

BREEAM Domestic Refurbishment Pre Assessment

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Prepared on behalf of:
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Introduction to BREEAM Domestic Refurbishment

BREEAM (Building Research Establishment Environmental Assessment Method) was created by BRE in 1990 as a means of assessing, rating and certifying the sustainability of buildings. The scheme applicable to 16 Strawberry Hill Road is BREEAM Domestic Refurbishment. This scheme is tailored to self-contained dwellings created through refurbishment, extension or change of use. BREEAM uses the definition given within Part L of the Building Regulations to determine appropriate scheme types.

There are several factors involved in determining a BREEAM rating. These include the project's performