in use, or otherwise, to be suitable for an unaccompanied wheelchair user); 4. has landing and car controls which are not less than 900mm and not more than 1200mm above the landing and the car floor, at a distance of at least 400mm from the front wall; 5. is accompanied by suitable tactile indication on the landing and adjacent to the lift call button to identify the storey in question; 6. has suitable tactile indication on or adjacent lift within the car to confirm the floor selected; 7. incorporates a signalling system which gives visual notification that the lift is answering a landing call and a 'dwell time' of five seconds before its doors beginning to close after they are fully open; the system may be overridden by a door re-activating device which relies on appropriate electronic methods, but not a door edge pressure system, provided that the minimum time for a lift door to remain fully open is 3 seconds; and 8. when the lift serves more than three storeys, incorporates visual and audible indication of the floor reached.
	<p>Provision at pre-development, along with details of restrictions or limitations:</p>

Section 2	
	Description of practical solution achieved at post-development to meet requirement:
4. WC provision in the entrance storey of the building	
1) WC provision in the entrance storey of the building	<ol style="list-style-type: none"> 1. a WC is provided in the entrance storey of a dwelling which contains a habitable room; or where the dwelling is such that there are no habitable rooms in the entrance storey, if a WC is provided in either the entrance storey or the principal storey 2. the door to the WC compartment opens outwards, and is positioned to enable wheelchair users to access the WC and has a clear opening width in accordance with (door openings wider than the minimum in accordance with the table allow easier manoeuvring and access to the WC by wheelchair users); and 3. the WC compartment provides a clear space for wheelchair users to access the WC (see diagrams 31 and 32 within Approved Document) and washbasin is positioned so that it does not impeded access
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:

Section 3

5. Where there is car parking adjacent to the home, it should be capable of enlargement to attain 3300mm width

Section 3

Criterion 1 Car parking width	<p>The general provision for a car parking space is 2400mm width. If an additional 900mm width is not provided at the outset, there must be provision (e.g. a grass verge) for enlarging the overall width to 3300mm at a later date.</p> <p>Applicability: Usually only houses – all dwellings that have a parking space within the designated plot boundary for that particular dwelling</p>								
	<p>Provision at pre-development, along with details of restrictions or limitations:</p>								
	<p>Description of practical solution achieved at post-development to meet requirement:</p>								
<p>6. The distance from the car parking space to the home should be kept to a minimum and should be level or gently sloping</p>									
Criterion 2 Access from car parking	<p>It is preferable to have a level approach. However, where the topography prevents this, the following table highlights the maximum gradients dependent on the distance*</p> <table border="1"> <thead> <tr> <th>Distance</th> <th>Gradient</th> </tr> </thead> <tbody> <tr> <td><5m</td> <td>1:12</td> </tr> <tr> <td>5–10m</td> <td>1:15</td> </tr> <tr> <td>>10m</td> <td>1:20</td> </tr> </tbody> </table> <p>Paths should be a minimum of 900mm width</p> <p>Applicability: All forms of dwelling – all parking spaces, for any type of dwelling, whether that space is within the boundary or not</p>	Distance	Gradient	<5m	1:12	5–10m	1:15	>10m	1:20
	Distance	Gradient							
<5m	1:12								
5–10m	1:15								
>10m	1:20								

Section 3	
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
7. The approach to all entrances should be level or gently sloping	
Criterion 3 The approach to all entrances should be level or gently sloping	See specification and dimensional requirements of standard 2 above for the definition of gently sloping Applicability: As standard 2 above
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
8. Communal stairs should provide easy access and where homes are reached by a lift, it should	

Section 3

be fully accessible

Criterion 5 Communal stairs and lifts	<p>Minimum dimensions for communal stairs;</p> <ul style="list-style-type: none"> — Uniform rise not more than 170mm; — Uniform going not less than 250mm; — Handrails extend 300mm beyond top and bottom step; — Handrail height 900mm from each nosing;
	<p>Minimum dimensions for lifts;</p> <ul style="list-style-type: none"> — Clear landing entrances 1500mm x 1500mm; — Minimum internal dimensions 1100mm 3 1400mm; — Lift controls between 900 and 1200mm from the floor and 400mm from the lift's internal front wall; <p>Applicability: Flats and maisonettes – any dwelling approached via a communal stair and/or a passenger lift. If a lift is provided, the communal stairs must still conform to the requirements stated in the Specification column.</p>
	<p>Provision at pre-development, along with details of restrictions or limitations:</p>
	<p>Description of practical solution achieved at post-development to meet requirement:</p>

Section 3

9. The width of the doorways and hallways should conform to the specifications in the next row

Criterion 6 Doorways & Hallways

Doorway clear opening width (mm)	Corridor/ passageway width (mm) (minimum)
750 or wider	900 (when approach is head-on)
750 or wider	1200 (when approach is not head-on)
750 or wider	1050 (when approach is not head-on)
900 or wider	900 (when approach is not head-on)

Applicability: All forms of dwelling – all doorways and hallways/passageways/ landings on all storeys within all dwellings, whatever form, on whatever storey, and all communal areas within a block of dwellings

The clear opening width of the front door should be 800mm.

Applicability: All front doors to all dwellings and communal entrance doors to blocks of dwellings

There should be 300mm to the side of the leading edge of doors at entrance level.

Applicability: All communal entrance doors to blocks of dwellings, all communal doors within a block of dwellings (on any storey), and all doors on the entrance level of each dwelling (i.e. all doors on the entrance level of houses/maisonettes and every door within a flat)

Section 3

	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
10. There should be a space for turning a wheelchair in dining areas and living rooms and adequate circulation space for wheelchairs elsewhere	
Criterion 7 Wheelchair Accessibility	A turning circle of 1500mm diameter or a 1700mm x 1400mm ellipse is required Applicability: All forms of dwelling
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:

Section 3	
11. The living room should be at entrance level	
Criterion 8 Living room	Applicability: All forms of dwelling – Living room/living area
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
12. In houses of two or more storeys, there should be space on the entrance level that could be used as a convenient bed-space	
Criterion 9 Entrance Level Bed-space	Applicability: Houses/maisonettes – dwellings with more than one storey

Section 3

	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
13. There should be; a wheelchair accessible entrance level WC, with drainage provision enabling a shower to be fitted in the future	
Criterion 10 Entrance Level WC & Shower Drain- age	<p>The drainage provision for a future shower should be provided in all dwellings</p> <p>Dwellings of three or more bedrooms or on one level; The WC must be fully accessible. A wheelchair user should be able to close the door from within the closet and achieve side transfer from a wheelchair to at least one side of the WC. There must be at least 1100mm clear space from the front of the WC bowl. The shower provision must be within the closet or adjacent to the closet</p> <p>Dwellings of two or fewer bedrooms; In small two-bedroom dwellings where the design has failed to achieve the above fully accessible standard WC, the Part M standard WC will meet this requirement</p> <p>Applicability:</p> <ol style="list-style-type: none"> a. All dwellings except houses/maisonettes, with two or more storeys, that have 2 or less bedrooms (i.e. applicable to all flats regardless of number of bedrooms, and houses / maisonettes with 3 or more bedrooms). b. All forms of dwelling Note: these facilities will be required within the bathroom of all flats if not provided elsewhere in the flat

Section 3	
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
14. The design should incorporate; provision of a stair lift a suitably identified space for a through-the-floor lift from the ground to the first floor, for example to a bedroom next to a bathroom	
Criterion 12 Stair Lift/ Through-Floor Lift	There must be a minimum of 900mm clear distance between the stair wall (on which the lift would normally be located) and the edge of the opposite handrail/balustrade. Unobstructed 'landings' are needed at the top and bottom of the stairs Applicability: All dwellings with 2 or more storeys – this criterion relates to private stairs within individual dwellings only
	Provision at pre-development, along with details of restrictions or limitations:

Section 3

	Description of practical solution achieved at post-development to meet requirement:
15. The design should provide a reasonable route for a potential hoist from a main bedroom to the bathroom	
Criterion 13 Tracking Hoist Route	Most timber trusses today are capable of taking a hoist and tracking. Technological advances in hoist design mean that a straight run is no longer a requirement Applicability: All forms of dwelling
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:
16. Living room window glazing should begin at 800mm or lower and windows should be easy to open/operate	
Criterion 15 Window Specification	People should be able to see out of the window whilst seated. Wheelchair users should be able to operate at least one window in each room Applicability: All forms of dwelling
	Provision at pre-development, along with details of restrictions or limitations:
	Description of practical solution achieved at post-development to meet requirement:

Signatures

The following declaration should be signed by the project team member responsible for ensuring that the dwelling(s) meets the recommendations of the Access Statement; the completing access

Signatures
expert; and appointed BREEAM Assessor.
Name of access expert:
Signature:
Name of project team member:
Signature:
Name of assessor:
Signature:
Date:

Checklist A-9; Refurbishment Site Waste Management – up to £100k value

Small scale projects

This checklist is to be completed for all waste generated through the refurbishment process to confirm:

- Waste is taken away by a licensed carrier
- Waste is taken to a site with an appropriate permit or exemption
- Options are considered for reusing and recycling waste in accordance with the waste hierarchy
- Yes has been answered to questions 5 - 8

Part 1: Waste contractor checklist

Question	Details (contractor 1)	Details (contractor 2 – where necessary)
Name of waste carrier		
Waste carrier license details (including start and end date and number)*		
Name of waste destination		
Details of permit/exemption (including start and end date (where appropriate) and number)**.		
Is a copy of the waste transfer note available***	Yes/No	
Does the waste transfer note include a declaration that the waste hierarchy will be followed? (Table - 34 below)	Yes/No	
Is there a commitment from the contractor to divert at least 80% of waste from landfill?	Yes/No	

Part 2: On-Site waste management checklist

Question	Details	Evidence
Have options for prevention or preparing for re-use been considered prior to handing waste over to the licensed waste contractor?	Yes/No	
Details of reuse options implemented e.g. stockpile for further reuse,		

Part 2: On-Site waste management checklist		
donate to community/charity schemes		
Recycling/recovery options implemented e.g. crush bricks for use as inert material, compost wood etc		

*Information on waste carriers is held by the Environment Agency, this can be accessed here: www.environment-agency.gov.uk

** This should be available from your waste carrier.

*** Details of compliant waste transfer notes is provided by the Environment Agency and can be accessed here: www.environment-agency.gov.uk/business

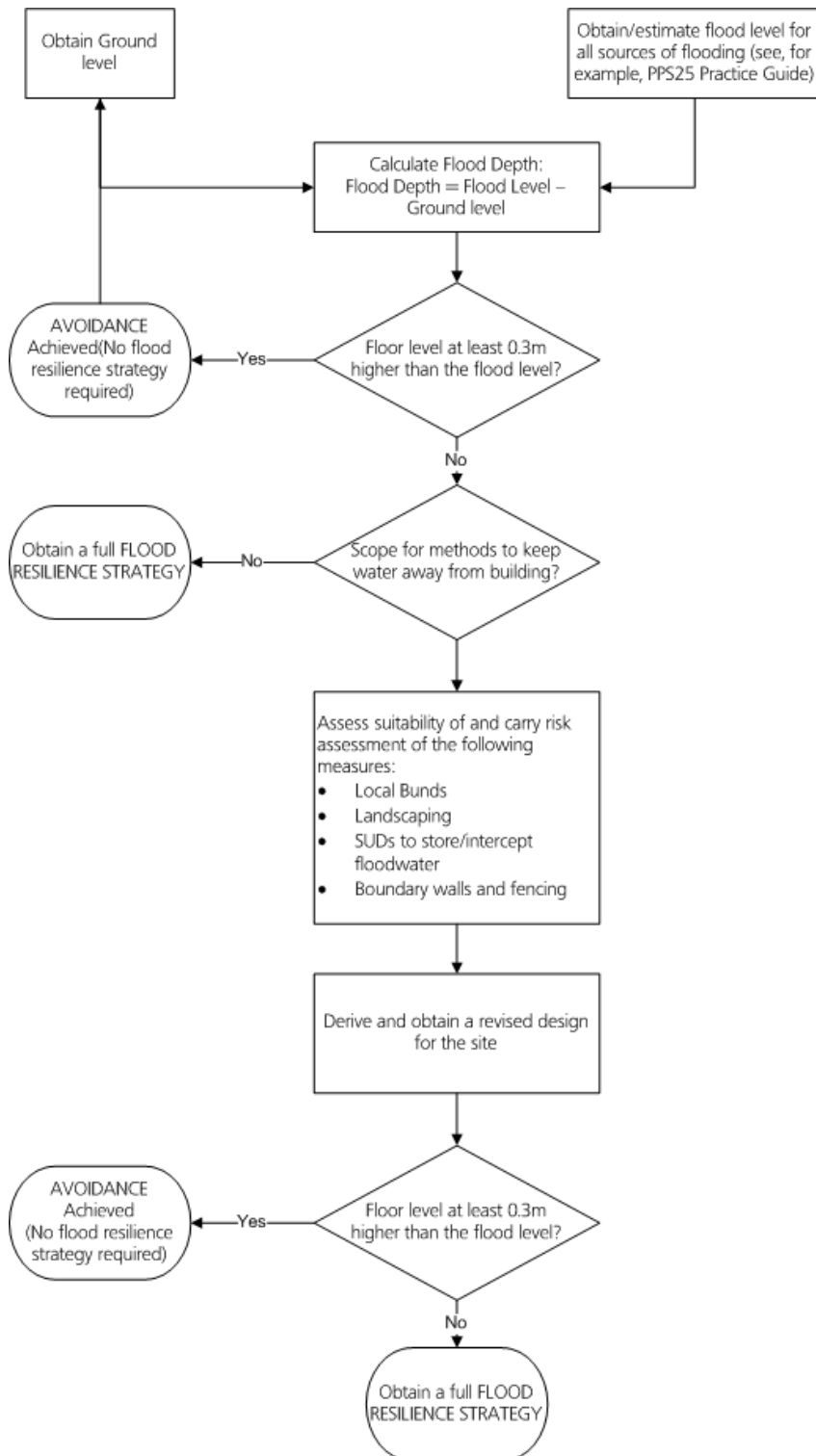
Table - 34:>: Waste Management Hierarchy

Category	Description
Prevention:	Using less material in design and manufacture. Keeping products for longer; re-use. Using less hazardous materials
Preparing for re-use:	Checking, cleaning, repairing, refurbishing, whole items or spare parts
Recycling:	Turning waste into a new substance or product. Includes composting if it meets quality protocols
Other recovery:	Includes anaerobic digestion, incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat and power) and materials from waste; some backfilling
Disposal:	Landfill and incineration without energy recovery

The above hierarchy is cited from the EU Waste Framework Directive (Directive 2008/98/EC) now incorporated into:

- the Waste (England and Wales) Regulations 2011;
- the Waste (Scotland) Regulations 2011;
- the Waste (Northern Ireland) Regulations 2011.

Checklist A-10; Pol03



This page is intentionally blank.

Appendix B: Calculation Procedures

Management

No calculations needed for this section.

Health and Wellbeing

No calculations needed for this section.

This page is intentionally blank.

Energy

Ene 01

Calculation Procedure B-1; Average Improvement in Energy Efficiency Rating (EER) as a Result of Refurbishment

To calculate the improvement in EER, the following calculation should be carried out:

$$\text{Improvement in EER} = (\text{Post refurbishment EER}) - (\text{Pre refurbishment EER})$$

To calculate the average improvement in EER for multiple dwellings, as described in issue Ene 01 compliance note 1, the following calculation should be carried out:

$$EER_{imp} = \text{EER improvement}$$

$$A_{floor} = \text{Floor area}$$

Average relative improvement in EER =

$$\frac{((EER_{imp}(\text{dwelling 1}) \times A_{floor}(\text{dwelling 1})) + ((EER_{imp}(\text{dwelling 2}) \times A_{floor}(\text{dwelling 2})) + (\text{etc ...}))}{A_{floor}(\text{dwelling 1}) + A_{floor}(\text{dwelling 2}) + (\text{etc ...})}$$

Note: The Energy Efficiency Rating is defined in issue Ene 01

Ene 02

Calculation Procedure B-2; Average Improvement in Energy Efficiency Rating

To calculate the average EER as described in Ene 02, compliance note 1, the following calculation should be carried out:

$$\text{Average EER} = \frac{(EER(\text{dwelling 1}) \times \text{Floor Area}(\text{dwelling 1})) + ((EER(\text{dwelling 2}) \times \text{Floor Area}(\text{dwelling 2})) + (\text{etc ...}))}{\text{Floor Area}(\text{dwelling 1}) + \text{Floor Area}(\text{dwelling 2}) + (\text{etc ...})}$$

Ene 03

Calculation Procedure B-3; Average Primary Energy Demand

To calculate the average Primary Energy Demand for multiple units as described in Ene 03, compliance note 1, the following calculation should be carried out:

$$\text{Average PED} = \frac{(PED(\text{dwelling 1}) \times \text{Floor Area}(\text{dwelling 1})) + (PED(\text{dwelling 2}) \times \text{Floor Area}(\text{dwelling 2})) + (\text{etc ...})}{\text{Floor Area}(\text{dwelling 1}) + \text{Floor Area}(\text{dwelling 2}) + (\text{etc ...})}$$

Where:

PED = Primary Energy Demand

Ene 07

Calculation Procedure B-4; Average watts per m²

The average watts per m² should be calculated by determining the Watts per lamp and quantity of each lamp specified in the dwelling to calculate the total internal lighting demand in watts, divided by the total net internal area as set out in Table 13-1.

Table - 1: Calculating the internal lighting demand (average watts per m²)

Lamp Type	Watts per lamp (1)	Number of lamps (2)	Total Watts = (Column(1) × Column(2)) (3)
1			
2			
3			
		Net Watts (4)	Σ Column(3)
		Net internal floor area (m ²) (5)	
		Average watts/m ² (6)	$= \frac{\text{Net Watts Column(4)}}{\text{Net internal floor area (m}^2\text{) Column(5)}}$

Water

No calculations needed for this section.

This page is intentionally blank.

Materials

This page is intentionally blank.

Mat 01

Calculation Procedure B-5; Environmental Impact of Materials

BREEAM Domestic Refurbishment Mat1 Calculator

The BREEAM Domestic Refurbishment Mat 1 calculator is based on the Green Guide rating(s) achieved for the specifications and also the U value of new materials to give credits for both embodied impacts and the impact of the material on improving an elements thermal performance. In addition to the credits available for the Green Guide ratings, Improvements in U values can also gain credits and may act to offset some of the potential credits lost due where higher embodied impact materials were required as a result of refurbishment.

Recognition is also given for where an independently verified third-party Environmental Product Declaration (EPD) is available for a new product/material used in the refurbishment of an existing element or the construction of a new element. This EPD may be covering part of or the whole life cycle of that material/product and can also be used to increase the contribution of that element to the potential number of credits achieved under Mat 01 (refer to Calculation procedures below for more detail).

Note:

The ratings under the Green Guide to specification 2008 calculator and those achieved using the Green Guide Refurbishment Calculator are not to be compared alongside each other.

Using the BREEAM Domestic Refurbishment Mat1 calculator

1. For each element enter the dwelling description - this should be the same description as used in the refurbishment green guide calculator
2. For each element, select whether the element is included or not. An element is not indicated as included where no such element is present e.g. where there are no separating floors. All elements that are present must be assessed, whether undergoing refurbishment or not.
3. For each element, indicate for each element type whether it is an element undergoing refurbishment (e.g. an external wall being dry lined), an existing element with no new materials being added (e.g. existing double glazed windows) or a newly constructed element (e.g. in the case where an element is being replaced, rebuilt or in the case of an extension).
4. For each element, use the Refurbishment Green Guide Calculator or Green Guide to Specification as relevant and select the Green Guide Rating from the drop down options
5. Enter the reference number for each element as provided with the Green Guide Rating (note: this is for Quality Assurance purposes)

1. Dwelling description

2. Elements present

3. Element type (new, refurbished or retained)

BREEAM Domestic Refurbishment Mat 01 Calculator **BREEAM**

Tool Version	1.0
BREEAM Domestic Refurbishment Version	1.0
Assessment Reference Number	
Site Name	
Dwelling Reference	

Included?	Element	Green Guide Credits	Thermal Performance Credits	Total
?	Roof	0.0	0.0	0.0
?	External Walls	0.0	0.0	0.0
?	Internal Walls (including separating walls)	0.0		0.0
?	Upper Floors	0.0	0.0	0.0
?	Ground Floors	0.0	0.0	0.0
?	Windows	0.0	0.0	0.0
Total Credits				0.0

New/Refurbished	Green Guide Rating	Element Reference	Area (m ²)	Green Guide Rating Credits	U Value Before	U Value After	Thermal Performance Credits
				Please Enter Area			No Credits
				Please Enter Area			No Credits
				Please Enter Area			No Credits
				Please Enter Area			No Credits
				Please Enter Area			No Credits
				Please Enter Area			No Credits

New/Refurbished	Green Guide Rating	Element Reference	Area (m ²)	Green Guide Rating Credits	U Value Before	U Value After	Thermal Performance Credits
				Please Enter Area			No Credits
				Please Enter Area			No Credits
				Please Enter Area			No Credits
				Please Enter Area			No Credits
				Please Enter Area			No Credits
				Please Enter Area			No Credits

10. Total credits achieved

4. Green Guide Rating

5. Green Guide reference number

6. Area of element type (m²)

7. Green Guide Credits achieved

8. U values before and after refurbishment

9. Thermal performance credits

6. Enter the area of each specification in m² in the “area m2” column. Note: This will be used to area weight each specifications contribution towards achieving Mat1 credits.
7. For each element enter the U-values of each specification before refurbishment has been carried out. These should be based upon the default U-values provided in appendix S of SAP 2012 to provide a consistent measurement across all BREEAM Domestic Refurbishment Assessments.
8. For each element enter the U-values of each specification after refurbishment has been carried out, as used to calculate the SAP/RdSAP ratings for Ene 01 to Ene 04.
9. Thermal performance credits will be calculated based upon the improvement in U values towards an upper U value target, described later in this document
10. The total number of credits will be given which is based upon the area weighted embodied impact and thermal performance of the refurbishment specification, taking into account the size of each element and also the elements that are present.

BREEAM Domestic Refurbishment Mat1 calculator

Calculation procedures

Determining the number of BREEAM points achieved as a result of each element’s Green Guide rating (Embodied Impact)

This procedure translates a specification’s Green Guide rating into Mat1 calculator points. The Green Guide rating relates to the relative life cycle performance of a specification in comparison with other types of specifications available for a particular building element type e.g. external wall.

For new elements, assessed against the Green Guide A+ to E rating system, Mat 01 illustrates the points awarded within the BREEAM Domestic Refurbishment Mat1 calculator for each Green Guide rating.

Table - 2: The points allocated within the Mat1 calculator for the given Green Guide ratings of new elements.

New Element	
GG ratings	Points
A+	3
A	2
B	1
C	0.5
D	0.25
E	0

For a retained element or where additional material(s) is/are introduced into the retained element, assessed against the Refurbishment Green Guide A+ (6) (See relevant definitions) to E rating, Mat 01 illustrates the points awarded within the BREEAM Domestic Refurbishment Mat 1 calculator for each Green Guide rating. Existing elements that are not undergoing refurbishment should also be assessed against the Refurbishment Green Guide Calculator to establish their rating from A+ (6) to E.

Table - 3: The points allocated within the Mat 1 calculator for the given Refurbishment Green Guide ratings of retained elements.

Retained Elements	
GG ratings	Points
A+ (6)	5
A+ (5)	4.6
A+ (4)	4.2
A+ (3)	3.8
A+ (2)	3.4
A+ (1)	3
A	2
B	1
C	0.5
D	0.25
E	0

Determining the number of BREEAM points achieved as a result of each element's thermal improvement.

In addition to the credits available for newly specified materials according to their Green Guide rating, credits are also allocated according to the new materials impact on improving the thermal performance of the particular element. This is designed to recognise energy efficiency improvements as a result of material changes within dwellings, where a greater number of credits may be awarded for more significant energy efficiency improvements.

This recognises the limitations with existing Green Guide data for materials which have a thermal performance which exceeds the assumed values within functional units used to determine the Green Guide Rating as part of BRE's Environmental Profiling methodology. The functional unit is based upon U values considered to be realistic maximum values to satisfy Part L of Building Regulations 2006. This is also to recognise the primary aim of the scheme to drive forward the performance of existing housing. The specification of materials which deliver the greatest improvement is therefore a key requirement of the scheme however this is balanced with the environmental impact of those materials by using the Green Guide.

Methodology for assessing thermal performance

Any newly specified materials comprising the following elements are assessed within this issue: Walls, roof, ground floor, windows and separating walls. The U value of the materials is used to indicate energy efficiency improvements. The U value is used as this enables thermal performance to be assessed on an elemental basis and is widely recognised and available and is the key metric used to determine compliance with Building Regulations Part L1 b.

The Mat1 calculator is used to determine the number of credits awarded within the Mat1 issue in order to simplify the assessment process. This document outlines the logic behind the methods that the Mat1 calculator uses to allocate credits. The following elements are assessed within the Mat1 issue and the maximum number of credits available to each is outlined below:

Table - 4: The maximum number of credits that can be achieved by each element.

Element	Maximum Credits Available
Walls	3.8
Roof	3
Ground Floor	1.2
Windows	2
Separating Walls	3.8

Maximum credits available for each element

As each element varies in terms of its contribution towards the energy efficiency of a dwelling, this is reflected in the maximum number of credits available for each element. Thus elements with the potential to contribute larger reductions in energy loss have a higher number of credits available to them for demonstrating maximum improvements.

Assessing the improvement in U values as a result of refurbishment

The next step in the process is to determine the number of credits awarded depending upon its corresponding U value for each element. The lowest U-value for each element is represented by SAP

appendix S worst case scenarios and thus is associated with 0 credits. There is also an upper limit U value at the top of the range aligned with the maximum number of credits available for each element. This is represented by an advanced practice U value and where an element is refurbished to achieve this upper value, the maximum potential number of credits are awarded for this element.

Element	U value
External walls	0.15
Ground floor	0.15
Roof	0.11
Windows	1.4

Credits are awarded based upon the improvement in the elements U value towards the upper U value limit. In order to determine the number of credits awarded, the calculator tool looks at the elements U value before refurbishment and plots available credits on an exponential curve with maximum credits available for achieving the best practice U values. The same number of credits are available irrespective of the elements starting U value with credits redistributed depending upon its starting point before refurbishment. This is in order for the method to assess what impact the new materials are having on improving operational performance. The exponential basis recognises the increasing cost of improving existing elements towards the upper U value limits. Whilst it is recognised that it is technically feasible to go beyond the upper U value levels (e.g. Passivhaus), the above limits have currently been set for the purposes of this issue considering current best practice refurbishment that may be achieved across a range of house types. BRE Global will review this as the scheme is operational and as best practice moves on, this upper limit will potentially be updated when BRE Global carry out an update of the scheme, with the first update programmed following first year of the scheme operation. For refurbishments that go beyond these U values, additional credits may however be achieved in the energy category including Ene 01, Ene 02 and Ene 03.

Summary

The number of credits awarded for thermal performance is dependent upon a number of factors:

- The element type
- The pre and post refurbishment U values and hence the amount of thermal improvement demonstrated
- The improvement in U values as a function of:
 - the pre-refurbishment U value
 - the improvement progress towards a maximum exemplary level

Weighting the performance of individual specifications within an elemental category

Where an element consists of several different specifications, the overall credits achieved for that element are weighted according to the relative area and Green Guide rating of each of the individual specifications.

An example of this is provided below for an external wall element consisting of three different types of external wall specification.

Table - 5: Example wall elements

Element type	Specification	Area (m ²)	% of element type	Generic Green Guide rating	Points	Area weighted points
External Wall	External wall type 1	280	26%	A+	3	0.79
	External wall type 2	350	33%	C	0.5	0.16
	External wall type 3	435	41%	B	1	0.41
	Element Total	1065	100%	-	-	1.36

This adjustment is made to ensure the contribution of credits is balanced in accordance with the life cycle performance of each specification.

Weighting the performance of individual elements relative to all elements assessed

This step is completed in two parts:

Part 1: Weights the performance of the building elements based on its area relative to the overall area of the different elements. This is done by multiplying the area of each element by the weighted Green Guide score, adding the total for all elements and then dividing by the total area of the assessed elements.

For example, a 3-storey house will have a smaller roof area than external wall area, and so the area weighting will take this into account by giving a smaller weighting to the credits score for the roof in comparison to the external walls.

Part 2: The range of impacts, measured using Ecopoints, for each of the elements will differ and therefore so will the increments between each Green Guide rating level. For example, the external walls have a larger Ecopoints range than the internal walls, therefore, if both elements achieve the same Green Guide rating, the rating of the external walls achieves a higher proportion of the overall points than the rating for the internal walls, thus recognising the relatively higher reduction possible in the environmental impact of the external walls, due to the larger Ecopoints range for that element.

Calculation procedure where a specific Environmental Product Declaration is available for a material

The Green Guide online provides users (design teams and clients) with information on the relative life cycle environmental impacts for a range of different building elemental specifications e.g. external wall, roof, windows etc. Each specification's online Green Guide rating is based on verified LCA data for generic construction products assessed according to BRE's Environmental Profiles Methodology.

There are many different schemes producing EPDs for products or services complying with BS ISO 14025 (there is specific construction product and service variant of BS ISO 14025; BS ISO 21930) using LCA according to the BS ISO 14040 series.

Where a third party verified EPD is available for a product that forms part of an assessed element, for example a concrete block used in an external wall, the EPD can potentially be used to uplift the element's BREEAM performance, i.e. points and therefore credits achieved. The degree of uplift available in such instances depends on three factors:

- The assessed element's existing Green Guide rating
- The proportion of the total environmental impact of the element that the material with the EPD contributes
- The manufacturer's Environmental Product Declaration type for the relevant product/material(s)

Using this information, the points achieved for the existing Green Guide rating of the element is adjusted as follows (using the BREEAM Domestic Refurbishment Mat1 calculator):

1. The proportion of the total environmental impact of the assessed element that the material with the EPD contributes is determined using the Online Green Guide Calculator. The Online Green Guide calculator will list the relative environmental impact of each constituent material of a defined element as a percentage. Select the percentage for the relevant material and enter this into the BREEAM Domestic Refurbishment Mat1 calculator.
If an element cannot be defined using the Online Green Guide Calculator the assessor will need to complete a Bespoke Green Guide Query Proforma and submit to BRE Global, who will then confirm the relevant proportional impact of the material(s) in question. This will also be required for a material with a BRE Environmental Profile which is specified as part of an element that differs from the elemental description on which that profile is based (see also relevant compliance note above).
2. Define the Environmental Product Declaration type and tier level (see Mat 01 for the material(s) in question).

Table - 6: The Environmental Product Declaration (EPD) type and tier ranking

EPD Tier level	EPD description
1	A third-party, independently verified EPD covering the whole life cycle (i.e. cradle-to-grave).
2	A third-party, independently verified EPD covering partial life cycle (i.e. cradle-to-gate*).
<p>*Partial life cycle EPD can cover:</p> <ul style="list-style-type: none"> — The product stage only. Such an EPD covers raw material supply, transport, manufacturing and associated processes; this EPD is said to be "cradle to gate"; — The product stage and selected further life cycle stages. Such an EPD is said to be "cradle to gate with options. <p>In both cases, the above EPD must be produced in accordance with the requirements of the ISO 14020 series, particularly ISO 14025 & ISO 21930 (concerning environmental labels and declarations) and ISO 14040 and 14044 (concerning life cycle assessment).</p>	

3. Once the element's Green Guide rating and the relevant material(s) proportional impact and EPD type and tier level have been defined, the points uplift can be calculated (see Mat 01). The BREEAM Domestic Refurbishment Mat1 calculator does this by multiplying the material's proportional impact by the maximum points uplift available for the Green Guide rating achieved for the element. The points uplift is then added to the points already achieved for that element's generic Green Guide rating (see worked example below). The BREEAM Domestic Refurbishment Mat1 calculator then continues its calculation procedure, as outlined in steps 2 and 3 above, to determine the number of BREEAM credits achieved.

Table - 7: Green Guide points uplift by EPD type

Existing Green Guide Rating	Generic Green Guide rating Points	EPD Tier 1 Max points uplift	EPD tier 2 Max points uplift
A+	3.00	1.00	0.75
A	2.00	1.00	0.75
B	1.00	1.00	0.5
C	0.50	0.50	0.25
D	0.25	0.25	0.125
E	0.00	0.00	0.00

The points uplift for tier 1 has been linked to the points available for achieving generic Green Guide ratings. An element whose constituent materials have each had their life cycle impacts quantified and independently verified i.e. tier 1 EPD, will achieve a points uplift to the next level above that achieved for the elements generic Green Guide rating. The tier 2 points uplift is set relative to tier 1, based on the fact that a tier 2 EPD covers only part of the material/element life cycle i.e. cradle to gate and not the full life cycle i.e. cradle to grave.

Example: The following is an example of the above calculation for a theoretical external wall specification with a generic Green Guide B rating (which equates to one point).

External wall specification	Proportion of element impact	EPD tier	Points uplift
Load bearing concrete cladding	65%	1	$0.65 * 1.0 = 0.65$
Limestone finish	17%	None	0
Medium density solid block	10%	1	$0.1 * 1.0 = 0.1$
Plasterboard & paint	5%	2	$0.05 * 0.5 = 0.025$
Insulation	3%	None	0
	Total points uplift		0.78
	Total points achieved for element		1.78

In the above example therefore, having product specific Environmental Product Declarations for 80% (by impact) of the Green Guide B rated element's materials results in a points uplift of 0.78 (a 78% uplift on the element's BREEAM performance in this instance). This uplift could make a difference in the number of BREEAM credits achieved for the building.

Mat 03

Calculation Procedure B-7; Insulation

BREEAM Domestic Refurbishment Mat3 Insulation calculator

The BREEAM Domestic Refurbishment Mat3 calculator is based on the insulation index and the Green Guide rating for the thermal insulation materials.

Calculation Procedures within the Mat3 insulation calculator.

For each type of thermal insulation used in the relevant building elements, the volume weighted thermal resistance provided by each type of insulation is calculated as follows:

- $(\text{Area of insulation (m}^2) \times \text{thickness(m)}) / \text{Thermal Conductivity (W/ m.K)}$ OR
- $\text{Total volume of insulation used (m}^3) / \text{Thermal conductivity (W/m.K)}$

The volume weighted thermal resistance for each insulation material is then multiplied by the relevant Green Guide point(s) to give the Green Guide rating corrected value.

Table - 8: The number of Mat3 insulation calculator points awarded for Green Guide ratings.

Green Guide Rating	Points/element
A+	3
A	2
B	1
C	0.5
D	0.25
E	0

To calculate the Insulation Index, the sum of these values is divided by the sum of the volume weighted thermal resistance values (see the example calculation included below for more detail).

Note: Where an independently verified third-party Environmental Product Declaration (EPD), covering part of or the whole life cycle, is available for an insulating material/product, this can be used to increase the contribution of that material/product to the building's Mat3 performance as follows:

Calculation Procedure where a specific Environmental Product Declaration is available for a material:

Mat 01. Note, step 1 of the Calculation procedure outlined in BREEAM Domestic Refurbishment issue Mat 01 (the proportion of the total environmental impact of the assessed element) is not applicable for this issue as the insulation is assessed as a single material in BREEAM issue Mat 03 and not as part of a larger building element containing other materials (as in BREEAM issue Mat 01).

Using the BREEAM Mat3 Insulation calculator

For each element enter the following details:

- Insulation Type
- Area of Insulation and the Insulation thickness – this will automatically update the Volume
- Thermal conductivity
- Insulation Green Guide Rating

Note: when the above information has been entered the area weighted thermal resistance and the green guide rating correction will automatically be updated. This in turn will update the number of Mat 03 credits achieved.

Example calculation

The Insulation Index is calculated for a building using the following types of insulation as follows:

- Type 1 Walls

Area = 450m². Thermal insulation thickness = 100mm. Thermal conductivity = 0.023 W/mK Green Guide rating = A (2 points)

Area weighted thermal resistance: $((450 \times 0.100) / 0.023) = 1956$

Green Guide rating correction: $1956 \times 2.0 = 3912$

- Type 2 Building Services

Volume of insulation used = 21 m³. Thermal conductivity = 0.022 W/mK

Green Guide rating = C (0.5 points)

Area weighted thermal resistance: $(21 / 0.022) = 955$

Green Guide rating correction: $955 \times 0.5 = 477$

- Type 3 Roof

Area = 210m². Thermal insulation thickness = 120mm. Thermal conductivity = 0.027 W/mK Green Guide rating = A+ (3 points)

Area weighted thermal resistance: $((210 \times 0.120) / 0.027) = 933$

Green Guide rating correction: $933 \times 3.0 = 2799$

- Type 4 Ground Floor

Area = 210m². Thermal insulation thickness = 120mm. Thermal conductivity = 0.027 W/mK Green Guide rating = B (1 point)

Area weighted thermal resistance: $((210 \times 0.120) / 0.027) = 933$

Green Guide rating correction: $933 \times 1.0 = 933$

Total area weighted thermal resistance = $1956 + 955 + 933 + 933 = 4777$

Green Guide rating correction = $3912 + 477 + 2799 + 933 = 8121$

Insulation Index: Green Guide Rating Correction / Total Area weighted thermal resistance = $8121 / 4777 = 1.7$ (credit not achieved)

Responsible Sourcing of insulation products

Table - 9: EMS criteria for insulation products

Material	Key Process	Supply chain processes
Foam Insulation	Insulation manufacture	Principal Polymer production, e.g. Polystyrene, MDI, Phenolic resin or

Material	Key Process	Supply chain processes
		equivalent
Stone wool, glass & cellular glass made using < 50% recycled input	Product manufacture	Any quarried or mined mineral over 20% of input
Wool	Product manufacture	Wool Scouring
Products using > 50% recycled content except those using timber	Product manufacture	Recycled content by default
Timber-based insulation materials including those using recycled timber	Product manufacture	Recycled timber by default, all other timber from one of the recognised timber certification schemes in Mat 02 Responsible Sourcing of Materials
Other renewable-based insulation materials using agricultural by-products (e.g. straw)	Product manufacture	By-product manufacture by default
Any other product	Product manufacture	1 or 2 main inputs with significant production or extraction impacts should be identified

This page is intentionally blank.

Mat 02

Calculation Procedure B-6; Responsible Sourcing of Materials – Basic Building Elements

BREEAM Domestic Refurbishment Mat2 calculator

The Mat2 calculator is designed to recognise the level of responsible sourcing demonstrated by the supplier/manufacturer for each of the applicable elements used within the basic building elements.

Within the Calculator each of the applicable specified materials comprising the main building elements are assigned a responsible sourcing tier level. Points are then awarded in accordance with the tier level achieved.

Table - 10: Allocation of points by tier level

Tier level	Points
1	4
2	3.5
3	3
4	2.5
5	2
6	1.5
7	1
8	0

Within the calculator the number of BREEAM credits achieved is then determined from the number of points awarded.

Table - 11: The number of BREEAM credits awarded for Mat 2 calculator points.

BREEAM credits	% of available points achieved
12	≥ 54%
10	≥45%
8	≥36%
6	≥27%
4	≥18%

BREEAM credits	% of available points achieved
2	≥9%

Note: The number of building elements present and therefore applicable determines the maximum number of points available e.g. if nine elements are present and assessed the maximum number of available points will be 36.

The tier rank is determined based on the rigour of responsible sourcing demonstrated by the supplier(s)/manufacturer(s) of that material/element (through responsible sourcing certification schemes). Mat 02 Responsible Sourcing of Materials . Environmental management criteria are outlined in Mat 02 Responsible Sourcing of Materials .

Note: Potential variance in tier levels achieved for materials within any one element will require a pro-rata calculation of the points total for any given element.

Using the BREEAM Mat2 calculator;

1. Choose from the list of options in the drop down box of the calculator the appropriate type of assessment and press the select button.
2. Choose Domestic from the list of options in the BREEAM scheme drop down box and press the select button (this selection ensures the appropriate 'generic specifications' for the building types are used).
3. For each element, select the number of different types of element you wish to enter in the relevant drop down box and press the select button. If the element is not present select '0'. Note: this will adjust the points required accordingly.
4. For each element, select the 'data type' from the relevant drop down box. There are two or three options depending on the element type, 'Generic specification', 'Volume' or 'Percentage'. Generic specification' is not available for all element types.
 - a. Generic Specification: Choose the specification from the relevant drop down box that matches the element specification for the building. If more than one construction specification is present for an element, select additional construction specifications from the list in element type 2, 3, 4 etc. (see point 3 for adding additional types). If no specification matches, then the specification will need to be assessed using one of the 'User Defined' methods.
Based on the specification selected from the drop down list the material types and their percentage will automatically be entered in the relevant cell of the material type and percentage/volume of relevant materials present columns. The assessor can then enter the percentage of each material that complies with either tier 1, 2, 3 or 4, as appropriate. At least 80% of the materials that make up an element type must comply with one or more of the tiers to achieve any points for that element type.
 - b. User Defined – Volume: For all present elements, enter the names of the material types comprising each individual element in the relevant cell of the column materials types.
Enter the volume of each individual material type in the relevant cell of the column titled percentage/volume of relevant materials present.
Enter the total combined volume of the material types in the cell total volume of element present.
Enter the volume of each material that complies with either tier 1, 2, 3 or 4, as appropriate. At least 80% of the total volume must comply with one or more of the tiers to achieve any points for that element type.
 - c. User Defined – Percentage: For all present elements, enter the names of the material types comprising each individual element in the relevant cell of the column materials types.
Enter the percentage of each individual material type (as a percentage of the whole element type) in the relevant cell of the column titled percentage/volume of relevant materials present.
Enter the percentage of each material (as a percentage of the whole element type) that complies with either tier 1, 2, 3 or 4, as appropriate. At least 80% of the materials that make up an element type must comply with one or more of the tiers to achieve any points for that element type.

- d. Combination: A combination of generic and user defined data can be entered for any of the elements, simply select the number of element types you wish to enter for an element (point 3) and follow the above guidance.
- e. Once all data has been entered correctly and in compliance with the criteria, the tool will calculate the total number of points achieved and translate this into the number of credits awarded. The following scale is used to award credits for new builds and major refurbishment projects:

Other Information

The online Responsible Sourcing Calculator for determining the percentage material breakdown of elemental specifications

BRE Global can, via its online Responsible Sourcing Calculator, provide licensed BREEAM assessors with a percentage breakdown of materials for any elemental specification with a Green Guide rating. Assessors can use the online tool to determine the percentage breakdown in two ways; either by entering an individual Green Guide element number for the required specification (if known) or through a search function, by element and specification type. The online Responsible Sourcing Calculator can be accessed by licensed BREEAM assessors via the BREEAM Assessor Extranet.

Note; In their certification report the BREEAM assessor must reference the Green Guide reference number.

BES 6001:2008 Framework Standard for Responsible Sourcing of Construction Products

This is a BRE Global standard that provides a framework for the assessment and certification of the responsible sourcing of construction products. The Standard has been structured so that compliance can be demonstrated through a combination of meeting the requirements of other recognised certification schemes, establishing written policies, setting objectives and targets and engaging with relevant stakeholders.

To comply with the standard a product must meet a number of mandatory criteria. Where a product demonstrates compliance beyond the mandatory levels, higher levels of performance can be achieved. The standard's performance ratings range from Pass to Good, Very Good and Excellent.

The development of this standard and subsequent certification schemes will, it is envisaged, provide construction products, not wholly covered under current recognised standards, a means for demonstrating their responsibly sourced credentials. In turn this will allow clients, developers and design teams to specify responsibly sourced construction products with greater assurance and provide a means of demonstrating compliance with the assessment criteria for this BREEAM issue.

To view a list of products approved to BES6001 and additional information about the Standard visit: www.greenbooklive.com

BS EN 8902:2009 Responsible sourcing sector certification schemes for construction products - Specification

BS EN 8902:2009 is not included in the tier table as it is not a product standard; rather it is a standard against which other sector standards for responsible sourcing can be assessed. BRE Global recognises that sector schemes compliant with BS 8902:2009 may be developed in the future and should be eligible for inclusion within this Table. Inclusion of schemes deemed as compliant with BS 8902:2009 will be considered by BRE Global on a case-by-case basis to determine their position within the table's Tier hierarchy. A sector scheme deemed compliant with BS EN 8902:2009 by an appropriate third-party accreditation body will secure more tier points than an equivalent but unaccredited scheme.

Calculation of Timber Volumes

- Most of the information on areas, lengths and volumes of timber will be available from the component manufacturers or estimator, who should provide a detailed breakdown of quantities of

materials.

- In order to calculate the volume of wood in timber frame windows, the total length of frame must be obtained. This can then be converted to a volume by multiplying the length of frame on fixed windows by 0.00653 and the length of frame on opening windows by 0.01089.
- In order to calculate the volume of timber in composite timber doors such as a flush door, calculate the total area of all doors summed over the whole building and multiply this by 0.02187 (this factor gives the total volume of timber in the doors and frames).

Calculation procedure: Post Refurbishment

1. Check that the As Built construction matches that proposed at design stage (see Schedule of Evidence). Where there are any differences in the specification, obtain the relevant volumes and/or percentages of materials for each element that differs.
2. Obtain the relevant confirmation of tier certification for post construction stage (see Schedule of Evidence) for all materials, from all sources/suppliers.
3. Confirm and/or re-assign a tier level to each material based on the level of certification provided (Mat 02 Responsible Sourcing of Materials).
4. Adjust the design stage Responsible Sourcing Calculator accordingly to include any revised information following the calculation procedure used at design stage.

Appendix C

Additional guidance for site wide assessments

As a guide, the house types below provide a reference for where it may be appropriate to split large scale refurbishment projects into separate assessments.

House type

1. High rise purpose built flat
2. Low rise purpose built flat*
3. Converted flat*
4. Bungalow
5. Detached house
6. Semi detached house
7. Medium/large mid terrace
8. Small mid terrace
9. End terrace

*Maisonettes should be treated as flats

Age band

- a. Pre 1919
- b. 1919 -1944
- c. 1945 -1964
- d. 1965 -1973
- e. 1974 -1980
- f. 1981-1989
- g. 1990 -1994
- h. 1994 -2002
- i. Post 2002

House type definitions

Bungalow:

A dwelling typically of one storey, which may have a room or rooms in the roof (e.g. a chalet bungalow)

High rise purpose built flats:

A block of flats greater than 5 storeys

Low rise purpose built flats:

A block of flats of less than 5 storeys

Converted flats:

Where more than one flat has been created from the conversion of a single dwelling

Medium/large mid terrace:

Mid terrace properties of more than 3 bedrooms

Small mid terrace:

Mid terrace properties of 3 bedrooms or less

Detached house:

A single dwelling with no party walls

Semi-detached house:

A dwelling which has party walls with one other dwelling

End-terrace house:

A dwelling which has party walls with a mid terrace dwelling

Additional guidance for site wide assessments below also provides guidance for where typically there is a variety of performance between different dwelling types. This should be used in conjunction with sections 4-11 of this scheme and the site wide assessment exemptions set out in Site Wide assessments Table - 4: Site wide exemptions

The variety in performance as outlined in Additional guidance for site wide assessments may be due to the following reasons:

- site constraints e.g. no compliant space for cycle storage due to small garden sizes or insufficient internal space
- a restriction to the scope of work for a particular dwelling e.g. listed building status
- the package of measures being applied to different dwellings, resulting in different levels of performance

Table - 12: Typical variance in performance across house types

Category	Issue ID	Issue Title	Typical variance across house types	Variance
Energy	Ene1	Improvement in Energy Efficiency Rating	High	Dependent upon refurbishment scope of measures. (note: averaging is allowed in some cases, see issue Ene 01, energy averaging definition)

Category	Issue ID	Issue Title	Typical variance across house types	Variance
	Ene2	Energy Efficiency Rating Post Refurbishment	High	Dependent upon refurbishment scope of measures.
	Ene3	Primary energy demand	High	Dependent upon refurbishment scope of measures. (note: averaging is allowed in some cases, see issue Ene 01, energy averaging definition)
	Ene4	Renewable Technologies	Medium	Typically achievable, restrictions to scope may apply due to site constraints.
	Ene5	Energy Labelled White Goods	Low	Should be achievable across all types, where specified.

Category	Issue ID	Issue Title	Typical variance across house types	Variance
	Ene6	Drying Space	Low	Should be achievable across all types, where specified.
	Ene7	External Lighting	Low	Should be achievable across all types, where specified.
	Ene8	Display Energy Devices	Low	Should be achievable across all types, where specified.
	Ene 9	Cycle Storage	Medium	Typically achievable, restrictions to scope may apply due to site constraints.
	Ene 10	Home Office	Low	Typically achievable across all house types where specified.
Water	Wat1	Internal Water Consumption	Medium	Dependent upon refurbishment scope of measures.
	Wat2	External Water Consumption	Low	Achievable across all house types where specified
Materials	Mat1	Environmental Impact of Materials	High	Dependent upon refurbishment scope of measures.

Category	Issue ID	Issue Title	Typical variance across house types	Variance
	Mat2	Responsible Sourcing (Basic building Elements)	Medium	Typically achievable, depending on procurement of responsibly sourced materials across all specification types
	Mat3	Insulation	High	Dependent upon refurbishment scope of measures.
Pollution	Pol1	Surface water runoff	Medium	Dependent upon refurbishment scope of measures.
	Pol2	Flooding	Medium	Dependent upon refurbishment scope of measures.
	Pol3	Nitrogen Oxide Emissions	Medium	Dependent upon refurbishment scope of measures.
Waste	Was1	Recycling Storage Space	Low	Should be achievable across all types, where specified.
	Was2	Construction Site Waste Management	Low	Should be achievable across all types, where specified.
Health and wellbeing	Hea1	Daylighting	High	Dependent upon refurbishment scope of measures.

Category	Issue ID	Issue Title	Typical variance across house types	Variance
	Hea2	Sound Insulation	High	Dependent upon refurbishment scope of measures.
	Hea3	VOCs	Low	Should be achievable across all types, where specified.
	Hea4	Inclusive Design	High	Dependent upon refurbishment scope of measures.
	Hea5	Ventilation	Medium	Dependent upon refurbishment scope of measures.
Management	Man1	Home Users guide	Low	Should be achievable across all types, where specified.
	Man2	Considerate Constructors Scheme	Low	Should be achievable across all types, where specified.
	Man3	Construction Site Impacts	Low	Should be achievable across all types, where specified.
	Man4	Security	Medium	Dependent upon refurbishment scope of measures.
	Man5	Safety	low	Should be achievable across all types, where specified.
	Man6	Management of site ecology	low	Should be achievable across all types, where specified.
	Man7	Project Management	low	Should be achievable across all types, where specified.

Appendix D

The BREEAM evidential requirements

It is the role of the BREEAM assessor to gather building information and use it to evaluate and verify the building's performance against the BREEAM Domestic Refurbishment standards. There are a range of ways that compliance with the BREEAM Domestic Assessment criteria can be demonstrated including design documents, and procurement information types, as well as the end product itself i.e. the building. To aid the assessor, client and project team members in the gathering of required evidence, each assessment issue within the scheme document contains a 'schedule of evidence' table. The table and its content serve to outline the typical types of information that the assessor is obliged to ask for at each stage of assessment to verify compliance with the assessment criteria and thus award credit for each issue. In addition to the information listed in each issue's schedule, the assessor may ask for other additional information types where they feel that this is required in order to adequately demonstrate compliance, given the specific nature of the building or the contents of the document listed.

Documentation will vary from one new building project to another and as such BREEAM is not overly prescriptive about the form in which evidence should be provided, by using two terms to describe compliant evidence:

Detailed documentary evidence

'Detailed documentary evidence' may be defined as any written documentation confirming compliance. Across the assessment, evidence will include a mix of letters, the site inspection report, specification text or drawings as appropriate. The assessor must satisfy themselves that the evidence is robust and traceable. In general the following types of detailed documentary evidence can serve as suitable evidence of compliance for most, if not all BREEAM refurbishment assessment issues and criteria:

- Relevant section/clauses of the building specification or contract
- Design drawings (e.g. new and existing site plans, elevations, internal layouts)
- Certificates of compliance (e.g. ISO14001, BES6001, Environmental Profiles, FSC, EPC)
- Calculation / software modelling results/outputs (e.g. Energy, thermal modelling)
- Professional reports / studies (e.g. ecologist report, flood risk, security consultant report)
- Project/refurbishment phase programme
- Refurbishment phase data/information (e.g. purchase orders)
- Letters of appointment (e.g. Professional appointment)
- Letters of commitment (e.g. Client/contractor commitment which, unless otherwise stated in the schedule of evidence, are only acceptable at the interim Design Stage Assessment)
- Letters of action (e.g. Client/contractor confirming specific compliance with criteria)
- BREEAM Assessor's site inspection report and photographic evidence
- Meeting minutes
- Third party information (e.g. maps, product manufacturers details)

Compliant design stage commitment

Although a letter of intent from the developer is acceptable in certain circumstances at the Design Stage, it is not acceptable to provide one where the requirement is for 'detailed documentary

evidence'. However for a number of issues, the schedule of evidence provides instances where a 'compliant design stage commitment' is acceptable which includes the following types of evidence:

- Letters of commitment (e.g. a written client/contractor commitment)
- Letters of action (e.g. a letter from the Client/contractor confirming specific compliance with criteria)

The above information should be readily available and easily referenced if the building is justifiably claiming compliance with BREEAM criteria. Other types of formal information/evidence could be used to demonstrate compliance, provided it demonstrates robust assurance to the same level, or better than those types outlined above or in the schedule of evidence table.

It is the role of the BREEAM Domestic Refurbishment assessor to inform the project team as to what types of information are required and who should provide this material. It is also a requirement under Issue Man 06 Project Management for the project manager to assign responsibilities for collecting this compliant evidence amongst the project team. If the information is not provided, the BREEAM assessor will be unable to verify compliance and award the credit(s). As a result the building may not achieve the required BREEAM rating. All information referenced in an assessment which is submitted to BRE Global Ltd for certification must be verifiable and must be produced by licensed BREEAM assessor organisations upon request by BRE Global Ltd.

Design and post refurbishment stage assessment and certification

The schedule of evidence table outlines the evidence required at both the Design and Post Refurbishment Stages. Design Stage assessments are only certified for assessments carried out by third party assessors i.e. BREEAM assessors.

In some instances the client or project team may not need to, or may choose not to certify the building at the 'Pre-refurbishment' design stage of assessment, instead choosing to certify at the final, post refurbishment stage only. In such instances, verification of compliance with the BREEAM criteria will be based on actual 'as-refurbished' information, relying less on design stage information and letters of commitment (unless relevant to the assessment issue).

The 'Post refurbishment Stage' column in the schedule of evidence table describes the typical information the assessor requires to validate 'as-refurbished' performance and, for a number of issues and criteria, an assessor's site visit and subsequent report and photographs will be adequate.

Note: Design stage assessment and certification is strongly advised as it provides assurance of BREEAM performance prior to the start of refurbishment works. This will give the project the best possible chance of achieving the desired rating, and maintaining performance at that rating level through to final certification, handover and building occupation.

Final post refurbishment stage review and certification

A Post Refurbishment Stage review (PRR) can be carried out where the building has been assessed and certified at the 'Pre-refurbishment' design stage of assessment. The post -refurbishment stage review differs from the post refurbishment stage assessment in that a PCR serves to confirm the BREEAM rating achieved at the design stage as the final 'as-built' rating. For a post-refurbishment review, the BREEAM assessor is required to:

- Review each assessment issue and confirm the criteria and the number of credits committed to at the pre-refurbishment stage of assessment are still valid.
- Re-assess any issues where changes have occurred on the project since the interim assessment. This will be the case where such changes will or may have had an effect on compliance with a particular requirement and therefore the number of credits awarded/withheld and potentially the BREEAM rating achieved.

In the case of the first point the assessor will require evidence confirming the validity of the review. For some assessment issues and criteria this will take the form of new information, for example where compliance at the pre refurbishment stage was based on a formal letter from the client or design team confirming an intention to comply, at the post refurbishment stage evidence confirming that this commitment was undertaken is required. This evidence is likely to be in one of the forms listed above

e.g. assessors site photographs, purchase orders etc. For other assessment issues and criteria it may be the case that information referenced as evidence at the pre-refurbishment design stage is a true reflection of 'as-built' performance. In such instances the assessor may simply confirm the validity of the evidence referenced at the pre-refurbishment design stage assessment.

In the case of point 2, where changes have occurred that potentially affect the award of a BREEAM credit, the assessor has two options:

- Either, it is clear that compliance with a particular issue is no longer possible, in which case the credits awarded at the pre refurbishment stage are withheld and the final score and BREEAM rating re-calculated or;
- Additional, new information or altered versions of existing information are provided and the assessor re-evaluates and verifies compliance.

This page is intentionally blank.

Appendix E

BREEAM assessment issues and their percentage contribution to BREEAM performance

Management			
Issue		Credits	% Contribution
Man 01	Home users guide	3	3.3
Man 02	Responsible construction practices	2	2.2
Man 03	Construction site impacts	1	1.1
Man 04	Security	2	2.2
Man 05	Protection or enhancement of ecological features	1	1.1
Man 06	Project management	2	2.2
Health and wellbeing			
Issue		Credits	% Contribution
Hea 01	Daylighting	2	2.8
Hea 02	Sound insulation	4	5.7
Hea 03	Volatile organic compounds	1	1.4
Hea 04	Inclusive design	2	2.8
Hea 05	Ventilation	2	2.8
Hea 06	Safety	1	1.4
Energy			
Issue		Credits	% Contribution
Ene 01	Improvement in energy efficiency rating	6	8.9

Energy			
Ene 02	Energy efficiency rating post refurbishment	4	5.9
Ene 03	Primary energy demand	7	10.4
Ene 04	Renewable technologies	2	3
Ene 05	Energy labelled white goods	2	3
Ene 06	Drying space	1	1.5
Ene 07	Lighting	2	3
Ene 08	Display energy devices	2	3
Ene 09	Cycle storage	2	3
Ene 10	Home office	1	1.5
Water			
Issue		Credits	% Contribution
Wat 01	Internal water use	3	6.6
Wat 02	External water use	1	2.2
Wat 03	Water meter	1	2.2
Materials			
Issue		Credits	% Contribution
Mat 01	Environmental impact of materials	25	5.1
Mat 02	Responsible sourcing of materials	12	2.5
Mat 03	Insulation	2	0.4
Waste			
Issue		Credits	% Contribution
Was 01	Household waste	2	1.2
Was 02	Refurbishment site wide waste management	3	1.8

Pollution			
Issue		Credits	% Contribution
Pol01	Nox emissions	3	2.3
Pol02	Surface water runoff	3	2.3
Pol03	Flooding	2	1.5
Total	Credits	109	Total% 100
Innovation			
Issue	Additional	Credits	% Weighting
Inn01	Innovation	10	10
Total	Credits	119	Total% 110

This page is intentionally blank.

Appendix F

BREEAM domestic refurbishment issues that relate to policy and regulations

The development of this scheme is in line with current building regulations, government policies and strategies overall and at issue level.

BREEAM domestic refurbishment:

- The government's commitment to the Climate Change Act specifies an 80% reduction in CO₂ emissions by 2050 measured against a 1990 baseline- A core aim of all BREEAM schemes is to reduce carbon emissions. This is addressed specifically in the energy issue but also in the foundations of the scheme itself.
- With a minimum EPC band D required for eligibility in qualifying for the Feed in Tariff being the minimum standard for a BREEAM Very Good, and roughly in line with the minimum Primary Energy Demand required for achieving credits under issue Ene 04 Renewable Technology
- The Decent Homes Standard which was set by Communities and Local Government in 1992 as the standard for all social housing to meet by 2010- Feedback from social housing providers is that BREEAM Refurbishment can provide clarity of direction for what standard housing associations need to meet by providing a standard that goes beyond decent homes. It is relevant to the needs of existing social housing today including tackling fuel poverty, flooding, water efficiency, overheating and security, wall insulation, heat pumps and more basic measures such as loft insulation reflecting findings from 'towards a successor standard to decent homes', BRE 2009 on behalf of Greater London Authority
- Green Deal- The scheme covers the same topics and aims of the Green Deal, due to start in autumn 2012, of increasing energy efficiency in the current UK building stock through refurbishment.

More specifically each topic addresses particular regulations, standards and policies:

Management

- Encourages the use of the Considerate Constructors scheme and effective project management complimenting the principles of PAS2030:2012 Specification for installation process, process management and service provision
- Contributes to the measures set out in the Government's carbon reduction strategy for transport, [Low Carbon Transport: A Greener Future](#), which will deliver a projected additional 14% reduction in CO₂ emissions on 2008 levels by 2020.

Health and wellbeing

- Encourages compliance with Lifetime Homes standards in all government funded housing and issues addressed in building regulations part M 2006.
- Helps meet the objectives of government's National Strategy for Housing in an Ageing Society.
- Covers the requirements of the Disability Equality Duty and Disability Discrimination Act 2005 for the social housing sector.
- Includes security measures required by the Secured by Design standard to help reduce numbers of home invasions.

Several other building regulations are addressed in this issue:

- Part B, 2006 fire safety- Health and wellbeing looks at the provision of reliable checks systems and alarms to reduce the risk of fire.

- Part E, 2004 resistance to the passage of sound- adequate sound insulation is encouraged in building refurbishments.
- Part F, 2010 ventilation- the balance between heat loss and a healthy internal environment is encouraged in the scheme.
- Part J, 2010 combustible appliances and fuel storage systems- carbon monoxide detection systems and efficient and appropriate ventilation systems are encouraged in the scheme.

Energy

- The scheme encourages compliance as far as possible, in the refurbishment process, with Building regulations Part L1b 2010 existing dwellings.
- Supports the aims of the UK Fuel Poverty Strategy that that no household in the UK should live in fuel poverty by 2018.
- Addresses DECC's strategy for Household Energy Management 2010 which aims for 7 million households to have 'eco-upgrades' by 2020 including solid wall insulation, heat pumps and more basic measures such as loft insulation.

Water

- Contributes towards long term water consumption targets and strategies as set out in Future Water, the Governments water strategy for England, Defra, 2008.
- Building regulations Part G, 2010 addresses sanitation, hot water safety and water efficiency. BREEAM has developed a common water calculator and looks at consumption and user pattern data.
- Assists compliance with planning policy set in accordance with PPS25, flood prevention policy industry understanding of the alternatives to traditional surface water drainage.
- Aids compliance with National Standards for sustainable drainage systems; Designing, constructing, operating and maintaining drainage for surface runoff 2011.
- Works alongside Defra's water strategy for England, 'Future Water' - sets out Government plans for water up to 2030, which includes encouraging better surface water management through reuse and increased natural permeation through the catchments.
- Supports the objectives of the Governments Water Strategy for England which aims to reduce average water consumption to less than 125 litres per person per day.
- Sets standards for flood mitigation measures for homes at risk from flooding supporting the aims of the Flood and water management Act 2010 and the Pitt Review.

Waste

- Enhances the effectiveness of the Site Waste Management Plan requirements plans and reflects best practice and EU guidance.
- Works with the EU Landfill Directive which encourages the prevention and reduction of sending waste to landfill and the National targets in the National Waste Strategy Zero Waste Plans.
- Supports the exploitation of the recycling schemes implemented by local authorities in accordance with The Household Waste Recycling Act 2003 which aims to increase the household waste recycling rate in England.

Pollution

- Supports the United Kingdom's Programme and National Plan for Reducing Emissions of Sulphur Dioxide (SO₂) and Oxides of Nitrogen (NO_x) from Existing Large Combustion Plants; EC Regulation No 2037/2000; and the National Strategy to Combat Acidification, Eutrophication and Ground-level Ozone.

Materials

- Raises product standards and performance and encouraging responsible sourcing as described by the Low impact building material specification in the Government's SD vision of 'One Planet

Economy' which aims to deliver new products and services with lower environmental impacts across their life cycle.

Innovation

- Recognises the importance of innovation and includes credits awardable in a range of categories to support the government's view point on innovation. This is laid out in The Innovation and Research Strategy for Growth December 2011, which outlines how innovation is one of the key inputs for growth with the Technology strategy board and a network of Knowledge transfer networks encouraging and facilitating innovation.

BREEAM Definitions

These definitions are taken from all the BREEAM schemes. Some may not be relevant for this particular scheme.

5mm Event

The following formula should be used when calculating the volume of precipitation from a 5mm event when showing compliance with the criteria.

Accessible

The Building Regulations Approved Document M (Access to and Use of Buildings) defines Accessible as “with respect to buildings or parts of buildings, means that people, regardless of disability, age or gender are able to gain access [approach, entry or exit]”.

In some environments it may not be appropriate to provide some types of facilities. A balance must be struck in terms of what is reasonable to provide to ensure Access for all types of building user, with a particular focus on the types of user identified within the criteria.

Accessible greenspace

Accessible greenspace is defined as 'places that are available for the general public to use free of charge and without time restrictions (although some sites may be closed to the public overnight and there may be fees for parking a vehicle). The places are available to all, meaning that every reasonable effort is made to comply with the requirements under the Disability Discrimination Act (DDA 1995). An accessible place will also be known to the target users, including potential users who live within the site catchment area'.

Accessible Windows

Include all ground floor, basement and easily accessible windows. The following guidance taken from 'Secured by Design – New Homes' should be followed when judging whether a window is easily accessible: “easily accessible windows... are those that can be accessed via a flat roof, balcony or other similar structure, e.g. external supporting or decorative balcony detail. 'Easily Accessible' in this context also means that access can be gained by two persons (one climbing, on top of the other).

Accessibility

A term often used interchangeably with inclusive design to describe the extent to which a product of environment is usable by a wide range of people.

Accessibility Index

A measure that provides an indicator of the accessibility and density of the public transport network at a point of interest (in the case of BREEAM, a building). The index is influenced by the proximity and diversity of the public transport network and the level or frequency of service at the accessible node.

For example, a building that has a single public transport node 500m from its main building entrance with one service stopping every 15 minutes i.e. 4 services per hour on average, will score an AI of approximately 1.90. Alternatively, the same node with one service every 15 minutes, but 300m from the building entrance will achieve an AI of 2.26. The same node with two services stopping every 15 minutes will score an AI of 2.85. The greater the number of compliant nodes, services and their proximity to the building, the higher the AI.

Accredited energy assessor

A person registered with an accredited energy assessment scheme provider. The scheme provider will be licensed by the relevant government department to accredit competent persons in the energy assessment of non-domestic/domestic buildings for the purposes of demonstrating compliance with Building Regulations in the country of origin.

For a full list of approved accreditation schemes/organisations for energy assessors and links to registers of accredited energy assessor's visit:
England and Wales:

- www.communities.gov.uk
- www.ndepcregister.com (non domestic)
- www.epcregister.com (domestic)

Scotland: www.scotland.gov.uk

Northern Ireland:

- www.dfpni.gov.uk
- www.epbniregisternd.com (non domestic)
- www.epbniregister.com (domestic)

Aftercare team:

The person responsible for the handover stage of the project, in the case of social housing this would typically be the RSL, where there is the presence of a Project Manager this would fall typically under their responsibilities.

Air leakage testing

A simple test, carried out using portable fan units to pressurise a building to a reference pressure difference of 50 Pascals between inside and outside, which quantifies the air permeability rate of the building envelope. The more airtight the building fabric is the lower the air permeability result will be. For energy efficiency it is advisable for the air permeability result to be as low as reasonably practicable.

Alternative local or national schemes:

Where the client/contractor has not used the Considerate Constructors Scheme (CCS) but has made a firm commitment to adopt an alternative independently assessed scheme covering the key issues in Appendix A, the credits can still be achieved. The purpose of Checklist A-3 is to enable an assessment to be carried out of whether an alternative, independently assessed scheme complies with the BREEAM credit criteria. It is not in itself an equivalent construction site management scheme.

Angle of visible sky

The angle of visible sky α is the angle subtended, in the vertical plane normal to the window, by the visible sky from the centre of the window. Further guidance on how to complete calculations can be found in BS 8206-2:2008, Lighting for buildings—Part 2: Code of practice for daylighting.

Annual flood probability

The estimated probability of a flood of given magnitude occurring or being exceeded in any year. Expressed as a chance of 1-in-100 or 1 per cent.

Annual flow rate Probability

The estimated probability of a flow rate of a given magnitude occurring or; being exceeded in any year. Expressed as, for example a chance of 1-in-100, or 1 per cent.

Appointed Building Control Body

The role of checking that Building Regulations are being complied with falls to Building Control Bodies (BCBs). There are two types of BCB—a Local Authority Building Control (LABC) and a private sector Approved Inspector Building Control (AIBC). Refer to www.planningportal.gov.uk.

Appropriate consultant

a consultant with qualifications and experience relevant to designing SUDS and flood prevention measures and completing peak rate of run-off calculations. Where complex flooding

calculations and prevention measures are required, this must be a specialist hydrological engineer.

Approved innovation

Any technology, method or process that can be shown to improve the sustainability performance of a building's design, construction, operation, maintenance or demolition, and which is approved as innovative by BRE Global.

Appropriate person

An individual with relevant technical and professional experience suitable to determine the potential for natural hazards in the region of the development. This may be a member of the design team or a specialist independent to the design/construction process. This individual should practice to and abide by a professional code of conduct or similar.

Appropriate statutory body

This refers to either the Environment Agency in England & Wales, the Environment Agency, Department of the Environment, and the Rivers Agency in Northern Ireland, the Scottish Environment Protection Agency in Scotland or the local authorities and internal drainage boards.

Appropriate targets

these must be set according to best practice and will depend on the type of waste and the opportunities for reuse on site. Further information can be found on the SMARTWaste Plan website on how to set appropriate targets.

Approved building energy calculation software

Software approved for the purpose of demonstrating compliance with the energy efficiency and carbon emission requirements of the Building Regulations (and in turn compliance with the Energy Performance of Buildings Directive (EPBD)). The definition includes SBEM (Simplified Building Energy Model) and its interface iSBEM, as well as third party software approved by the relevant Government department.

A list of approved software for non domestic buildings is available from:

- England and Wales: www.ukreg-accreditation.org
- Scotland: www.scotland.gov.uk
- Northern Ireland: www.dfpni.gov.uk/

Approved building energy calculation software will provide the data required for calculating the EPR_{NC} and BREEAM (non-domestic) Ene 01 credits.

Please note that for dwellings (where relevant to the assessment of multi-residential buildings), the Government's Standard Assessment Procedure for the Energy Rating of Dwellings (SAP) may be used. The current version is SAP 2009 version 9.90 dated March 2010 rev. October 2010.

The building CO₂ emission rate expressed as kgCO₂/m²/year. The BER is calculated in accordance with the National Calculation Methodology (NCM) and the Simplified Buildings Energy Model (SBEM).

Approved Document L1B (AD L1B)

the Building Regulations for England and Wales Approved Document L1B: Conservation of Fuel and Power (Existing Dwellings).

Approved innovation

Any technology, method or process that can be shown to improve the sustainability performance of a building's design, construction, operation, maintenance or demolition, and which is approved as innovative by BRE Global.

Architectural liaison officer (ALO)

An ALO is the same as the Crime Prevention Design Advisor (see Crime prevention design advisor (CPDA)) and is the title given to the same role in some police forces. See www.securedbydesign.com.

Art

The Arts Council England defines 'Arts' as "literature and writing, theatre and drama, dance, music, visual arts which include crafts, new media, architecture, design, moving image, and combined arts".

Automated Waste Collection System

Some companies now offer a fully automated underground system, for the collection, sorting and transportation of waste. Such systems allow for waste separation at source, for different types of waste and from multiple locations, with enhanced hygienic, occupational health and safety standards. They can also reduce the use of transport by refuse lorries, reducing nuisance and CO₂ emissions.

Average daylight factor

The average daylight factor is the average indoor illuminance (from daylight) on the working plane within a room, expressed as a percentage of the simultaneous outdoor illuminance on a horizontal plane under an unobstructed CIE Standard Overcast Sky.

Volatile organic solvent content - best practice levels

the following products (where specified) have been tested against and meet the relevant standards.

Table - 13: VOC requirements by product type

Product	European Standard	Emission level required
Decorative paints and varnishes	BS EN 13300:2001 referred to the requirements of Decorative Paint Directive 2004/42/CE	VOC (organic solvent) content (testing req. 6), requirement for Phase 2. Fungal and algal resistant.
Wood Panels <ul style="list-style-type: none"> — Particleboard, — Fibreboard including MDF, — OSB, — Cement-bonded particleboard — Plywood — Solid wood panel and acoustic board 	EN 13986:2004	Formaldehyde E1 in accordance with EN 3986:2004 Annex B (see also compliance notes) Verify that regulated wood preservatives are absent as defined by the standard.
Timber Structures <ul style="list-style-type: none"> — Glued laminated timber 	EN 14080:2005	Formaldehyde E1 (Testing req 1)
Wood flooring	EN 14342:2005	Formaldehyde E1 (Testing req. 1) Verify that regulated wood

Product	European Standard	Emission level required
— parquet flooring		preservatives are absent as defined by the standard.
Resilient, textile and laminated Floor coverings — Vinyl/linoleum — Cork and rubber — Carpet — Laminated wood flooring	EN 14041:2004	Formaldehyde E1 (Testing req. 1) Verify that regulated preservatives are absent as defined by the standard.
Suspended ceiling tiles	EN 13964:2004	Formaldehyde E1 (Testing req 1). No asbestos.
Flooring adhesives (and if relevant adhesives for rigid wall coverings)	EN 13999–1:2007	Verify that carcinogenic or sensitising volatile substances are absent.(Testing req. 2–4)
Wall-coverings — Finished wallpapers — Wall vinyls and plastic wall-coverings — Wallpapers for subsequent decoration. — Heavy duty wall-coverings — Textile wall-coverings	EN 233:1999 EN 234:1997 EN 259:2001 EN 266:1992	Formaldehyde (Testing req. 5) and Vinyl chloride monomer (VCM) (Testing req. 5) release should be low and within the BS EN standard for the material. Verify that the migration of heavy metals and other toxic substances are within the EN standard for the material.
Adhesive for hanging flexible wall-coverings (for rigid wall coverings use flooring adhesives criteria)	BS 3046:1981	No harmful substances and preservatives used should be of minimum toxicity.
Testing requirement: 1. EN 717–1:2004 2. EN 13999–2:2007—Volatile Organic Compounds (VOCs) 3. EN 13999–3:2007—Volatile aldehydes (4. EN 13999–4:2007—Volatile diisocyanates 5. EN 12149:1998 6. BSEN ISO 11890–2:2006		

Best practice waste management strategy/plan

Best practice is a combination of commitments to:

- Design out waste (materials optimisation)
- Reduce waste generated on site
- Develop and implement procedures to sort and reuse/recycle construction waste on and off site (as applicable).

Follow guidance from:

- DEFRA (Department of Environment, Food and Rural Affairs)
- BRE (Building Research Establishment Ltd)
- WRAP (Waste & Resources Action Programme).

Biodiversity

is defined as the variety of life on earth. It includes all species, animal, plants, fungi, algae, bacteria and the habitats that they depend upon.

Biodiversity action plan (BAP)

A plan which sets specific, measurable, achievable, realistic and time bound conservation targets for species and habitats. The UKBAP website www.ukbap.org supports the implementation of the UK Biodiversity Action Plan (UK BAP) on behalf of the UK Biodiversity Partnership and the UK Government.

Steps to produce a BAP are outlined in the UK Business and Biodiversity Resource Centre website, hosted by Earthwatch Institute Europe <http://www.businessandbiodiversity.org> under 'your sector'

Boiler class (BS EN 297: 1994)

The relevant British Standard that defines and classifies boilers based on their NO_x emissions. Applies to boilers fitted with atmospheric burners of nominal heat input not exceeding 70 kW.

BRE Environmental Profile Methodology

Subsequent product certification involves calculating the 'cradle to grave' environmental profile of a building material, product or system, and services. This is a measure of all key environmental impacts, during extraction, processing/manufacture, use (including maintenance and refurbishment) and disposal, over a 60-year study period. Once certified, environmental profiles are reviewed on an annual basis to ensure they remain valid, and are recalculated every three years.

Frequently updated lists of building materials, products and systems assessed and certified under the Environmental Profiles Certification Scheme can be viewed at www.greenbooklive.com. The listing also includes the Green Guide rating for the approved products. Where a product specified is claiming certification against the BRE Environmental Profiles Methodology, a copy of the certificate or the certificate number and certifying body from the relevant manufacturer should be acquired or, alternatively, they can verify the claim via Green Book Live listings. A reference to the BRE Global Approved certificate number should be included in the assessment report.

BREEAM accredited professional

An individual qualified and accredited by BRE as a specialist in built environment sustainability, environmental design and assessment. The role of the BREEAM AP is to facilitate the project team's efforts to successfully schedule activities, set priorities and negotiate the trade-offs required to achieve a target BREEAM rating when the design is formally assessed. For a list and contact details of BREEAM Accredited Professionals visit www.greenbooklive.com

BREEAM construction resource efficiency benchmarks

The resource efficiency benchmarks used in BREEAM have been derived using data collected from hundreds of real life refurbishment projects using BRE's SMARTWaste system. See www.smartwaste.co.uk. The BREEAM credits are aligned to the benchmarks as follows

One credit: Average performance for domestic refurbishment projects costing over £300,000

BREEAM Domestic Refurbishment Mat 01 calculator

A calculator required to determine the number of credits achieved for this BREEAM issue, based on each applicable element's Green Guide rating and the improvement from the pre refurbishment U value. See Calculation procedures for a description of how BREEAM Refurbishment determines the number of credits achieved for each material element.

BREEAM Mat 01 calculator

A spreadsheet-based calculator required to determine the number of credits achieved for this BREEAM issue, based on each applicable element's Green Guide rating.

BREEAM Mat 02 Calculator

A calculator tool used to determine the number of BREEAM credits achieved for BREEAM issue Mat 02.

BREEAM Mat 03 Calculator

A calculator tool used by the BREEAM Assessor to determine the number of BREEAM credits achieved for BREEAM issue Mat 03.

BREEAM Domestic Refurbishment Mat 03 Insulation Calculator

A spreadsheet tool used to determine the Insulation Index and therefore, whether the BREEAM credit is achieved.

BREEAM Mat 04 calculator

A spreadsheet based tool used by the BREEAM assessor to determine the Insulation Index and therefore, whether the BREEAM credit is achieved.

BREEAM Tra 01 Calculator

A spreadsheet-based calculator used to determine the Accessibility Index for the assessed building and the number of BREEAM credits achieved.

BREEAM Wat 01 calculator for New Non Domestic Buildings

The BREEAM Wat 01 calculator is a method for the assessment of water efficiency in most common types of new non domestic buildings. The calculator assesses the contribution that each internal domestic scale water consuming component (as listed in the criteria) has on whole building water consumption.

The calculator and accompanying guidance on its application is available separately from this Scheme Document.

Please note; the calculator is a compliance tool and not a design tool for water demand and drainage systems. The tool uses default usage and occupancy rates to provide a benchmark of the typical consumption given the specified fittings (in litres/person/day and m³/person/year) and their impact on the buildings overall water efficiency. Due to the impacts and differences of actual user behaviour and occupancy rates the results of the method will not reflect directly the actual water use during building operation. The results from the methodology should, therefore, not be used for the purpose of comparison with or prediction of actual water consumption from a non domestic building.

Building Bulletin 93 revision (schools)

BB93 is under revision (as of March 2010) and may change its title to Guidelines for acoustic design of schools to include criteria for refurbishment and conversion work as well as new build.

Building energy management system (BEMS)

Building (Energy) Management System is a central computer controlling, monitoring and optimising building services and systems such as heating, air-conditioning, lighting and security.

Building Energy Performance Index (BEPI)

The BEPI represents a generic measure of energy performance, depending on the country of assessment it may be in CO₂ emissions, kWh, etc. Therefore Current Standards Building Energy Performance Index (CSBEPI) will have to be expressed in the same units as the BEPI.

Building management system (BMS)

See Building energy management system (BEMS).

Building Regulations

For Hea 02, Building Regulations are defined as follows:

- The Building Regulations for England and Wales Approved Document E: Resistance to the Passage of Sound, 2003 edition incorporating 2004 amendments.
- The Building (Scotland) Regulations 2004, 2011 Technical Handbooks—Domestic Section 5 Noise
- The Building Regulations Northern Ireland, Technical booklet G1 (1994), Sound

Building regulations / standards

For England and Wales – Approved Document E 2003 edition, with amendments 2004 – Resistance to sound, for Northern Ireland – DOE Technical Booklet G - Sound, for Scotland – Technical Handbook Section 5 - Noise

Buying solutions

A website providing details of products meeting the performance specifications outlined in the Government's Buying Standards.

Calculation

$0.005 \times (\text{ADDITIONAL IMPERMEABLE AREA}) = \text{m}^3$

Carbon negative building

A building/site that generates, surplus to its own energy demand, an excess of renewable or carbon neutral energy and exports that surplus via the National Grid to meet other, off-site energy demands, i.e. the building is a net exporter of zero carbon energy.

Surplus in this respect means the building/site generates more energy via renewable/carbon neutral sources that it needs to meet its own regulated and unregulated energy needs. Any surplus must be exported through the National Grid as additional capacity to that required by the Renewables Obligation i.e. Renewable Obligation Certificates are not claimed/sold for the renewable energy generation (see Renewables Obligation Certificate (ROC)).

This definition of carbon negative focuses only on energy and carbon dioxide emissions resulting from the operational stage of the building life cycle (as this is the stated aim of this assessment issue). It does not take in to account the embodied carbon, in terms of carbon fixing or emissions resulting from the manufacture or disposal of building materials and components (these impacts/benefits are dealt with in BREEAM issue Mat 01 Life Cycle Impacts).

Carbon neutral

Carbon neutral means that, through a transparent process of calculating emissions, reducing those emissions and offsetting residual emissions, net carbon emissions equal zero' (Source: Department for Energy and Climate Change, Oct 2009). See also, zero net CO₂ emissions definition below.

Controlled service or fitting: The Building Regulations The Building Regulations 2000, Approved Document Part L2A: The conservation of fuel and power in new buildings other than dwellings, 2010 edition, HM Government. define this as a service or fitting in relation to which the Building Regulations imposes a requirement.

Carbon neutral building

Carbon neutral means that, through a transparent process of calculating emissions, reducing those emissions and offsetting residual emissions, net carbon emissions equal zero' (Source:

Department for Energy and Climate Change, Oct 2009). See also, zero net CO₂ emissions definition below.

Care homes

For the purpose of BREEAM, care homes are those buildings legally required to register with the Commission for Social Care Inspection by the care Standards Act, 2000.

Catchment

A catchment is the area contributing surface water flow to a point on a drainage or water course. It can be divided into sub-catchments.

Central rainwater collection system

A system which will collect and store rainwater. This could be a large storage tank or other form of surface water system.

Chain of custody (CoC)

This is a process used to maintain and document the chronological history of the evidence/path for products from forests to consumers. Timber must be tracked from the certified forest to the finished product. All the steps, from the transportation of timber from the forest to a sawmill until it reaches the customer, must maintain adequate inventory control systems that allow for separation and identification of the certified product. Chain of custody certification ensures that a facility has procedures in place to track timber from certified forests and avoid confusion with non-certified timber. Chain of custody is established and audited according to the rules of relevant forest certification systems. See Convention on International Trade in Endangered Species (CITES).

Changes in ground conditions

Climate changes have the potential to increase the occurrence of subsidence, heave, erosion, landslip and other adverse ground conditions. Methods for adapting to changes in ground conditions include, but are not limited to:

- vegetation management
- design of structures/foundations to be able to withstand predicted variations in ground conditions
- surface erosion controls
- reinforcement or re-grading of slopes.

Close Proximity

For the purpose of this issue close proximity is where dwellings which are part of the same development are positioned within a 60 meter radius of each other.

Compliant rainwater collection system

The collection and storage of rain from hard surfaces (typically roofs) in order to replace the use of potable mains water for external irrigation/watering (e.g. rainwater butts).

Composite material

Can be defined as an engineered material made from two or more constituent materials with significantly different physical or chemical properties and which remain separate and distinct on a macroscopic level within the finished structure. Resin based composites such as GRP and polymeric render and timber composites such as Chipboard/Particleboard, MDF, OSB, plywood, hardboard, laminated veneered lumber, glulam and cement bonded particleboard are all required to be assessed for responsible sourcing.

Considerate Constructors Scheme

is a UK certification scheme that encourages the considerate management of construction sites. The scheme is operated by the Construction Confederation and points are awarded in increments of 0.5 over the following eight sections:

- Considerate
- Environmentally Aware
- Site Cleanliness
- Good Neighbour
- Respectful
- Safe
- Responsible
- Accountable

To achieve certification under this scheme a score of at least 24 is required.

ClassCool

A tool developed by the Department for Children, Schools and Families (DCSF, formerly DfES) which provides a simplified method of assessing the extent of classroom overheating. ClassCool may not be appropriate for other spaces, such as libraries and halls, and other means of assessing overheating will be required. See www.teachernet.gov.uk.

ClassVent

ClassVent is a customised spreadsheet design tool that provides a means of sizing ventilation openings for a natural ventilation strategy for school classrooms. The tool was developed by the Department for Children, Families and Schools (formerly DfES). The tool can be downloaded from www.teachernet.gov.uk.

Composite material

can be defined as an engineered material made from two or more constituent materials with significantly different physical or chemical properties and which remain separate and distinct on a macroscopic level within the finished structure. Resin based composites such as glass reinforced plastic and polymeric render and timber composites such as Chipboard/Particleboard, MDF, OSB, plywood, hardboard, laminated veneered lumber, glulam and cement bonded particleboard are all required to be assessed for responsible sourcing.

Clinical areas

Areas of the building in which medical functions are carried out that require specific restricted environmental conditions such as humidity, daylighting, temperature, etc. (e.g. X-ray, operating department, delivery room, etc).

Clinical waste

Waste derived from medical practices and defined as bodily fluids and wastes, drugs and medical equipment; and other waste which, unless rendered safe, may prove hazardous or infectious to persons coming into contact with it.

Colour rendering index (Ra)

A measure, between 0 and 100, of the ability of a lamp to reproduce the colour of objects in comparison to their aspect under a natural or reference source of light. An incandescent source has a Ra of 100 and a low pressure sodium source a Ra of 0

Commission Internationale de l'Eclairage (CIE)

Commission Internationale de l'Eclairage (CIE) is the international standards body for lighting.

Common areas

Developments that have several tenant units, particularly large retail developments, may also share common facilities and access that is not owned or controlled by any one individual tenant, but used by all. Common areas are typically managed and maintained by the development's owner, i.e. landlord or their managing agent. Examples of common areas include an atrium, stairwells, main entrance foyers/reception and external areas e.g. parking.

Communal/Community Composting

This is where a group of people share a composting system. The raw materials are provided by all who take part in the scheme, and the compost is then used in the community, either by individuals in their own gardens, or for use on larger projects within the local environment. See www.communitycompost.org

Community focal points

Facilities/amenities within the development and surrounding area. This may include, retail, healthcare, educational, sports, recreation, dedicated open spaces, community meeting areas and transport facilities.

Complex systems

Complex systems include but are not limited to air conditioning, mechanical ventilation, displacement ventilation, complex passive ventilation, building management systems (BMS), renewable energy sources, microbiological safety cabinets and fume cupboards, cold storage enclosures and refrigeration plant, fume cupboards, microbiological safety cabinets.

Compliant Test Body:

is defined as those organisations:

- Having UKAS accreditation to the appropriate scope, or who are accredited by a member of the International Accreditation Forum (IAF—iaf.nu) to the appropriate scope
- OR
- Who can provide evidence that they follow the relevant principles of BSEN ISO 17024 (Con-formity assessment—General requirements for bodies operating certification of persons) in relation to BREEAM requirements.58

Composting

Composting is a natural process which converts organic waste into an earth-like mass by means of bacteria and micro-organisms. The composting process is also supported by larvae, wood lice, beetles, worms and other such creatures.

Computer simulation

Software tools that can be used to model more complex room geometries for daylighting.

Construction zone (generally)

The construction zone is defined as the site which is being developed for the BREEAM-assessed building, and the external site areas that fall within the scope of the new works.

Construction zone (pollution)

For the purpose of this BREEAM issue the construction zone is defined as any land on the site which is being developed (and therefore disturbed) for buildings, hard standing, landscaping, site access, plus a 3m boundary in either direction around these areas. It also includes any areas used for temporary site storage and buildings.

If it is not known exactly where buildings, hard standing, site access and temporary storage will be located it must be assumed that the construction zone is the entire site.

Consumption data

Information describing the amount of energy being used in a dwelling at any one time. Compliant energy display devices must be capable of displaying at least

- Current energy consumption (Watts)
- Current emissions (kg CO₂)
- Current cost (£ per hour)
- Projected cost (£ per month and £ per year).

Contaminant

is defined as any solid, liquid or gaseous material in, or on the ground to be covered by the building, which is classed as a hazard and therefore presents an unacceptable risk to human health and the environment. The definition also includes land significantly infested by non-native invasive plant species (see Non-native invasive plant species).

Contaminated land specialist:

A Contaminated land specialist is an individual that holds a degree or equivalent qualification in chemistry an individual that holds a degree or equivalent qualification in chemistry, environmental science/management, earth sciences, civil engineering or a related subject, and has a minimum of three years relevant experience (within the last five years) in site investigation, risk assessment and appraisal. Such experience must clearly demonstrate a practical knowledge of site investigation methodologies and understanding of remediation techniques as well as national legislation on the subject; including, acting in an advisory capacity to provide recommendations for remediation.

Contamination

Contamination is defined as any solid, liquid or gaseous material in, or on the ground to be covered by the building, which is classed as a hazard and therefore presents an unacceptable risk to human health and the environment. The definition also includes land significantly infested by non-native invasive plant species (see Non-native invasive plant species).

Control devices

Any drainage structure or unit designed to control the runoff of stormwater. Examples of SuDS control devices are check dams within swales and basins, and combined weir/orifice controls for ponds. Examples of traditional control devices are throttles constructed with pipes and vortex controls. The control devices must be capable of regular inspection and maintenance, and the system should be fail-safe so that upstream flooding does not result from blockage or other malfunction. For guidance on control devices, refer to The SuDS manual (CIRIA C697, 2007) and other best practice guidelines.

Convention on International Trade in Endangered Species (CITES)

Convention on International Trade in Endangered Species of wild fauna and flora (extract taken from the CITES website) www.cites.org/. CITES works by subjecting international trade in specimens of selected species to certain controls. All import, export, re-export and introduction from the sea of species covered by the Convention has to be authorized through a licensing system. Each Party to the Convention must designate one or more Management Authorities in charge of administering that licensing system and one or more Scientific Authorities to advise them on the effects of trade on the status of the species.

The species covered by CITES are listed in three Appendices, according to the degree of protection they need. Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival.

- Appendix I includes species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.
- Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival.
- Appendix III contains species that are protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade.

Appendices I and II of the CITES list illustrate species of timber that are protected outright. Appendix III of the CITES list illustrates species that are protected in at least one country. If a timber species used in the development is on Appendix III it can be included as part of the assessment as long as the timber is not obtained from the country/countries seeking to protect this species.

Control systems

A method for controlling the external lighting to ensure that it will not operate unnecessarily during daylight hours or when a space is unoccupied. Control systems that can be considered are Passive Infra Red (PIR), 'Dusk to Dawn' daylight sensors and time switches.

Counterbalancing ratio

Traction lifts may use a counterweight to balance the weight of the car plus a proportion of the rated load; this reduces the size of the drive motor required for the lift. Lowering the counterbalancing ratio means a smaller motor and controlling drive unit are required, thus saving energy. Counterbalancing ratios are normally provided in the range of 40-50% for safety reasons. Any other values should be carefully considered. Hydraulic lifts may use a balance weight to balance out a proportion of the weight of the car; this reduces the size of the drive motor required for the lift.

Conversion factors

Manufacturers should be asked to supply dry NO_x emissions data in mg/kWh. Where this is not possible the assessor may use the following conversion factors to convert figures in ppm, mg/MJ, mg/m³ or wet NO_x.

It should be noted that these conversion factors assume worst case efficiencies and are likely to give conservative answers. This could have the effect of lowering the number of credits achieved.

1. Figures in mg/m³ should be multiplied by 0.857 in order to gain emissions in mg/kWh. A conversion may also be necessary for data not calculated at 0% excess oxygen.
2. Figures in parts per million (ppm) should be multiplied by 1.76 in order to obtain mg/kWh. A conversion may also be necessary for data not calculated at 0% excess oxygen.
3. Figures in mg/MJ should be multiplied by 3.6 in order to show emissions in mg/kWh (1 kWh = 3.6 MJ). A conversion may also be necessary for data not calculated at 0% excess oxygen.
4. This Issue's criteria are based on dry NO_x values – almost all manufacturers will quote emissions in dry NO_x. However if wet NO_x figures are supplied, these should be converted to dry NO_x. This can be done by multiplying the wet NO_x figure by 1.75.

Cost of Construction

Currently this cost includes labour and materials only and refers itself to the contract sum only, excluding VAT.

Crime prevention design advisor (CPDA)

is a specialist crime prevention officer, trained at the Home Office Crime Reduction College, who deals with crime risk and designing out crime advice for the built environment. In addition to physical security measures the officer will consider defensible space, access, crime and movement generators all of which can contribute to a reduction in crime and disorder. See www.securedbydesign.com.

CSSD

Central Sterile Supply Department.

Data centre

For BREEAM issues, the term 'data centres' includes all buildings, facilities and rooms which contain enterprise servers, server communication equipment, cooling equipment and power equipment, and may provide some form of data service (e.g. large scale mission critical facilities all the way down to small server rooms located in office buildings).

Daylight sensors (dusk to dawn)

A type of sensor that detects daylight and switches lighting on at dusk and off at dawn.

Dedicated non-obstructive position

Ideally this would be in an easily accessible cupboard under the sink or any other cupboard in the kitchen, next to the storage or likely area for storing non-recyclable waste, where practical. Where a kitchen cupboard location is not possible the bins can be located near to the kitchen, in a utility room or connected garage for example.

Design flood event

an historic or notional flood event of a given annual flood probability, against which the suitability of a proposed development is assessed and mitigation measures, if any, are design

Design flood level

the maximum estimated water level during the design storm event. The design flood level for a site can be determined through either known historical data or modelled for the specific site.

Design storm event

historic or notional weather conditions of a given annual probability, against which the suitability of a proposed development is assessed and mitigation measures, if any, are designed.

Development Managers

DMs are independent persons appointed by the SPS scheme managers (the British Parking Association) and will assist designated police staff in carrying out site assessments of individual parking facilities.

Direct effect life cycle (DELC) carbon dioxide equivalent

A measure of the effect on global warming arising from emissions of refrigerant (in the case of this BREEAM assessment issue) from the equipment to the atmosphere over its lifetime (units: kg CO₂ eq.). The calculation involves estimating the total refrigerant release over the period of operation and subsequent conversion to an equivalent mass of CO₂. Should the system use several different refrigerants, e.g. a primary refrigerant and a secondary coolant, or a cascade system, individual calculations will have to be made for all refrigerants which may contribute to the direct effect

Direct Supply

The carbon benefit of energy generated by low or zero carbon technologies can only be allocated to dwellings that are directly supplied by the installation via dedicated supplies. Where electricity is generated which is surplus to the instantaneous demand of the dwelling(s), it may be fed back to the National Grid. The carbon benefit of any electricity fed back to the grid can be allocated as if it were consumed in the dwelling(s) when assessing performance against the requirements of this issue. For communal PV arrays in buildings with multiple dwellings, the obligations of this definition are satisfied where the requirements of Appendix M of SAP are met.

Discharge point

The point of discharge into watercourses and sewers (see Watercourses and sewers)

Diversion of resources from landfill

Percentages used in BREEAM have been derived using data collected from hundreds of real life refurbishment projects using BRE's SMARTWaste system. The BREEAM credits are aligned to the percentages as follows

One credit: Average performance for domestic refurbishment projects costing over £300,000.

Exemplary level: Performance in the top third of domestic refurbishment projects costing over £300,000

Domestic scale components

includes water consumed (potable and non potable) by internal building components including kitchen taps, wash hand basin taps, baths, shower and dishwasher, WCs, urinals, washing machines and waste disposal units.

Dry NO_x

The NO_x emissions (mg/kWh) resulting from the combustion of a fuel at 0% excess oxygen levels. If electricity is sourced from the national grid, the emissions are approximately 1200mg/kWh.

Dry NO_x levels

The NO_x emissions (mg/kWh) resulting from the combustion of a fuel at 0% excess oxygen levels.

Dwelling emission rate (DER)

This is the equivalent of the BER for dwellings. The DER is the estimated carbon dioxide emissions per m² per year (kgCO₂/m²/year) for the dwelling as designed. It accounts for energy used in heating, fixed cooling, hot water and lighting.

Dynamic simulation model (DSM)

A software tool that models energy inputs and outputs for different types of building over time. In certain situations, SBEM will not be sophisticated enough to provide an accurate assessment of a building's energy efficiency. In these cases Government-approved proprietary dynamic simulation models may be used. Communities and Local Government provide such approval.

Energy Performance Ratio for New Constructions (EPRNC)

A metric that is unique to BREEAM and calculated by the BREEAM Ene 01 calculator using modelled outputs from the approved building energy calculation software. It is a ratio that defines the performance of a BREEAM assessed building in terms of its energy demand, consumption and CO₂ emissions. This measure of performance is used to determine the number of Ene 01 credits a building achieves in the BREEAM assessment. A description of how the EPR_{NC} is defined and calculated is provided in the Additional Information section of BREEAM (non-domestic) issue Ene 01.

Ecology related subject

Depending on the ecological content (minimum 60%), the following degrees might be considered relevant: Ecology, Biological Sciences, Zoology, Botany, Countryside Management, Environmental Sciences, Marine and Freshwater Management, Earth Sciences, Agriculture, Forestry, Geography, Landscape Management.

Ecopoint

The Ecopoint used in the Green Guide online is single score that measures the total environmental impact of a product or process as a proportion of overall impact occurring in Europe. One hundred Ecopoints is equivalent to the impact of a European Citizen. Green Guide ratings are derived by sub-dividing the range of Ecopoints/m² achieved by all specifications considered within a building element.

Effective flush volume

The effective flush volume is the volume of water needed to clear the toilet pan and transport any contents far enough to avoid blocking the drain. The effective flush volume of a single flush WC is the volume of water used for one flush.

The effective flush volume of a dual flush WC is the ratio of full flush to reduced flush. This is taken to be one full flush for every three reduced flushes for non-domestic buildings and one full flush for every two reduced flushes in domestic (residential) buildings/areas. The effective flush volume can therefore be calculated as follows, using a 6/4 litre dual flush volume WC as an example:

- Non-domestic: $\{(6 \text{ litre} \times 1) + (4 \text{ litre} \times 3)\}/4 = 4.5$ litre effective flushing volume (for a 6/4 dual flush WC)
- Non-domestic: $\{(6 \text{ litre} \times 1) + (4 \text{ litre} \times 3)\}/4 = 4.5$ litre effective flushing volume (for a 6/4 dual flush WC)

The differing ratio between non-domestic and domestic buildings reflects the different patterns of user behaviour between these building types.

Employment - temporary jobs

Part or full-time jobs lasting up to 1 year during project timescale.

Employment - permanent jobs

Part or full-time jobs that are expected to be in existence beyond project timescales.

Energy averaging

Energy averaging is allowable where a building contains more than one dwelling (such as in a terrace of houses or in a block of flats) as per the block averaging allowances defined in Approved Document L1A, clauses 4.6 and 4.14. An average pre-refurbishment EER and design stage or post refurbishment EER can be calculated for all the dwellings in the building. In such cases, the average EER is the floor-area-weighted average of all the individual EERs. Averaging is only permitted for multiple dwellings in the same building. It is not permitted across multiple buildings on the same development site.

Energy Efficient Space Lighting

General space lighting

Lighting for external doors, porch, steps/pathways, patio, garage, garden, carports and any other outbuildings provided by dedicated energy efficient fittings, controlled by manual switching.

Space lighting in communal areas

- Lighting in lobbies, main external entrances, internal entrance porches, external steps and pathways equipped with dedicated fluorescent fittings (or other efficient luminaires like SON or metal halide) and controlled by a time clock or daylight sensor.
- Lighting in Hallways, landings, stairwells, internal corridors and garages equipped with dedicated fluorescent fittings that are controlled by push button time switches/PIR sensors or equivalent.
- Lighting in communal rooms (laundries, cycle and other storage spaces etc) equipped with dedicated fluorescent fittings and manual switching or occupant sensors.

Energy Efficient Security Lighting

- Security lighting, which are fittings designated for energy efficiency and are adequately controlled such that
- Burglar security lights have a maximum wattage of 150 W, movement detection control devices (PIR) and daylight cut-off sensors.
- Other security lighting which has dedicated energy efficient fittings and is fitted with daylight cut-off sensors or timers.
- Lighting design for the affected areas should follow the requirements of the standard(s) applicable or CIBSE LG9, and should not compromise the safety of any persons using the building.

Energy Efficiency Rating

The Energy Efficiency Rating measures the overall energy efficiency of a dwelling on an A to G scale, ranging from 1 to 100 (the higher the number, the higher the energy efficiency).

Energy Management

on site has been a key focus for the Construction Confederation, and they have published specific guidance (referenced below) to help achieve this. Monitoring and reporting at site level are the key factors in raising awareness of the impacts of energy consumption. Whilst total energy is frequently monitored, this information is predominantly used to feedback into the tendering process and is seldom used to seek improvements on the site in question.

Energy Performance Certificate (EPC)

An Energy Performance Certificate (EPC) is a document which provides information on the energy efficiency of a building and recommendations for improvement. The EPC is a requirement of the European Directive on the Energy Performance of Buildings (EPBD). Under Article 7 of the Directive, any building which is sold, rented out or constructed must have an Energy Performance Certificate (EPC). This must be issued by a qualified and accredited assessor in an independent manner and in the UK is issued by an accredited Domestic Energy Assessor.

Energy specialist

An individual who has acquired substantial expertise or a recognised qualification for undertaking assessments, designs and installations of low or zero carbon solutions in the commercial buildings sector and is not professionally connected to a single low or zero carbon technology or manufacturer.

Energy supply

All types of energy supplied to a building area (department / tenancy / unit) within the boundary of the assessed development; including electricity, gas, heat or other form of energy/fuel which is consumed as a result of the use of and operations within each relevant area.

Enhanced capital allowances (ECA)/ Energy technology product List (ETPL)

The ETPL list is part of the Government's Enhanced Capital Allowance Scheme, a key part of the Government's programme to manage climate change. The Scheme provides a tax incentive to encourage investment in low carbon energy-saving equipment that meets published energy-efficiency criteria. The Energy Technology List (ETL) details the criteria for each type of technology, and lists those products in each category that meet them: www.eca.gov.uk

Environmental product declaration (EPD)

BS EN ISO 14025:2010 BS EN ISO 14025:2010, Environmental labels and declarations - Type III environmental declarations, Principles and procedures. BSI, 2010. defines an environmental label or environmental declaration as a claim which indicates the environmental aspects of a product or service. BS EN ISO 14020:2001 BS EN ISO 14020, Environmental labels and declarations - General principles. BSI, 2001. goes on to state that environmental labels and declarations provide information about a product or service in terms of its overall environmental character, a specific environmental aspect, or any number of aspects. BRE's Environmental Profile Methodology and Green Guide to Specification is an example of an EPD. Life Cycle Assessment (LCA) is the tool underpinning EPD and the LCA should conform to the requirements of the BS ISO 14040 series.

BRE Environmental Profile Methodology and subsequent product certification involves calculating the 'cradle to grave' environmental profile of a building material, product or system, and services. This is a measure of all key environmental impacts, during extraction, processing/manufacture, use (including maintenance and refurbishment) and disposal, over a 60-year study period. Once certified, environmental profiles are reviewed on an annual basis to ensure they remain valid, and are recalculated every three years.

Frequently updated lists of building materials, products and systems assessed and certified under the Environmental Profiles Certification Scheme can be viewed at www.greenbooklive.com. The listing also includes the Green Guide rating for the approved products. Where a product specified is claiming certification against the BRE Environmental Profiles Methodology, the BREEAM assessor should ask for a copy of the certificate or the certificate number and certifying body from the relevant manufacturer or, alternatively, they can verify

the claim via Green Book Live listings. The BREEAM assessor should include a reference to the BRE Global Approved certificate number in their assessment report. An example screenshot of a product specific Environmental Profile listing on GreenBook Live is provided in the Additional Information section of this issue.

Equivalent terminal fitting consumption standards

The following details the specification of each terminal fitting required in order to meet the appropriate consumption standards as detailed in BREEAM Definitions and BREEAM Definitions.

Table - 14: Equivalent terminal fitting consumption standards

Equivalent terminal fitting standards (see compliance note 5)	Fitting Specification*
All fittings within the dwelling including kitchen, bathroom, utility room and WC room fittings specified to 'Excellent'	<ul style="list-style-type: none"> — Bathroom and WC room taps 3 litres per minute — WC 3 litre effective flushing volume or less — Shower 6 litres per minute — Bath 140 litre capacity to overflow — Kitchen and utility room taps 5 litre per minute or less — Dishwashers 0.83 litres per place setting or less — Washing Machine 4.85 litres per kg or less
All fittings within the dwelling kitchen, bathroom, utility room and WC room fittings specified to 'Good'	<ul style="list-style-type: none"> — Bathroom and WC room taps 5 litres per minute or less — WC 4 litres effective flushing volume or less — Shower 8 litres per minute or less — Bath 140 litre capacity to overflow or less — Kitchen and utility room taps 5 litres per minute or less — Dishwasher 1 litre per place setting or less — Washing machine 6.47 litres per kg or less
All Bathroom and WC room fittings specified to 'Excellent'	<ul style="list-style-type: none"> — Taps 3 litres per minute — WC 3 litre effective flushing volume or less — Shower 6 litres per minute — Bath 140 litre capacity to overflow — Kitchen and utility room fittings assumed as baseline
All bathroom and WC room fittings specified to 'Good'	<ul style="list-style-type: none"> — Taps 5 litres per minute or less — WC 4 litres effective flushing volume or less — Shower 8 litres per minute or less — Bath 140 litre capacity to overflow or less — Kitchen and utility room fittings assumed as baseline
All showers specified to 'Excellent'	<ul style="list-style-type: none"> — Showers 6 litres per minute — All other fittings assumed as baseline
All showers and bathroom taps	<ul style="list-style-type: none"> — Showers 8 litres per minute or less

Equivalent terminal fitting standards (see compliance note 5)	Fitting Specification*
to 'Good'	<ul style="list-style-type: none"> — Taps 4.5 litres per minute or less — All other fittings assumed as baseline
All showers specified to 'Good'	<ul style="list-style-type: none"> — Showers 8 litres per minute or less — All other fittings assumed as baseline
All taps and WC's to 'Good'	<ul style="list-style-type: none"> — Taps 4.5 litres per minute or less — Kitchen and utility taps 5 litres per minute or less — WCs with 4 litre effective flush volume or less — All other fittings assumed as baseline
Kitchen and utility room fittings specified to 'Excellent'	<ul style="list-style-type: none"> — Taps 5 litres per minute — Dishwashers 0.83 litres per place setting or less — Washing Machines 4.85 litres per kilogram or less — No water softener or waste disposal unit — All other fittings assumed as baseline
Typical baseline performance	<ul style="list-style-type: none"> — WC 6 litre effective flushing volume — Wash hand basin taps 12 litre per minute — Shower 14 litre per minute — Bath 200 litre capacity to overflow — Kitchen tap 12 litre per minute — Dishwasher 1.41 litres per place setting — Washing machine 14.5 litres per kg

*all other fittings assumed as baseline

Default performance data

Where information on the performance of existing fittings is not available, default performance data from BS8542:2011, table B.7 should be used as detailed below (BREEAM Definitions). This default performance data should be used for fittings being retained where calculating the whole house water consumption using the BREEAM Domestic Refurbishment Wat1 calculator.

Table - 15: Default performance data

Terminal fitting type	Average usage	Terminal fitting type
Showers	Mixer – traditional mixer	8 litres per minute
	Mixer – integrated power	10 litres per minute
	Mixer – separate pump	12 litres per minute
	Mixer – pressurized systems	12 litres per minute
	Mixer – bath/shower mixers	6 litres per minute
	Electric 7–7.9 kW	3.5 litres per minute
	Electric 8–8.9 kW	4 litres per minute
	Electric 9–9.9 kW	4.6 litres per minute
	Electric 10 kW+	5 litres per minute

Terminal fitting type	Average usage	Terminal fitting type
Baths	Undersized bath – 1600 mm length	165 litres – volume to overflow
	Corner bath	140 litres – volume to overflow
	Shower bath	250 litres – volume to overflow
	Standard bath	225 litres – volume to overflow
	Roll top bath	205 litres – volume to overflow
	Whirlpool spa baths	225 litres – volume to overflow
WCs	Post 2001	6 litres
	1993–2000	7.5 litres
	Pre-1993	10 litres
Taps	Low pressure system (as defined in BSEN 200)	7.5 litres per minute per tap
	High pressure system (as defined in BSEN 200)	12 litres per minute per tap
Dishwashers	Domestic	14 litres per cycle
Washing machines	Domestic	55 litres per cycle

Excess oxygen correction

If a NO_x emission rate is quoted by the manufacturer in mg/m^3 or ppm, then it should be established at what % excess oxygen this emission was measured. The greater the amount of excess oxygen in the flue gases at the time of measurement, the more “diluted” the NO_x . It is therefore important to convert any emission rate back to 0% excess oxygen. For the purpose of BREEAM, the following conversion factors can be used for the most frequently used rates supplied by manufacturers:

% Excess O_2	Conversion (c)
3%	x 1.17
6%	x 1.40
15%	x 3.54

Conversion factor $c = 20.9 / (20.9 - x)$

Where $x =$ % excess O_2 (NOT excess air) and 20.9 is the percentage of O_2 in the air.

Exemplary level

The level of performance for the top 50% of domestic refurbishment projects costing over £300,000. For more information, please go to www.smartwaste.co.uk

Existing transport corridor

Any route served by a regular public transport service.

External doors

Subject to the requirements of the issue, door sets and locks certified to the relevant security standard or requirements include

- Front entrance door sets (including those to access individual flat units)
- Side and back door sets (all external door sets not designated as the main access/egress route)
- Sliding patio door sets (see 'Secured by Design – New Homes' for relevant security standard)
- Communal entrance door sets
- External glazed double door sets

External site areas

Areas external to the assessed building, but within the development's site boundary, which contain vehicle and/or pedestrian access roads/pathways to the building, parking, unloading and drop-off areas.

Factory gate

For the purposes of this issue, the factory gate is defined as being the product manufacturer gate (i.e. where manufacture and pre-assembly finishes and the material is in its final product form). Examples might include

Steel/concrete/glass manufacturers for cladding, windows and beams etc,

- Quarry gate for aggregate and sand,
- Concrete plant for concrete and
- Saw mill and timber processing plant for timber

First and second generation biofuels

First generation biofuels are biofuels made from sugar, starch, vegetable oil, or animal fats using conventional technology. Second generation biofuels are biofuels from lignocellulosic biomass feedstock using advanced technical processes Sustainable Bioenergy: a framework for decision makers, United Nations – Energy, 2007.. Common first generation biofuels include vegetable oil, biodiesel and bioalcohols.

Fit for purpose

This refers to the functional criteria that the piece of equipment is required to meet. Any option that is not fit for the purpose must not be considered or included in the analysis.

Fixed building service

The UK Building Regulations defines this as any part of, or any controls associated with: Fixed internal or external lighting systems but does not include emergency escape lighting or specialist process lighting

OR

Fixed systems for heating, hot water service, air-conditioning or mechanical ventilation.

Flagship or anchor tenant

The largest and primary tenant within a retail development, typically department store-type retailers.

Flood defences

Flood defences do not completely remove the risk of flooding, but they do reduce it. Building in areas where flood defences are present (and appropriately designed to withstand a certain magnitude of flooding) is therefore preferable to those built in medium/high risk areas without defences. However, for the purpose of this issue, it is still preferable to build in areas of low risk than encourage development of new flood defences in areas with a higher risk of flooding purely for the sake of new development.

Flood event

A flooding incident characterised by its peak level or flow, or by its level or flow hydrograph.

Flood probability

The estimated probability of a flood of given magnitude occurring or being exceeded in any specified time period. For example, a 100-year flood has a 1% chance of occurring in any given year.

Flood repairable

Constructing a building in such a way that although flood water enters a building, elements that are damaged by flood water can be easily repaired or replaced. This is also a form of flood resilience.

Flood resilience

Constructing a building in such a way that although flood water may enter the building its impact is reduced (i.e. no permanent damage is caused, structural integrity is maintained and drying and cleaning are facilitated).

Flood resistance

Constructing a building in such a way to prevent floodwater entering the building and damaging its fabric.

Flood risk

the combination of the flood probability and the magnitude of the potential consequences of the flood event.

Flood risk

Rising sea levels and increases in average winter precipitation, as well as a general increase in the frequency, duration and intensity of rainfall may result in flood risks. Methods for adapting to increased flood risk include, but are not limited to:

- flood resilient buildings and materials
- managing flood pathways
- water storage within green space
- hard flood defences and barriers
- attenuation of runoff with green open space and green roofs
- use of sustainable drainage systems.

Flood risk assessment

a study to assess the risk of a site flooding, and to assess the impact that any changes or development on the site will have on flood risk on the site and elsewhere. A Flood Risk Assessment should be prepared according to good practice guidance as outlined in Development and Flood Risk: A practice guide companion to PPS 25 (available from www.communities.gov.uk) or other appropriate national planning guidance.

Flood storage

The temporary storage of excess run-off or river flow in ponds, basins, reservoirs or on the flood plain during a flood event.

Flood zones

Flood zones are defined in the relevant planning, policy and technical guidance documents for each country in the UK: PPS25 (England), TAN15 (Wales), SPP7 (Scotland), PPS15 (N. Ireland). Please note, PPS15 does not categorise flood risk zones and there are no similar publicly available flood maps covering Northern Ireland. Assessments in NI will therefore need to rely on site-specific flood risk assessments, or other relevant data/surveys, to determine the extent of flood risk for a specific development, and use the same definitions as those outlined for England (Pol 03 Surface water run off Table - 1: Definition of flood zones by country). The Northern Ireland Department of Environment or Rivers Agency may offer further advice or recommendations in this respect www.doeni.gov.uk and www.riversagency.ni.gov.uk/. Whilst the definitions of flood zones and probabilities of flooding are generally the same throughout the UK, there are some differences.

Northern Ireland PPS15 does not categorise flood risk zones and there are no similar publicly available flood maps covering Northern Ireland. Assessments in NI will therefore need to rely on site-specific flood risk assessments, or other relevant data/surveys, to determine the extent of flood risk for a specific development, and use the same definitions as those outlined for England (BREEAM Definitions). The Northern Ireland Department of Environment or Rivers Agency may offer further advice or recommendations in this respect www.doeni.gov.uk and www.riversagency.ni.gov.uk

Table - 16: Flood zone definitions

Definition	England	Wales	Scotland
Low annual probability of flooding	Zone 1 Less than 1 in 1000 chance of river and sea flooding (<0.1%)	Zone A Considered to be at little or no risk Zone B If site levels are greater than the flood levels used to define adjacent extreme flood outline.	Little or no risk area As defined for England
Medium annual probability of flooding	Zone 2 Between 1 in 100 and 1 in 1000 chance of river flooding (1% – 0.1%) and between a 1 in 200 and 1 in 1000 chance of sea flooding (0.5% – 0.1%).	Zone B If site levels are not greater than the flood levels used to define adjacent extreme flood outline. Zone C Equal to or greater* than 0.1% (river, tidal or coastal flooding). * For the purposes of BREEAM assume upper probability of flooding no greater than that specified for England.	Low to medium risk area Watercourse, tidal or coastal flooding in the range 0.1% – 0.5% (1:1000 – 1:200).
High annual	Zone 3a High Probability 1 in 100 or greater chance of	Zone C1 & C2 * For the purposes of	Medium to high risk areas

Definition	England	Wales	Scotland
probability of flooding	<p>river flooding (>1%) and a 1 in 200 or greater chance of flooding from the sea (>0.5%).</p> <p>Zone 3b The Functional Floodplain Land where water has to flow or be stored in times of flood.</p>	BREEAM assume the same lower and upper probability of flooding as that specified for England.	Annual probability of watercourse, tidal or coastal flooding: greater than 0.5% (1:200)

Flood repairable

Constructing a building in such a way that although flood water enters a building, elements that are damaged by flood water can be easily repaired or replaced. This is also a form of flood resilience.

Footpaths

Any access or route designed for public access. It does not refer to any private access routes or access routes for a designated service i.e. a substation located away from public areas.

Footprint (FP)

Measure of the human demand on a specific resource over the complete life cycle of the system under study.

Frame

The frame is any of the main structural elements that are not included in the roof, external walls and floors. For example, timber or metal studwork within a plasterboard partition would be included within the internal walls, and timber joists would be included within the floor construction. Where a concrete or steel frame is used, this would be treated as the Frame as it would not be integral to the internal walls for example.

Free cooling

The ability of the building to provide cooling to the internal occupied areas without the need to rely on energy consuming mechanical chillers.

Fume cupboard/safety cabinet

A piece of scientific equipment designed to limit a person's exposure to hazardous fumes or biological material. Air is drawn through the enclosure of the cupboard conducting the contaminated air away from the experimental area and those using the equipment.

Garden

An area where irrigation is required or has the potential to be required (e.g. there is space for planting or the addition of pot plants), normally an external space but may be an internal atrium. This may be a private or communal space.

General Ecological Recommendations

are defined as measures adopted for enhancing and protecting the ecological value of the site which include, and go beyond, compliance criteria for all current EU and UK legislation relating to protected species and habitats. These may include

- The planting of native species
- The adoption of horticultural good practice (e.g. no, or low, use of residual pesticides)

- The installation of bird, bat and/or insect boxes at appropriate locations on the site
- Development of a full Biodiversity Management Plan including avoiding clearance/works at key times of the year (e.g. breeding seasons)
- The proper integration, design and maintenance of SUDs and green roofs, community orchards etc

Only native species or those with a known attraction or benefit to local wildlife can be considered for the purpose of enhancing the ecological value of the site.

Note Where planting requiring little water has been recommended by the SQE this may reduce the requirements for external water use. Subsequently size requirements for rain water collecting systems may be reduced, subject to confirmation from the SQE that this is acceptable. Wat 02 External Water Use

Global warming potential (GWP)

GWP is defined as the potential for global warming that a chemical has relative to 1 unit of carbon dioxide, the primary greenhouse gas. In determining the GWP of the refrigerant, the Intergovernmental Panel on Climate Change (IPCC) methodology using a 100-year Integrated Time Horizon (ITH) should be applied.

Government's Buying Standards

A website listing minimum and best practice standards for equipment being procured for government projects.

Green Dragon Environmental Standard ® (Safon Amgylcheddol Y Ddraig Werdd ®)

A stepped standard used to accredit compliance with the Green Dragon Environmental Management Scheme. Dependant on the content of the EMS being assessed, a Level of 1, 2, 3, 4 or 5 may be achieved. At level 4 and above, the Green Dragon Environmental Standard ® can be used as evidence of a compliant EMS for small companies being considered under the assessment of this BREEAM issue. See www.greendragonems.com

Green Guide element number

A unique BRE Global reference number given to a Green Guide rating for any particular building element type specification. Both the standard Green Guide ratings; Refurbishment Green Guide Ratings and those calculated using the Online Green Guide calculator will have an element number. Element numbers may change from time to time due to updates in the Green Guide Data. As a result a note of the element numbers used to give Green Guide rating advice on the BREEAM assessments should be kept for auditing purposes.

Green Guide to Specification

The Green Guide to Specification is an easy-to-use comprehensive reference website and electronic tool, providing guidance for specifiers, designers and their clients on the relative environmental impacts for a range of different building elemental specifications. The generic elemental ratings within the online Guide are based on LCA data generated using the BRE Environmental Profiles Methodology. The Environmental Profiles Methodology has been peer reviewed to comply with BS ISO 14040 and represents the Product Category Rules for BRE Global's environmental labelling scheme (EPD - ISO 14025, Type III) for construction products and elements. www.thegreenguide.org.uk

Green Guide calculator (Refurbishment)

The refurbishment Green Guide calculator is a version of the Green Guide Calculator that has been adapted to cater specifically for refurbishment specifications. The refurbishment rating extends the Green Guide rating from A+ to A+6 (where A+1 is the equivalent to A+). The extended Green Guide A+ range provides finer scale differentiation for refurbishment specifications, with typically 85% of refurbishment specifications being rated within the A+ band.

Greenfield

a site which has either never been built on, or one which has remained undisturbed for five years or more.

Greenfield land

Land that has not been previously developed.

Greenfield runoff rate

The rate of run-off that would occur from the site in its undeveloped state

Greenfield run-off rate

the rate of run-off that would occur from the site in its undeveloped and therefore undisturbed state.

Greenspace Quality

A recognised standard of excellence that meets the expectations of both the staff and users of a site and the wider community and neighbourhood. Such sites are visually stimulating and attractive, safe and welcoming to all sections of society, managed and maintained to the highest standards of sustainability, and provide an enjoyable and inspirational visitor experience. The Green Flag Award is the nationally accepted standard of greenspace quality supported by Natural England. Play England is also developing a play quality standard for play spaces."

Greywater recycling

The appropriate collection, treatment and storage of domestic wastewater (which is defined as that discharged from kitchens, baths/showers, laundry rooms and similar) to meet a non potable water demand in the building e.g. WC flushing, or other permissible non potable use on the site of the assessed building.

Groundwater flooding

Flooding caused by groundwater escaping from the ground when the water table rises to or above ground level.

Groups and sub-groups

As defined in the Building Regulations for England and Wales Approved Document E: Resistance to the Passage of Sound, Section 1 (paragraphs 1.1.1—1.1.7). The building control body should identify specific plots, groups and sub-groups to be tested.

Habitable rooms

Habitable rooms include any room where individuals will sit or lie down and require a reasonably quiet environmental to concentrate or rest. Such rooms are bedrooms, living rooms, dining rooms, studies as well as kitchen-dining and kitchen-living rooms.

Hard landscaping

This includes materials for the surfacing (including sub-bases) of external pedestrian areas and lightly and heavily trafficked areas within the construction zone.

Hard surfaces

Hard surfaces include roofs, car parks, access roads, pavements, delivery/service yards and external hard landscaping. Footpaths less than 1.5m wide which have free drainage to soft landscaped areas on both sides may be excluded.

Heat island effect

The heat island effect occurs when a development is significantly warmer than surrounding rural areas. Sustained high temperatures can have impacts on health, local micro-climate/weather conditions and energy use (for cooling). Methods for adapting to or reducing the heat island effect include, but are not limited to:

- increased vegetation

- green roofs and vegetated walls
- design to enable air-flow throughout the development
- open water and fountains
- shaded public spaces and footpaths
- external finishes that are designed to avoid heat absorption
- site layout / orientation to maximise microclimatic cooling
- interconnection of green spaces / corridors.

High frequency ballast

High frequency ballasts increase the frequency of the power coming from the grid (50Hz) to a frequency optimising the performance of fluorescent lamps, typically around 30kHz. There are several advantages to running fluorescent lamps at higher frequencies. At 30kHz, the frequency of re-ignition of a fluorescent lamp is too quick to be detected by the human eye, therefore reducing visible flicker that some fluorescent lamps running on mains frequency fail to do. Additionally, 30kHz being above the audible range of the human ear, the buzzing noise coming out of low quality main frequency ballasts is avoided. Finally, the luminous efficacy of fluorescent lamps increases with frequency; it can be improved by up to 10% when they are running at 30kHz compared to those operating at 50Hz.

High Pressure Sodium Lamp (SON or HPS)

A type of high intensity discharge lamp primarily used for street lighting purposes. These lamps have a very good luminous efficacy (up to 150 lumens per circuit Watt).

Historic buildings

Historic buildings are defined as:

- Existing buildings situated in conservation areas (where the existing building itself has conservation status and contributes to the status of the conservation area)
- Existing buildings which are of architectural and historical interest and which are referred to as a material consideration in a appropriate statutory body's development plan.
- Existing buildings of architectural and historic interest within national parks, areas of outstanding natural beauty, and world heritage site

HSDU

Hospital Sterilisation and Disinfection Unit.

Illuminance

The amount of light falling on a surface per unit area, measured in lux.

Impacts on water resources

Low summer rainfall could lead to water shortages and a decrease in water quality due to low flows in watercourses having less of a dilution effect on pollutants. Methods for adapting to impacts on water resources include, but are not limited to:

- increased use of reclaimed and recycled water
- reduction in water demand, for example through low water-use planting
- rainwater harvesting and use of sustainable drainage systems to collect and store water.

Impermeable surfaces

Often referred to as hard surfaces, these are surfaces which do not allow water to pass into the ground (e.g. tarmac, paving slabs set on concrete).

Inclusive design

In their publication 'The principles of inclusive design' (2006) the Commission for Architecture and the Built Environment (CABE) state that: "Inclusive design aims to remove the barriers that create undue effort and separation. It enables everyone to participate equally, confidently and

independently in everyday activities.

An inclusive approach to design offers new insights into the way we interact with the built environment. It creates new opportunities to deploy creative and problem solving skills.

The Hea 4 Issue aims to prevent barriers creating undue effort and separation, enabling everyone to participate equally, confidently and independently in everyday activities such as taking out rubbish and spending time outside. The purpose of BREEAM for Domestic Refurbishment is not to deliver purpose-designed 'wheelchair friendly' housing but to encourage the provision of inclusive general needs housing that caters for the widest possible segment of the population (including older people), and which can easily be adapted to meet the needs of wheelchair users as far as this is possible.

Inclusive design champion

Inclusive design champions may be appointed from within the existing design team provided they possess the core competences and skills requirements listed by the National Register of Access Consultants (NRAC) for Access Auditors (actual qualification is not required). For information on skills competencies see www.nrac.org.uk.

Indirect operational greenhouse gas emissions

These are the indirect greenhouse gas emissions that result from the production of energy used to power the refrigeration systems cooling plant. This includes the emissions from the production of grid electricity or an onsite source of energy generation e.g. Gas CHP. In the case of refrigeration systems the term 'direct greenhouse gas emissions' is also used, this refers to the emissions that occur as a direct result of leakage of refrigerant from the system. The impacts of direct greenhouse gas emissions from refrigeration systems are dealt with in the BREEAM (non-domestic) issue Pol 01 Refrigerants, in the pollution section of BREEAM. Therefore, only indirect emissions resulting from the energy consumption of the system are covered in this issue.

Infiltration

The passage of water into a permeable surface, such as soil, permeable paving, soakaways and so on.

Insulation Index

A measure of performance used in BREEAM that seeks to assess the thermal properties of insulation products used in the building relevant to the embodied impact of that insulating material.

Internal Lamps

Internal lamps includes all lighting in habitable rooms including: Living rooms, dining rooms, kitchens, bedrooms, hallways, studies, bathrooms, WC's and utility rooms.

The following rooms/areas must be excluded: Garages, walk-in wardrobes, cupboards, external areas.

ISO Draft standard CD25745-1 Energy performance of lifts, escalators and moving walks – Part 1 Energy and conformance

It has been estimated that approximately 5% of a building's total energy consumption can be attributed to the operation of lifts and a large proportion of this in many situations can be attributable to standby mode.

A Working Group of an International Standards Organisation's Technical Committee (Working group number ISO/178/WG10) is developing a draft standard for the Energy performance of lifts, escalators and moving walks. This draft standard outlines proposed procedures to be used when making energy measurements of lifts, escalator and moving walks. The Working Group is also preparing CD25745-2 to provide an energy classification system for lifts, escalators and moving walks.

I.T.-intensive areas

These include computer areas where more than 1 PC per 5 m² is provided, e.g. training suites, design studios, libraries' IT areas and other areas with a high density of computing devices.

Key processes

The final major aspects of processing that are carried out for the product/material in question. There may be a single process or multiple processes requiring assessment, depending on the end product.

Kitchen Waste Collection Scheme

A kitchen waste collection scheme run by the Local Authority is an acceptable alternative to communal/ community composting facilities. Many Local Authorities now offer kitchen waste collection schemes in addition to garden waste collection schemes.

Laboratory areas

A laboratory is a facility designed for collection, processing and/or testing of specimens or procedures, some of which may be hazardous. In order to maintain controlled conditions to enable experiments and comply with health and safety standards, typically laboratories:

1. Contain various exhaust and containment devices (such as fume cupboards and microbiological safety cupboards)
2. Are heavily serviced to circulate air and to supply heating, cooling, humidity, and clean air
3. Often require 24-hour access and fail-safe redundant backup systems and uninterrupted power supply or emergency power to enable irreplaceable experiments.

As a consequence laboratories can consume up to 4 times more energy than the typical office.

From www.labs21.org.uk:

Different types of laboratories have different requirements for HVAC, plug load equipment and access. This can lead to enormous variations in energy and water requirements.

The main types of laboratories include:

Wet laboratories

Wet laboratories are where chemicals, drugs or other material or biological matter are tested and analysed requiring water, direct ventilation and specialised piped utilities. Typically includes chemical science laboratories. These laboratories require specially designed facilities.

Dry laboratories

Dry laboratories contain dry stored materials, electronics, and/or large instruments with few piped services. Typically includes engineering or analytical laboratories that may require accurate temperature and humidity control, dust control, and clean power.

Microbiological/clinical laboratories

Microbiological/clinical laboratories often involve working with infectious agents. Typically require higher levels of primary containment and multiple secondary barriers including specialized ventilation systems to ensure directional air flow, air treatment systems to decontaminate or remove agents from exhaust air, controlled access zones, airlocks as laboratory entrances, or separate buildings or modules to isolate the laboratory.

In vivo laboratories

These require highly controlled environments for the care and maintenance of flora and fauna. The facilities are complex, and expensive to build and to operate. Tight environmental control over the facility is required to avoid the introduction of contaminants or pathogens, and prevent the possibility of infectious outbreaks, and avoid the transmission of odours.

Teaching laboratories

These are unique to academic institutes, they require space for teaching equipment, storage space for student belongings and less instrumentation than research labs.

Cleanrooms

A cleanroom refers to a controlled environment (air quality, temperature and humidity) which prevent contamination and the regulating of environmental conditions, to facilitate accurate research and production needs. Typically used in UK universities for Nanotechnology, medical and pharmaceutical research/studies and microelectronics applications.

Legally sourced timber

BREEAM follows the UK Government's definition of legally sourced timber, as outlined in the CPET 2nd Edition report on UK Government Timber Procurement Policy UK Government Timber Procurement Policy, Definition of 'legal' and 'sustainable' for timber procurement, Second Edition, CPET, 2006., which states that legal timber and wood derived products are those which originate from a forest where the following criteria are met:

- The forest owner/manager holds legal use rights to the forest.
- There is compliance by both the forest management organisation and any contractors with local and national legal criteria including those relevant to:
 - Forest management
 - Environment
 - Labour and welfare
 - Health & safety
 - Other parties' tenure and use rights
- All relevant royalties and taxes are paid.
- There is compliance with the criteria of CITES.

Relevant documentation demonstrating the above must be provided or made available on request subject to the availability of such materials in the country concerned.

Legionnaires disease

The HSE describes Legionnaires disease as a type of pneumonia caused by the bacterium *Legionella pneumophila*. People catch Legionnaires' disease by inhaling small droplets of water suspended in the air, which contain the bacteria.

Life cycle Cost analysis

A procurement evaluation technique which determines the total cost of acquisition, operation, maintenance and disposal of a product.

Life cycle Assessment

The requirement to look at the carbon balance of each technology over its whole life. This is to encourage people to consider both operational savings or emissions and also the savings or emissions over the whole life of the technology (from 'cradle to grave') therefore reflecting that different technologies have different life spans and impacts at each stage of the life cycle.

Life cycle cost (LCC)

The cost of an asset, or its parts throughout its life cycle, while fulfilling the performance requirements.

Life cycle costing

A methodology for systematic economic evaluation of life cycle costs over a period of analysis, as defined in the agreed scope.

Lifetime Homes

Lifetime Homes was developed by the Habinteg Housing Association, the Helen Hamlyn Foundation and the Joseph Rowntree Foundation in the early 1990s. The scheme involves the incorporation of 16 design features that together create a flexible blueprint for accessible and adaptable housing in any setting.

Lift car lighting

The level of lift car lighting is determined by the relevant standards. For example, BSEN81-1/2:1998+A3:2009 requires 50 lux on the car floor and any control surfaces

Limiting discharge

The limiting discharge is based upon the calculated pre-development flow rate at a discharge point.

Listed Buildings and those within a conservation area

Refer to BREEAM Domestic Refurbishment Scoring and Rating section 3.2 Minimum standards – listed buildings and buildings in a conservation area.

Local Authority Collection Scheme

The Local Authority is responsible for regular collection of waste from the dwelling. This includes the collection of residual waste (waste not intended for recycling or composting) and in many cases recyclable household waste.

Local centre

A local centre is defined as any community focal point. This includes local shops, community facilities, a major transport node, (i.e. a railway, bus station) or another type of significant non-leisure related meeting place.

Low and Zero Carbon Technologies

Technologies eligible to contribute to achieving the requirements of this issue must produce energy from renewable sources and meet all other ancillary requirements as defined by Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

The following requirements must also be met

- There must be a direct supply of energy produced by the technology to the dwelling under assessment.
- Where covered, technologies under 50kWe or 300kWth must be certified under the Microgeneration Certification Scheme (MCS)⁵
- Combined Heat and Power (CHP) schemes above 50kWe must be certified under the CHPQA standard.
- All technologies must be accounted for by SAP or RdSAP April 2012.

CHP schemes fuelled by mains gas are eligible to contribute to performance against this issue. Where these schemes are above 50kWe they must be certified under the CHPQA.

Low grade aggregate uses

Crushed masonry used as fill material for general landscaping is not considered to be high grade. This practice is now common place on construction sites due to landfill costs.

Low risk areas (with respect to watercourse pollution)

Low risk areas can be defined as areas where the risk of contamination or spillage of substances such as petrol and oil is reduced. For the purpose of this credit, roofs and small car parks may be considered as low risk areas.

Luminous efficacy in lamp Lumens per circuit Watt

The ratio between the luminous flux produced by a lamp (in Lumens) and the total power consumed by both the lamp and its associated control gear (in Watts).

Machine room less lift (M.R.L.)

All equipment is contained in the lift well, not in a separate machine room.

Main building entrance

The main building entrance is the entrance to the assessed building accessed by the majority of the building's staff and visitors, not the site entrance (unless the site entrance is also the building entrance e.g. building with a boundary on a public highway).

Mains potable water

is drinking quality water that is taken from a connection to the main water supply in the dwelling.

Material change of use

is where there is a change in the purpose for which or the circumstance in which a building is used e.g. where a building has been converted from a non dwelling (school, church etc.) to a dwelling.

Materials optimisation

Material optimisation means adopting a resource efficient approach to design which results in less material being used in the design (i.e. lean design), and/or less waste is produced in the construction process, without compromising the design concept. Whilst this assessment issue is focused on the embodied impact and sourcing of the insulation material specified, the design team should consider solutions that optimise the use of the material and therefore minimise construction waste.

Mature tree or semi mature trees

Contact [BRE](#) for guidance on this.

Metal halide lamps

are a type of high intensity discharge lamp. They can be specified in varied environments. These lamps combine good colour rendering with high luminous efficacy and long life.

Microgeneration

The production of heat and/or electricity on a small scale from a low carbon source.

Microgeneration Certification Scheme (MCS)

The Microgeneration Certification Scheme (MCS) is an independent scheme that certifies microgeneration products and installers in accordance with consistent standards. It is designed to evaluate microgeneration products and installers against robust criteria, and provides consumers with an independent indication of the reliability of products, assurance that the installation will be carried out to the appropriate standard and a route for complaints should there be any issues.

The MCS is a United Kingdom Accreditation Service (UKAS) accredited certification scheme covering all microgeneration products and services. It has support from the Department of Energy and Climate Change (DECC), industry and non-governmental groups as a prime method for making a substantial contribution to cutting the UK's dependency on fossil fuels and carbon dioxide emissions.

Moderately airtight enclosure

This can be defined as an enclosure that does not produce a draught or significant fresh air ingress that would dilute any leaked refrigerant gas (dilution may prevent detection).

Ozone Depleting Potential ODP is the ratio of the relative amount of degradation to the ozone layer caused by a particular substance relative to the calculated depletion for the ref-

erence gas CFC 11 (ODP = 1.0). The ODP of the refrigerants is not assessed under this issue and there is no link between GWP and ODP.

MOD Living-out personnel

This refers to staff that work in the assessed building and are not residents on the M.O.D site where the assessed building is located.

Moderately airtight enclosure

This can be defined as an enclosure that does not produce a draught or significant fresh air ingress that would dilute any leaked refrigerant gas (dilution may prevent detection). Ozone Depleting Potential ODP is the ratio of the relative amount of degradation to the ozone layer caused by a particular substance relative to the calculated depletion for the reference gas CFC 11 (ODP = 1.0). The ODP of the refrigerants is not assessed under this issue and there is no link between GWP and ODP.

Movement Detecting Devices (PIR)

A type of motion detector that uses infra red radiation to detect movement and switches lighting on.

Multiple occupancy offices

Office space that is not cellular in nature i.e. it is open-planned, and designed to accommodate more than two desk spaces/workstations.

National Calculation Method (NCM)

The National Calculation Method (NCM) enables quantification of building operational energy consumption and CO₂ emissions resulting from regulated building services/systems and fabric performance. The NCM is the methodology used for demonstrating compliance with the Energy Performance of Buildings Directive. Building energy modelling compliant with the NCM can be carried out using approved software (see Approved building energy calculation software).

Nationally recognised LCA Tool

This is defined as any nationally recognised method and does not need to be government endorsed. The tool must confirm to the minimum features for Tier 1, 2 and 3 LCA tools.

Natural greenspace

Places where human control and activities are not intensive so that a feeling of naturalness is allowed to predominate. Natural and semi-natural greenspace exists as a distinct typology but also as discrete areas within the majority of other greenspace typologies. To simplify what we mean by natural when mapping natural greenspace we suggest the adoption of a proxy measure of land use categorisation under 4 levels [see Annex 2 in 'Nature Nearby: Accessible Natural Greenspace Guidance' (Natural England 2010 p.48)].

Natural hazard, natural disaster, and risk assessment

These definitions were taken from the International Strategy for Disaster Reduction (UNISDR) website. See www.unisdr.org.

Natural watercourse

Any natural channel that conveys surface water.

Naturally occurring event

This is not necessarily a natural hazard. A large natural event will become a disaster only when it causes a natural disaster, see Natural hazard, natural disaster, and risk assessment.

Near-site LZC

Renewable energy generated near to the site that is provided for all or part of the community, including the assessed building, e.g. decentralised energy generation linked to a community heat network or renewable connected via private wire.

Near-site LZC

A low or zero carbon source of energy generation located near to the site of the assessed building. The source is most likely to be providing energy for all or part of a local community of buildings, including the assessed building e.g. decentralised energy generation linked to a community heat network or renewable connected via private wire.

Net gain

"The point at which the quality and quantity of habitats or species improves compared to their original condition. i.e. improvements over and above those required for mitigation/compensation." (Institute of Ecology and Environmental Management)

Net lettable area (NLA)

This is the gross internal area less common areas, ancillary spaces (corridors, plant room, toilet blocks etc.) and structural/internal party walls (but not partitioning or other non load-bearing walls. NLA is often quoted in square feet; 1 square metre is 10.76 square feet.

New Elements

A building element installed or constructed from scratch e.g. new windows, roof, external walls etc.

No net loss

"The point at which habitat or biodiversity losses equal their gains, both quantitatively and qualitatively." (Institute of Ecology and Environmental Management)

No-sky line

The no-sky line divides those areas of the working plane which can receive direct light from the sky, from those which cannot. It is important as it indicates how good the distribution of daylight is in a room. Areas beyond the no-sky line will generally look gloomy.

Noise sensitive area:

Landscapes or buildings where the occupiers are likely to be sensitive to noise created by the new plant installed in the assessed building, including:

1. Residential areas
2. Hospitals, health centres, care homes, doctor's surgeries etc.
3. Schools, colleges and other teaching establishments.
4. Libraries
5. Places of worship
6. Wildlife areas, historic landscapes, parks and gardens.
7. Located in an area of Outstanding natural beauty or near a Site of Special Scientific Interest (SSSI).
8. Any other development that can be considered noise sensitive.

Non-potable water

Any water other than potable water, also referred to as unwholesome water (BS8525, see references).

Non-native invasive plant species

are non-indigenous species that adversely affect the habitats they invade economically, environmentally or ecologically. For the purposes of the BREEAM UK New Construction scheme this currently includes Japanese Knotweed and Giant Hogweed only. Further information on control and disposal together with legislative requirements relating to such species can be obtained from DEFRA Non-native invasive plant species: Are non-indigenous species that adversely affect the habitats they invade economically, environmentally or ecologically.

Notional building

A hypothetical building of the same size and shape as the actual building, but with pre-defined specified properties for the building fabric, fittings and services.

NO_x emissions

NO_x emissions are pollutant gases produced by the combustion of fossil fuels. NO_x reacts with heat and sunlight to produce ozone that can cause serious respiratory problems. It also reacts with water to produce acid rain which has a detrimental effect on ecosystems.

NRAC Auditor

There are two types of membership of the National Register of Access Consultants NRAC Consultant and NRAC Auditor. NRAC Auditors have expertise in identifying access problems and give general advice on solutions. They possess a basic knowledge of construction. They provide a professional service to businesses, public and other undertakings by:

- comprehensively identifying and reporting on access issues as developed in the client brief. These may be audits or appraisals, and may include general advice on solutions.
- providing access related policy/strategy advice, including design appraisals, development of Access Statements, access plans, access related strategies and policies.

Using his or her professional judgement, an NRAC Auditor should be able to identify the access requirements specific to the physical environment, and within the appropriate legislative context, considering all relevant factors. These will include legal requirements, client needs best practice guidelines, practicality and user requirements.

NRAC Consultant

Can make recommendations and provide solutions of a technical and policy nature as well as identifying access problems. They possess a greater degree of construction knowledge than NRAC Auditors

Occupied space

A room or space within the assessed building that is likely to be occupied for 30 minutes or more by a building user. Please note there is a specific, unrelated, definition of 'unoccupied' with reference to acoustic testing and measurement and this should not be confused with the definition used here.

For the purpose of BREEAM (non-domestic) issue Hea 03, the definition excludes the following:

- Atria/concourses
- Entrance halls/reception areas
- Ancillary space e.g. circulation areas, storerooms and plantrooms

Office equipment

Computer monitors, desktop computers, scanners, photocopiers, printers, workstations etc.

Oil separator types

There are two main classes, both classes can be produced as 'full retention' or 'by pass' separators:

1. Class 1 Separators: These are designed to achieve a concentration of less than 5mg/l oil under standard test conditions. They should be used when the separator is required to remove very small oil droplets, such as those arising from car park run-off.
2. Class 2 Separators: These are designed to achieve a concentration of less than 100mg/l oil under standard test conditions. They are suitable for dealing with discharges where a lower quality requirement applies and/or for trapping large spillages.
 1. Full retention separators treat the flow that can be delivered by the drainage system, which is normally equivalent to the flow generated by a rainfall intensity of 50mm/hr.

2. Bypass separators fully treat all flows generated by rainfall rates of up to 5mm/hr. Flows above this rate are allowed to bypass the separator. These separators are used when it is an acceptable risk not to provide full treatment for high flows.

Pollution Prevention Guideline 3 contains more detailed guidance on the selection and sizing of an appropriate type of separator.

Online Green Guide calculator

BRE Global have developed the online Green Guide Calculator to enable BREEAM and CSH assessors to quickly and efficiently generate Green Guide ratings for a significant proportion of specifications not listed in the Green Guide Online. The Green Guide Calculator database is based on the components currently used to create specifications within the Green Guide online. These components can be selected and combined to generate instant Green Guide ratings for a multitude of different specifications.

To access the Green Guide Calculator, you must be a licensed BREEAM/EcoHomes/Code for Sustainable Homes Assessor. Please note that, at the time of writing, the Green Guide Calculator is not yet available for public use.

Online responsible sourcing calculator

A web-based calculator for determining the percentage breakdown of materials that comprise a specific building elemental specification e.g. an external wall. Data is available for all elemental specifications that have a generic Green Guide rating. The calculator is available to licensed BREEAM Assessors via the online BREEAM Assessor Extranet.

On-site LZC

A low or zero carbon source of energy generation which is located on the same site as the assessed building.

On-site LZC

Renewable energy generated on the site of the assessed development.

Opening times - peak hours

between 08:00 - 19:00

Opening times - off peak hours

between 19:00 - 08:00

Patient areas

Areas of the building used mainly by inpatients (e.g. wards, dayrooms, etc)

Payback period

The period of time needed for a financial return on an investment to equal the sum of the original investment

Peak rate of run-off

Referred to as Q_p [m^3/sec], this is the highest rate of flow from a defined catchment area assuming that rainfall is uniformly distributed over the drainage area, considering the entire drainage area as a single unit and estimation of flow at the most downstream point only.

Peer review

A process employed by a professional body to demonstrate that potential or current full members maintain a standard of knowledge and experience required to ensure compliance with a code of conduct and professional ethics.

Peer review

is defined as the process employed by a professional body to demonstrate that potential or current full members maintain a standard of knowledge and experience required to ensure compliance with a code of conduct and professional ethics.

Permeable Pavements

Also referred to as Porous or pervious paving. Permeable pavements are SuDS structures and provide a pavement suitable for pedestrian and/or vehicular traffic, while allowing rainwater to infiltrate through the surface and into the underlying layers. The water is temporarily stored before infiltration to the ground, reuse, or discharge to a watercourse or other drainage system. (See CIRIA SuDS Manual, 2007 for full details). Further guidance is also provided here: www.planningportal.gov.uk

Permeable surfaces

Often referred to as pervious surfaces. Surfaces which allow water to pass through and include some surfaces which are thought of as 'hard' such as permeable asphalt on roads, block paving (the gaps between the blocks are permeable).

Pin Based Compact Fluorescent Lamp (CFL)

A type of fluorescent lamp that fits into a dedicated lighting fixture. CFL's have a longer rated life and use less electricity than conventional incandescent light bulbs. Conventional Bayonet or Screw (Edison) fitting CFLs do not meet the requirements of this BREEAM issue.

Point daylight factor

A point daylight factor is the ratio between the illuminance (from daylight) at a specific point on the working plane within a room, expressed as a percentage of the illuminance received on an outdoor unobstructed horizontal plane. This is based on an assumed overcast sky, approximated by the 'CIE (Commission Internationale de l'Eclairage) overcast sky'.

Point of use water cooler

Water coolers that are plumbed directly into the mains water supply and drainage. The advantage of water coolers is twofold, their appearance is modern and appealing to users and most offer both chilled and ambient temperature water.

Pollution

BRE publishes guidance on construction site dust management, and the Environment Agency publishes guidance on water pollution control measures. There are significant statutory requirements in this area under environmental health legislation and the Environmental Protection Act. The Environment Agency and local Environmental Health Officers police these.

Pollution linkages

A relevant pollutant linkage is one that has been identified during the risk assessment stage as representing unacceptable risks to human health or the environment.

Post-consumer waste stream

Waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.

Potable water

Water suitable for human consumption as defined by local building regulations, e.g. in the UK this is defined as water that meets the requirements of Section 67 (Standards of Wholesomeness) of the Water Industry Act 1991 Great Britain, The Water Industry Act 1991. London: The Stationery Office. Potable water may also be referred to as wholesome water.

Pre-consumer waste stream

Waste material generated during manufacturing processes. Excluded is reutilisation of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Prison/MOD sites

For the purpose of assessment, the main entrance should be taken as the gatehouse entrance.

Pre-consumer waste stream

Waste material generated during manufacturing processes, this excludes reutilisation of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Pre-development

the state of the site under assessment immediately prior to purchase of the site by the client/developer (or, where the client has owned/occupied the site for a number of years, its current state).

Previously developed land

Previously developed land is defined by the National Planning Policy Framework, Department for Communities and Local Government, March 2012 as land which is or was occupied by a permanent structure, including the curtilage of the developed land (although it should not be assumed that the whole of the curtilage should be developed) and any associated fixed surface infrastructure.

This excludes:

- land that is or has been occupied by agricultural or forestry buildings;
- land that has been developed for minerals extraction or waste disposal by landfill purposes where provision for restoration has been made through development control procedures;
- land in built-up areas such as private residential gardens, parks, recreation grounds and allotments;
- and land that was previously-developed but where the remains of the permanent structure or fixed surface structure have blended into the landscape in the process of time.

For the purposes of BREEAM, previously developed land must have been in use within the last 50 years for industrial, commercial or domestic purposes.

Previously developed land

For the purposes of this issue BREEAM uses the definition from Planning Policy Statement 3 Planning Policy Guidance (PPG) 3: Housing. www.planningportal.gov.uk Scottish Planning Policy Guidance (SPPG) 3: Housing. www.scotland.gov.uk/ which defines previously developed land as that which is or was occupied by a permanent structure, including the curtilage of the developed land and any associated fixed surface infrastructure.

The definition includes:

1. Defence buildings

The definition excludes:

1. Land that is or has been occupied by agricultural or forestry buildings.
2. Land that has been developed for minerals extraction or waste disposal by landfill purposes where provision for restoration has been made through development control procedures.
3. Land in built-up areas such as parks, recreation grounds and allotments which, although may feature paths, pavilions and other buildings, have not been previously developed.
4. Land that was previously developed but where the remains of the permanent structure or fixed surface structure have blended into the landscape in the process of time (to the extent that it can reasonably be considered as part of the natural surroundings).

Primary heating fuel

The fuel used to provide the majority of heat to a dwelling under assessment.

Prison Service biodiversity action plans

In March 2003 HM Prison Service produced a Strategy Statement of Action for a Prison Service biodiversity action plan (BAP). The Prison Service BAP comprises three stages, the first of which involves managing SSSI sites. The second stage addresses the management of sites that are not designated, but which may have land which has local, county or regional importance on biodiversity. The third stage addresses the rest of the prison estate, principally comprising urban prisons.

Private

Areas often within buildings or surrounded by boundary finishes such as fencing and hedges that create a sense of exclusion from the public realm. These areas are for the use of the building (or area) occupants only.

Private Recycling Scheme Operator

A private recycling scheme operator can be appointed to collect recyclable materials where a Local Authority collection scheme is not in operation or where a landlord/occupier elects to go private, e.g. in some apartments. This can either be a scheme that collects from bins or using automated vacuum pipes linked to an automated waste collection system managed by a private operator.

Private wire arrangement

In the context of BREEAM for low or zero carbon technology installations, a private wire arrangement is where any electricity generated on or in the vicinity of the site is fed directly to the building being assessed, by dedicated power supplies. If electricity is generated which is surplus to the instantaneous demand of the building this electricity may be fed back to the National Grid. The carbon benefit associated with any electricity fed into the grid in this manner can only be allocated against an individual installation or building. In cases where a building is supplied by a communal installation, no carbon benefit can be allocated to buildings which are not connected to the communal installation.

Project Team

This includes anyone that is involved in the planning, designing and implementation of the refurbishment works.

Projects - Large Scale Project;

For the purpose of this issue a large scale project is defined as a project with a duration of more than 6 weeks (from commencement of refurbishment works on site) and/or projects consisting of 5 dwellings or more which are within the same building i.e. a row of terraces or block of flats, or within close proximity (see definition below). Where dwellings or groups of dwellings are not in close proximity (see definition below) they should be considered individually and thus assessed as small scale projects unless these sub groups also meet the requirements of large scale projects.

Projects - Small Scale Project

For the purpose of this issue a small scale project is a project consisting of less than 5 dwellings which are within the same building (i.e. a row of terraces or block of flats) or within close proximity (see definition below).

Proposed development

Any development (building, hard landscaping, car park and access roads) that falls within the boundary of the assessed site.

Protection of local priority UK BAP species

is where local priority UK BAP species have been identified and the Local Biodiversity Officer has been consulted to ensure species are adequately protected during refurbishment works

Protection of Protected Species

is where a Relevant Statutory Nature Conservation Organisation (SNCO) has been notified where protected species are present on site and recommendations have been implemented by a Suitably Qualified Ecologist in accordance with Compliance Note 15.

Protection of trees, hedges, natural areas, watercourses and wetlands

Is where

- Trees of over 100 mm trunk diameter, and/or of significant ecological value, are protected by barriers. Barriers must prohibit construction works in the area between itself and the tree trunk. Minimum distance between tree trunk and barriers must be either the distance of branch spread or half tree height, whichever is greater.
- Trees are protected from direct impact of from severance of asphyxiation of the roots
- Hedges and natural areas requiring protection must either have barriers erected and be protected, or, when remote from site works or storage areas, be protected with a prohibition of construction activity in their vicinity
- Watercourses and wetland areas are to be protected by cut-off ditches and site drainage to prevent run-off to natural watercourses (as this may cause pollution, silting or erosion)

Protection of roosting and/or nesting opportunities in buildings for bats and birds is where the recommendations in the following guidance is implemented

- Birds in your building - what to look for, RSPB. <http://www.rspb.org.uk>
- Bats and buildings vol.1 bats in the built environment series, Bat Conservation Trust, 2011 www.bats.org.uk

Public areas

Areas of the building designed for public use where no medical functions are carried out (e.g. reception, retail unit, waiting areas).

Public realm (or public space)

Public realm (or space) is defined by the Office of the Deputy Prime Minister Office of the Deputy Prime Minister publication 'Living Places: Caring for Quality' as:

"...all those parts of the built and natural environment where the public has free access. It encompasses: all the streets, squares and other rights of way, whether predominantly in residential, commercial or community/civic uses; the open spaces and parks; and the 'public/private' spaces where public access is unrestricted (at least during daylight hours). It includes the interfaces with key internal and external and private spaces to which the public normally has free access".

Public transport corridor

Any route served by bus, train, tram or other form of public transport.

Qbar

An estimation of the mean annual flood flow rate from a catchment (see Report IH124 Flood estimations for small catchments).

\n

Rainwater butt

A large cask or barrel which is set up on end to collect and store rainwater for irrigation purposes.

Rainwater discharge

Rainwater discharge is the rainwater which flows from the development site to watercourses and sewers. It is also referred to as run-off.

Rainfall intensity

Depth of rain falling in unit or specified time, i.e. volume of rain falling in unit or specified time per unit area.

Rainwater recycling

The appropriate collection and storage of rainwater run-off from hard outdoor surfaces to meet a non potable water demand in the building e.g. WC flushing, or other permissible non potable use on the site of the assessed building.

Real and discounted cost

ISO 15686 defines real cost as the cost expressed as a value at the base date, including estimated changes in price due to forecast changes in efficiency and technology, but excluding general price inflation or deflation. Discounted cost is the resulting cost when the real cost is discounted by the real discount rate, or when the nominal cost is discounted by the nominal discount rate. ISO 15686 defines nominal cost as the expected price that will be paid when a cost is due to be paid, including estimated changes in price due to, for example, forecast change in efficiency, inflation or deflation and technology.

Recyclable materials

Recyclable materials include the following

- Paper
- Cardboard
- Glass
- Plastics
- Metals (tins and cans)
- Textiles (clothes and shoes)

Recycled aggregates

are those derived from reprocessing materials previously used in construction, e.g. crushed concrete or masonry from construction and demolition waste material.

Recycled Material

Materials diverted from the pre-consumer and/or post-consumer waste streams that require significant processing before they can be used again. For further information please see Calculating and declaring recycled content in construction products, "Rules of Thumb" Guide (WRAP, 2008) <http://www.wrap.org.uk/>.

Refrigerant

There are three main make-ups of refrigerants:

1. Hydrogenated Fluorocarbon Refrigerants (HFCs) are made up of hydrogen, fluorine, and carbon. Because they do not use a chlorine atom (which is used in most refrigerants) they are known to be one of the least damaging to our ozone.
2. Hydrogenated Chlorofluorocarbon Refrigerants (HCFCs) are made up of hydrogen, chlorine, fluorine, and carbon. These refrigerants contain minimal amounts of chlorine; they are not as detrimental to the environment as some other refrigerants.
3. Chlorofluorocarbon Refrigerants (CFCs) contain chlorine, fluorine and carbon. These refrigerants carry high amounts of chlorine so they are known for being the most hazardous to the ozone layer.

The use of CFCs and HCFCs as refrigerants has been addressed under the Montreal protocol. Phase out programmes have been agreed resulting in these substances no longer being used as refrigerants in all new build and most existing situations. The industry's favoured replacements are currently HFCs which are often potent global warming contributors. Hydrocarbons and ammonia-based refrigerants have low or zero GWP and are therefore preferred long-term options. These are now widely available and are valid alternatives to HFCs in all buildings, provided health and safety issues are fully addressed.

The United Nations Environment Programme (UNEP) hosts a HCFC Help Centre which contains information about the management and phase out of HCFCs and alternatives to HCFCs

in the refrigeration and air conditioning sector.

See www.uneptie.org

RdSAP (reduced data standard assessment procedure)

This is a sub set of SAP that was created specifically for existing buildings and assessors a reduced amount of building elements. It is designed to comply to Building regulation Part L1B.

Refrigerant leak detection

An automated permanently installed multi-point sensing system, designed to continuously monitor the atmosphere in the vicinity of refrigeration equipment and, in the event of detection, raise an alarm. The system may be aspirated or have multiple sensor heads linked to a central alarm unit or BMS. Various sensor types are available including infra-red, semi-conductor or electro-chemical.

Refrigerant pump down

The specification of automatic refrigerant pump down can further limit potential losses and damage to the environment and have subsequent economic benefits to the building owner. Under the United Kingdom 1990 Environmental Protection Act unwanted refrigerant and refrigerating system oil are classified as either controlled or hazardous waste. Not only is it an offence to discharge them to the environment, but there are procedures regarding transport, storage, transfer of ownership and ultimate disposal. Article 16 of EC regulation 2037/2000 specifies that used CFCs and HCFCs must be recovered for destruction or recycling/reclamation.

Refrigerant recovery

The process of removing refrigerant from a system and storing it in an airtight container.

Regulated energy

Building energy consumption resulting from the specification of a 'controlled', 'fixed building service'.

Relevant statutory body

This will, in most cases, be the Environment Agency, although can be the Local Planning Authority or the Internal Drainage Board. In Wales this could also be Welsh Water, and in Northern Ireland could be Northern Ireland Water.

Remediation

Activity undertaken to prevent, minimise, remedy or mitigate the risk caused by contaminated land to human health or the environment.

Remediation strategy

A plan that involves one or more remediation options to reduce or control the risks from the contamination associated with the site.

Renewable technologies

Technologies defined by Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, are eligible to contribute to performance against issue Ene 3, providing the following requirements are also met.

Where covered by the scheme, technologies under 50kWe or 300kWth, must be certified against the Microgeneration Certification Scheme (MCS).

Renewable Combined Heat and Power above 50kWe must be assured under the CHP Quality Assurance.

All technologies must be accounted for in SAP 2009 or RdSAP April 2012.

Renewables Obligation Certificate (ROC)

The ROC is a green certificate issued to an accredited generator for eligible renewable electricity generated within the United Kingdom and supplied to customers within the United Kingdom by a licensed electricity supplier. One ROC is issued for each megawatt hour (MWh) of eligible renewable output generated. See www.ofgem.gov.uk.

Resistance to the Passage of sound, section 1 (paragraphs 1.11 – 1.17).

For example, flats and study bedrooms are usually considered as two separate groups, and if there are significant differences in construction type then the groups will need to be broken down into sub groups. In addition to this, where there are steps or staggers greater than 300mm between dwellings, dwellings without steps/staggers should be treated as a different sub-group to those with step/staggers. This is because the presence of steps/staggers is likely to improve performance.

Responsible Sourcing

This is demonstrated through auditable third party certification schemes i.e. each insulation product must be certified in accordance with either tier levels 1, 2, 3, 4, 5 or 6.. Mat 02 Responsible Sourcing of Materials . Table 13-11 (Management B-7) shows the key processes and supply chain processes required for common insulation products.

Responsible Sourcing

This is a process that involves the consideration of ways of minimising environmental and social impacts when sourcing products and materials, thus ensuring equity for stakeholders. Responsible sourcing is demonstrated through auditable third party certification schemes.

Retained Elements undergoing refurbishment

An existing element being refurbished such as an existing solid wall undergoing upgrade with internal wall insulation.

Reused materials

Materials that can be extracted from the waste stream and used again without further processing, or with only minor processing, that does not alter the nature of the material (e.g. cleaning, cutting, fixing to other materials).

Risk Assessment

A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend. UNISDR Terminology on Disaster Risk Reduction. Published by the United Nations International Strategy for Disaster Reduction, Geneva, Switzerland, May 2009.

The process of conducting a risk assessment is based on a review of both the technical features of hazards such as their location, intensity, frequency and probability; and also the analysis of the physical, social, economic and environmental dimensions of vulnerability and exposure, while taking particular account of the coping capabilities pertinent to the risk scenarios. OECD DAC Guidelines for Aid Agencies on Disaster Mitigation 1994

Robust Details

Robust Details (RDs) are construction solutions that provide an alternative to pre-completion sound insulation testing as a method of complying with Requirements E1 of Approved Document E (2003 edition) of the Building Regulations (England and Wales). The relevant plots on a development must be registered with RDL and built in accordance with the RD specification. To give a reasonable level of assurance that these details will achieve the required minimum standards, RDL carry out random inspections during construction and random sound insulation tests after construction.

A Robust Detail is deemed to be approved for BREEAM (Multi-residential building) credits only when it achieves a specified performance level as assessed by Robust Details Limited (RDL). Robust Details can only be used in relation to assessment for new build dwellings and

cannot be used to assess the performance of construction details in rooms for residential purposes, material change of use or in refurbishment projects.

Room for residential purposes

'Room for residential purposes' is defined within the Building Regulations for England and Wales Approved Document E as a room, or a suite of rooms which is not a dwelling-house or a flat and which is used by one or more persons to live and sleep and includes a room in a hostel, hotel, a boarding house, a hall of residence or a residential home, whether or not the room is separated from or arranged in a cluster group with other rooms, but does not include a room in hospital, or other similar establishment, used for patient accommodation.

Run-off

It is usually rainwater, but can also be groundwater or overspill from sewers and other sources.

Run-off rate

The rate of discharge of water from a surface.

The Safer Parking Scheme

An initiative of the Association of Chief Police Officers aimed at reducing crime and the fear of crime in parking facilities. Safer parking status, Park Mark®, is awarded to parking facilities that have met the criteria of a risk assessment conducted by the Police. The scheme is managed by the British Parking Association (BPA) and supported by the Home Office and Scottish Executive.

Secondary aggregates

By-products of industrial processes that can be processed to produce secondary aggregates. Secondary Aggregates are sub-divided into manufactured and natural, depending on their source.

Secured by Design (SBD)

A police initiative that seeks to encourage the construction industry to adopt crime prevention measures in the design of developments, to assist in reducing the opportunity for and fear of crime.

Secured by Design is owned by the Association of Chief Police Officers (ACPO) and has the support of the Home Office Crime Reduction & Community Safety Group and the Planning Section of the Department for Communities and Local Government.

The Association of Chief Police Officers for England Wales and Northern Ireland (ACPO) and the Association of Chief Police Officers for Scotland (ACPOS) represent the police forces of the United Kingdom and both organisations endorse and support the Secured by Design programme.

Secured by Design (SBD) Section 2 – Physical Security

To be awarded a Secured by Design award, the ALO/CPDA must be satisfied that the criteria of both Section 1 – The Development – Layout & Design, and Section 2 – Physical Security are met. The requirements of Section 1 are beyond the remit of this scheme and for this issue, only the requirements of Section 2 must be met.

Security lighting

is provided to deter burglars or intruders and to protect property. There are two types of security lighting commonly used in dwellings – high wattage intruder lights that are operated via PIR sensors which only switch on for a short time, and low wattage lighting that is controlled by time switches and daylight sensors.

Secure space

For self contained dwellings this can be defined as an enclosed space only accessible to the residents of the dwelling. For buildings with a communal drying space it is an enclosed space with a secure entrance, accessible to the residents of the building only.

Semi-public

Those areas often adjacent to buildings or private areas that whilst not enclosed or demarcated as private are not expected to be accessed by users of the public areas. This could include buffer zones between public rights of way and private boundary finishes.

Separate occupant control

Light switches/controls for a particular area/zone of the building that can be accessed and operated by the individual(s) occupying that area/zone. Such controls will be located within, or within the vicinity of, the zone/area they control.

Separate occupant Control

Responsive heating/cooling controls for a particular area/zone of the building that can be accessed and operated by the individual(s) occupying that area/zone. Such controls will be located within, or within the vicinity of, the zone/area they control.

Sewerage undertaker

This is a body, typically a water company, with statutory responsibility for sewerage and sewerage disposal and also surface water from roofs and yards of premises.

Sewers for adoption

A guide agreed between sewerage undertakers and developers (through the House Builders Federation) specifying the standards to which private sewers need to be constructed to facilitate adoption.

Shared car parking

Parking spaces can be shared by more than one use. For example, schools and leisure facilities might share parking because the peak levels of use do not coincide.

Sheltered housing

Sheltered housing falls within Class C3 of the Town and Country Planning (use Classes) Order 1987, and can be defined as self-contained accommodation, usually with an emergency alarm system, communal facilities and a resident warden. This includes all sheltered housing defined as "Category 1, 2, 2.5 and 3" in accordance with the 1969 Ministry of Housing and Local Government circular 82/69 and Local Authority Guidelines.

Significant contamination

For the purposes of this issue, significant contamination is contamination compliant with the above definition and that which without remediation, development of the site is not possible.

Significant external private space

Significant external private space is defined as a space greater than or equal to 4.5m² per dwelling or for flats with communal external private space, a total space for the building greater than 1m² per bedroom.

An external private space is a space that can only be used only by occupants of designated dwelling(s) by either fencing, planting or other barrier to seal off the space.

Significant quantity

Defined as meeting at least the percentages required within the Assessment Criteria section of this manual.

BREEAM does not require targets to be met but is encouraging the process of setting, monitoring and reporting against targets.

The implementation of a Site Waste Management Plan (SWMP) can help manage the site construction waste produced. The aim of a SWMP is to promote resource efficiency and to

prevent illegal waste activities. Resource efficiency includes minimising waste at source and ensuring that clients, designers and principal contractors assess the use, reuse and recycling of materials and products on and off the site. A SWMP consists of a combination of commitments to:

- design out waste
- reduce waste generated on site
- develop and implement procedures to sort and reuse/recycle construction waste on and off site (as applicable).

Data obtained from measuring and monitoring site construction waste can then be used to check performance against targets and benchmarks, analyse the effectiveness of any solutions implemented and strive for continual improvement

Site clearance

The preparation of the site prior to construction works commencing including removal of walls, hedges, ditches, and trees, other vegetation and services from the site. It can also involve the clearance of fly-tipped materials.

The Simplified Building Energy Model (SBEM)

SBEM is software developed for CLG by BRE. SBEM is a computer program that provides an analysis of a building's energy consumption. It calculates monthly energy use and carbon dioxide emissions of a building (excluding dwellings) based on a description of the building geometry, construction, use and HVAC and lighting equipment. SBEM is accompanied by a basic user interface, iSBEM. There also exists alternative approved software 'front-end' interfaces for SBEM (see Approved building energy calculation software).

Single occupancy offices

Cellular office space designed to accommodate one or two desk spaces/workstations (typically no greater than 10m²).

Site waste management plan (SWMP)

SWMP aims to promote resource efficiency and to prevent illegal waste activities. Resource efficiency includes minimising waste at source and ensuring that clients, designers and principal contractors assess the use, reuse and recycling of materials and products on and off the site.

Site Waste Management Plan (SWMP)

aims to promote resource efficiency and to prevent illegal waste dumping. Resource efficiency includes minimising waste at source and ensuring that clients, designers and principal contractors assess the use, re-use and recycling of materials and products on and off the site. It applies to all projects.

SWMP for projects over £300,000 should include a combination of commitments to

- design out waste (materials optimisation)
- reduce waste generated on site
- develop and implement procedures to sort and reuse/recycle construction waste on and off site (as applicable).
- follow guidance on Site Waste Management Plans from
- DEFRA (Department of Environment, Food and Rural Affairs)
- BRE (Building Research Establishment Ltd)
- WRAP (Waste & Resources Action Programme)

Small company

A company is defined as 'small' if it satisfies at least two of the following criteria:

- A turnover of not more than £5.6 million;
- A turnover of not more than £5.6 million;

This is based on the definition stated in the Companies Act of 1985.

Soakaway

A sub-surface structure designed to promote the infiltration of surface water in to the ground. As a general point, soakaways may be shallow and broad – as in a blanket under permeable paving, or deeper structures. Deeper, point source soakaways should be avoided for road and car-park drainage, but shallow structures providing infiltration in an extensive way (infiltration trenches and permeable paving) do not need oil separators. See Pollution Prevention Guideline (PPG) 3 “Use and design of oil separators in surface water drainage systems”, Environment Agency/SEPA/Environment & Heritage Service, 2006 for further guidance.

Space lighting

The normal lighting required to illuminate a space when in use. It can be used outside the entrance to the home, in outbuildings such as garages and external spaces such as paths, patios, decks, porches, steps and verandas. Space lighting should usually be designed to be switched off when the space is uninhabited and during daylight hours. It is acceptable that some lighting remains switched on outside of daylight hours for safety reasons. Situations where this may be acceptable include: main external entrances, external steps, pathways and car parks.

Specified performance level

Robust Details are approved for credits under the Code for Sustainable Homes (CSH), where the specified performance levels set out below are met. Construction types that meet these levels are listed on the [Robust Details website](#) on the CSH page. Where assessing self contained dwellings in multi-residential buildings that are not defined as material change of use or rooms for residential purposes, Robust Details that meet the specified performance level as set out below can also comply with the credit criteria for self contained units in multi-residential buildings and reference must be made to the CSH page on the Robust Details website:

Mature Robust Details (published for over 12 months and at least 100 test results) – regular assessment based on the 90th percentile of results from the last 100 site tests.

Low use Robust Detail (published for over 12 months but fewer than 100 test results) – initial assessment based on the first 30 tests needed to qualify for the Robust Details scheme and the site tests available, and reviewed regularly as new test results become available, until it becomes a mature Robust Detail or is rejected.

New Robust Detail (published for less than 12 months and fewer than 100 test results) – initial assessment based on the first 30 tests needed to qualify for the Robust Details scheme, and reviewed regularly as new test results become available, until it becomes a mature Robust Detail or is rejected.

It should be noted that not all RDs will necessarily achieve the performance levels required to achieve multi-residential credits. If in doubt, please check the list of currently approved details with RDL directly at the [Robust Details website](#) or on 0870 240 8210.

Staff areas

Areas of the building used mainly by staff (e.g. offices, meeting rooms, staff rooms) and medical areas where patients are admitted but that do not require restricted environmental conditions (e.g. consulting rooms, physiotherapy, etc).

Standby condition

A condition when a lift is stationary at a floor and has reduced the power consumption to the minimum level set for that particular lift and terminates at the next traffic demand [from ISO/DIS25745-1]. The period between when the lift was last used and when standby condition is entered is not defined, but should be as short as possible without compromising any safety requirements

Standard Assessment Procedure (SAP)

The Government's Standard Assessment Procedure (SAP) for assessing the energy performance of new and existing dwellings. The current version of SAP (SAP 2009 version 9.90) accounts for energy used in

- Space heating and cooling
- Hot water provision
- Fixed lighting

The indicators of energy performance are energy consumption per unit floor area (kWh/m²), energy cost rating (SAP rating), environmental impact rating based on CO₂ emissions (EI rating) and dwelling CO₂ emission rate (DER). They are used in the production of Energy Performance Certificates (EPCs) and to demonstrate compliance with ADL1 B and the assessment criteria in BREEAM Domestic Refurbishment.

Statutory safety lighting

is usually provided in multi-residential buildings such as blocks of flats to illuminate stairwells and exit routes when the main lighting system fails. Its design is specified by regulation (BS 5266) and is therefore outside the scope of BREEAM.

Strategic Housing Market Assessment:

Assessments carried out by local authorities to estimate housing demand in terms of affordable and market

Suitably qualified acoustician

An individual who holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics. An individual achieving all the following items can be considered to be "suitably qualified" for the purposes of a BREEAM assessment:

Holds a degree, PhD or equivalent qualification in acoustics/sound testing.

Has a minimum of three years relevant experience (within the last five years). Such experience must clearly demonstrate a practical understanding of factors affecting acoustics in relation to construction and the built environment; including, acting in an advisory capacity to provide recommendations for suitable acoustic performance levels and mitigation measures.

Where a suitably qualified acoustician is verifying the acoustic measurements/calculations carried out by another acoustician who does not meet the SQE requirements, they must, as a minimum, have read and reviewed the report and confirm in writing that they have found it to: represent sound industry practice

be appropriate given the building assessed and scope of works proposed

avoid invalid, biased and exaggerated recommendations.

Additionally, written confirmation from the third party verifier that they comply with the definition of a Suitably Qualified Acoustician is required.

Suitably qualified energy modelling engineer

is a person with at least 3 years relevant experience in energy modelling within the last 5 years and a recognised qualification such as a building services engineer or building energy modelling engineer. Their expertise should be broad enough to cover all required technical aspects guaranteeing that the data entered in the energy model is appropriate and that the results reflect the actual performance of the building. It can be someone operating as sole traders or employed by public or private enterprise bodies.

Suitably qualified ecologist (SQE)

An individual achieving all the following items can be considered to be "suitably qualified" for the purposes of compliance with BREEAM:

1. Holds a degree or equivalent qualification (e.g. N/SVQ level 5) in ecology or a related subject.
2. Is a practising ecologist, with a minimum of three years relevant experience (within the last five years). Such experience must clearly demonstrate a practical understanding of factors affecting

ecology in relation to construction and the built environment; including, acting in an advisory capacity to provide recommendations for ecological protection, enhancement and mitigation measures. Examples of relevant experience are: ecological impact assessments; Phase 1 and 2 habitat surveys and habitat restoration.

3. Is covered by a professional code of conduct and subject to peer review.

Full members of the following organisations, who meet the above criteria, are deemed suitably qualified ecologists for the purposes of BREEAM:

- Chartered Institution of Water and Environmental Management (CIWEM)
- Institute of Ecology and Environmental Management (IEEM)
- Institute of Environmental Management and Assessment (IEMA)
- Landscape Institute (LI)

1. Holds a degree or equivalent qualification in ecology or a related qualification. Other related qualifications will have a significant ecology component but may come from a wide range of areas including but not limited to:

- a. Biologists, botanists, entomologists etc
- b. Arboriculturalists
- c. Nature conservationists
- d. Landscape engineers/architects
- e. Environmental engineers/scientists

2. Is a practising ecologist, with a minimum of three years relevant experience (within the last five years). Such experience must clearly demonstrate a practical understanding of factors affecting ecology in relation to construction and the built environment; including, acting in an advisory capacity to provide recommendations for ecological protection, enhancement and mitigation measures. The relevant experience must relate to the country that the assessment is being carried out in.

Where a suitably qualified ecologist is verifying an Ecology Report produced by another ecologist who does not meet the SQE criteria, they must, as a minimum, have read and reviewed the report and confirm in writing that they have found it to:

- represent sound industry practice
- report and recommend correctly, truthfully and objectively
- be appropriate given the local site conditions and scope of works proposed
- avoid invalid, biased and exaggerated statements.

Additionally, written confirmation from the third party verifier that they comply with the definition of a Suitably Qualified Ecologist is required.'

Suitably qualified security consultant (SQSC)

The following are, at present, deemed to meet this definition:

Crime Prevention Design Advisors

(CPDA)Police Architectural Liaison Officers (ALO)

A list of contact details for the above are available from www.securedbydesign.com.

Alternatively, individual security consultants that meet the following requirements are also deemed to be suitably qualified:

They are a practising security consultant with a minimum of three years relevant experience within the last five years. This experience must clearly demonstrate a practical understanding of factors affecting security in relation to construction and the built environment, including, acting in an advisory capacity to provide recommendations for security and crime prevention. Hold a recognised qualification in design and crime prevention. This qualification must incorporate Secured by Design (or an equivalent). Where the qualification incorporates Secured by Design, the training and qualification must have been provided by an organisation/company that is a member of the Secured by Design membership scheme and whose courses have the 'Police Preferred Specification' accreditation status. Continue to maintain their qualification/status through (full) membership of a relevant industry professional body or accreditation scheme that meets the following: Has a professional code of conduct, to

which members must adhere to. Ongoing membership is subject to peer review or the consultants SBD advice/reports are subject to regular audits by the scheme operator. Organisations, associations or scheme operators who wish to have their membership recognised as 'suitably qualified', should review their current status (and therefore their members) against the requirements above and, where they feel they are compliant, contact [BRE Global](#) with the relevant information/evidence.

Supply chain EMS

Covers all of the major aspects of processing and extraction involved in the supply chain for the end product. Note that recycled materials are not required to demonstrate a Supply Chain EMS. If EMS certification is provided for the Key Processes for recycled materials, this is assumed by default.

SuRF-UK:

Further details on SuRF-UK including their 'Framework for Assessing the Sustainability of Soil and Groundwater Remediation' are available from the CL:AIRE (Contaminated Land: Applications In Real Environments) website (www.claire.co.uk).

Surface water run-off

Water flow over the ground surface to a drainage system. This occurs if the ground is impermeable, is saturated or if the rainfall is particularly intense.

Sustainable Drainage Systems (SuDS)

As defined in the SuDS manual, sustainable drainage systems are an approach to surface water management that combines a sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques. These systems infiltrate, store, convey and partially treat surface water runoff, which minimises environmental impact and maximises environmental opportunities. SuDS should aim to maximise the use of on-the-surface techniques for operational and maintenance reasons.

Sustainable Drainage Systems (SuDS) devices:

These include

- Holding ponds
- Swales
- Infiltration basins
- Detention basins
- Reed beds
- Permeable paving – in areas where local geological and hydrological conditions allow this to function, e.g. block paved surface on permeable sub-base over gravel bed to store the water and allow it to seep into the soil. For less permeable soils the gravel layer might be deeper and the water taken to a soakaway although this is not an option in some areas.
- Local or centralised soakaways either as full systems or as 'overflow' or 'holding' systems, in areas where local geological and hydrological conditions allow them to function.
- Run-off from roofs collected as a part of a rainwater harvesting system
- Run-off from hard surfaces directed to a local soakaway
- Filter strips
- Filter drains and trenches with or without perforated pipes
- Green roofs
- Underground attenuation storage

Sustainable Drainage Systems (SuDS) management train

An approach to drainage design that combines a sequence of appropriate surface water drainage structures using SuDS systems for management of the run-off to treat the flow,

reduce run-off volume and restrain the run-off rate in order to minimise man's impact on the environment. Additional benefits associated with operation and maintenance, ecology and amenity are aspects which are considered when designing a management system. The management train incorporates a hierarchy of techniques

- Source control
- Site/local control.
- Regional control.

Target emission rate (TER)

The target emission rate is the minimum energy performance requirement (required by Building Regulation) for a new non domestic building ($\text{kgCO}_2/\text{m}^2/\text{year}$). The TER is calculated in accordance with the National Calculation Methodology (NCM) and the Simplified Buildings Energy Model (SBEM). For dwellings, the TER is calculated using the SAP methodology according to the requirements defined in the Building Regulations Approved Document L1A. The TER is expressed in terms of the mass of CO_2 emitted per year per square metre of total useful floor area of the building ($\text{kgCO}_2/\text{m}^2/\text{year}$).

Targets

are requested in the BREEAM credit to promote the process of setting, monitoring and achieving targets. BREEAM does not set targets, as these are very project specific. For guidance on setting targets, refer to SMARTWaste <http://www.smartwaste.co.uk/>

Thermal dynamic analysis

Thermal comfort analysis tools can be subdivided into a number of methods of increasing complexity. The most complex of these and the one that provides greatest confidence in results is the full dynamic model. This type of model enables annual heating/cooling loads, overheating risks and control strategies to be assessed.

Thermographic survey

A method of producing images of a building using thermal radiation. The images help to identify areas of the building fabric with a higher (or lower in the case of internal fabric) than expected surface temperatures, thus indicating heat loss from, or air infiltration to, the building and therefore highlighting construction defects.

Tidal estuary

A semi-enclosed coastal body of water which has a free connection with the open sea and within which seawater is measurably diluted with fresh water derived from land drainage. Tidal rivers (i.e. where no measurable seawater content is present during normal tidal movements) cannot be included as part of the estuary.

Tier levels

A graded scale to reflect the rigour of the certification scheme used to demonstrate responsible sourcing. This forms the basis for awarding points and credits in the BREEAM (non-domestic) issue Mat 03 (all as detailed in Table 1-2). Responsible sourcing certification scheme and their tier levels),(all as detailed in BREEAM Definitions Responsible Sourcing Tier Levels and Criteria).

Time out of range

This is the amount of time (hours) the temperature within the relevant building areas, during the hours of occupation, are outside of an acceptable temperature range (as defined in an appropriate industry standard), determined via building simulation/modelling (in accordance with relevant BS, EN, ISO compliant methods) or direct measurement (in the case of an occupied building).

Time switch

A switch with an inbuilt clock which will allow lighting to be switched on and off at programmed times.

Total Floor Area

The Total Floor Area should be calculated as detailed in SAP 2009 or RdSAP April 2012. This can be found on the Energy Performance Certificate.

Tools for preparing, implementing and reviewing a SWMP**SMARTWaste Plan**

is a free web-based tool for preparing, implementing and reviewing a SWMP. This tool includes an integrated waste measurement tool which is aligned to defined waste groups. SMARTWaste Plan will manage all aspects of creating SWMPs and measuring waste generated on projects. Templates are available to meet the BREEAM credits and can also be downloaded. The tool includes online waste measurement, industry waste benchmarks and links to BREEAM Definitions BREMAP. Under the SMARTWaste membership scheme, energy and water consumption and the procurement of certified timber can also be monitored, through the smarterER add-on. A carbon calculator and economic assessment of waste is likely to be added to the system.

BREMAP

Is a geographical information system of waste management facilities. See www.bremap.co.uk

Transport capacity

The maximum number of people that can be transported via a public transport service. ALL potential users of the development must be able to access the transport facility within the defined boundaries.

Travel plan

A travel plan is a strategy for managing all travel and transport within an organisation, principally to increase choice and reduce reliance on the car by seeking to improve access to a site or development by sustainable modes of transport. A travel plan contains both physical and behavioural measures to increase travel choices and reduce reliance on single-occupancy car travel.

Treated

A term describing a building area that is heated and/or mechanically cooled by plant integral to the building. Construction processes this includes the enabling works, assembly, installation and dis-assembly activities necessary for servicing the construction and completion of a new building. Carbon Reducing the footprint of the construction process, An Action Plan to reduce carbon emissions, Joan Ko on behalf of the Strategic Forum and the Carbon Trust, July 2010.

Treatment

Improving the quality of water by physical, chemical and/or biological means.

True zero carbon building

Where net carbon dioxide emissions resulting from energy consumed in the operation of the space heating/cooling, hot-water systems, ventilation, internal lighting AND process related energy consumption is zero or better. The calculation of CO₂ emissions can take account of contributions from on-site, near-site and accredited external renewable/low carbon installations. Off-site renewables that are not accredited cannot be used to meet this definition.

Tubular Fluorescent and Compact Fluorescent Lamps (TFL/CFL)

Types of fluorescent lamp that are named after their shape. These lamps have a longer rated life and use less electricity than conventional incandescent light bulbs.

Uniformity

The uniformity is the ratio between the minimum illuminance (from daylight) on the working plane within a room (or minimum daylight factor) and the average illuminance (from daylight) on the same working plan (or average daylight factor).

Unregulated energy

Building energy consumption resulting from a system or process that is not 'controlled' i.e. energy consumption from systems in the building on which the Building Regulations do not impose a requirement. For example, this may include energy consumption from systems integral to the building and its operation e.g. lifts, escalators, refrigeration systems, ducted fume cupboards; or energy consumption from operational related equipment e.g. servers, printers, desktops, mobile fume cupboards, cooking and other appliances etc.

Unregulated water

Water supply systems whose specification is not regulated by Building Regulations or other relevant legislation. For the purpose of this BREEAM version, this at present includes equipment for irrigation and, for the relevant building types, vehicle wash plant/equipment.

Vehicle wash

A commercial automatic, semi-automatic or manual system for washing vehicles. This includes wheel and chassis wash, fixed gantry and screen wash systems using brushes, spray bars or handheld jet hoses.

View of sky / no-sky line

Areas of the working plane have a view of sky when they receive direct light from the sky, i.e. when the sky can be seen from working plane height. The no-sky line divides those areas of the working plane, which can receive direct skylight, from those that cannot.

Volatile Organic Compound

Any organic liquid and/or solid that evaporates spontaneously at the prevailing temperature and pressure of the atmosphere with which it is in contact (Source: BS EN ISO 11890).

Volume of run-off

The volume of run-off that is generated by rainfall occurring on the site. This is typically measured in cubic metres. Additional predicted volume of run-off is the difference between the volumes of run-off pre- and post-development.

Volume of run-off

The volume of run-off that is generated by rainfall occurring on the site. This is typically measured in cubic metres. Additional predicted volume of run-off is the difference between the volumes of run-off pre- and post-development, usually calculated for a specific rainfall event.

Waste compactor or baler

A machine that is designed to compress waste streams in order to improve storage and transport efficiency

Waste management strategy/plan

aims to promote resource efficiency and to prevent illegal waste activities. Resource efficiency includes minimising waste at source and ensuring that clients, designers and principal contractors assess the use, reuse and recycling of materials and products on and off the site.

Water Efficiency Calculator for New Dwellings, CLG, 2009

is a method for assessing the whole house potable water consumption in new dwellings. The calculation method assesses compliance against the water performance targets in Building Regulations 17.K and the Code for Sustainable Homes. Whilst designed for the purposes of new dwellings, it can also be used for the purposes of BREEAM Domestic Refurbishment, as the method was designed for calculating domestic water consumption which is comparable in refurbished dwellings compared to new build dwellings (e.g. personal WC usage for a given WC specification is not affected by whether it is installed in a new home or a refurbished home, as personal WC usage is relatively constant in a domestic dwelling).

Water meter

An instrument intended to measure continuously, memorise and display the volume of water passing through it within rated operating conditions. A meter includes at least a measurement transducer, a calculator (including adjustment or correction devices if present) and an indicating device.

Water systems

For the purpose of this issue, this refers to:

- Cooling towers
- Evaporative condenser
- Domestic hot and cold water systems
- Other plant and systems containing water which is likely to exceed 20°C and which may release a spray or aerosol during operation or when being maintained, for example:
 - humidifiers and air washers
 - spa baths and pools
 - car/bus washes
 - wet scrubbers
 - indoor fountains and water features.

Watercourses and sewers

A term that includes rivers, streams, ditches, drains, cuts, culverts, dykes, sluices, sewers and passages through which water flows.

Weighted standardized level differences (DnT,w)

HTM08-01 defines this as the 'unit for rating airborne sound insulation on site'.

Weighted standardised impact sound pressure level (L'nT,w)

HTM08-01 defines this as the 'unit for rating impact airborne sound insulation on site'.

White goods and small power equipment

Domestic appliances for example washing machines, fridges and freezers, tumble dryers, air-movement fans/heaters, etc.

Working plane

CIBSE LG10 defines the working plane as the horizontal, vertical or inclined plane in which a visual task lies. The working plane is normally taken as 0.7 m above the floor for offices and 0.85 m for industry.

Working plane

The working plane is a notional surface, typically at about desk or table height, at which daylight factor or the 'no-sky line' is calculated or plotted. For the calculations required under the Hea 1 issue, it is at 0.85 m above the floor.

Zero net carbon (CO₂) emissions

The annual building CO₂ emissions (kgCO₂/m²/year) arising as a result of energy consumption from fixed building services i.e. space heating and cooling, water heating, ventilation and lighting, also referred to as a controlled service or fitting as a result of requirements imposed on

such systems by the Building Regulations.

In aiming to achieve a zero carbon status, the building energy modelling can take account of contributions of energy generated from on-site, near-site and accredited external renewable and low carbon installations. Energy generated and supplied from off-site renewable and low carbon installations that are not accredited cannot be used to meet this definition.

Index

A

Accessibility 16, 19, 32, 66, 111, 124, 149, 156, 256, 262, 268, 295-296, 302, 362, 370, 390

Amenities 53

C

Calculations 19, 46, 105, 129, 133, 141, 152, 172, 187, 196, 228, 322, 334, 336, 341

Carbon monoxide 122

Conservation area 34, 38, 40, 68, 345

E

Efficiency 51-52

Electrical supply 121

Emergency Information 53

Energy 11, 18, 34, 38, 51-52, 62, 84, 92, 124, 126, 128, 136, 140, 144, 148, 152, 156, 184, 220, 229, 252, 265, 284, 317, 331, 345, 354, 359, 362

 electricity 52, 99, 120, 230

 gas 34, 120, 145, 201

 solar 52, 123, 229

Energy Efficiency 51-52

Environment 48, 53, 63, 237, 264, 363, 373, 387, 391

Exemplary level 383

Extension 50, 92, 111, 117, 153, 234, 328

F

Fire alarms 121

Fire detection 121

L

Large house 121

Lighting 52

Local Amenities 53

M

Management 52, 243, 364, 395

Materials 53

N

Neighbours 59

P

pollution 240, 350, 363

Pollution 26, 173, 195, 208, 210, 216, 230, 265, 316, 355, 360, 364

Power supply 121

R

refurbishment 51

S

Security 9, 18, 48, 66, 127, 152, 163, 253, 270, 359, 368

enclosure 401

entrances 48, 165, 212, 296, 334, 383

Fire detection and alarm systems 121

locks 149

Self builds 50

Sound 22, 62, 75, 90, 96, 98, 123, 243, 256, 263, 360, 369, 389

T

Transport 53, 126, 262, 334, 359, 362

U

user guide contents list 51

V

Ventilation 25, 117

W

Waste 53, 58, 63, 130, 216, 255, 364, 367, 375

Water 12, 24, 48, 52, 62, 131, 168, 170, 182, 226, 228, 240, 255, 284, 348, 355, 359, 368

Water use 52

This page is intentionally blank.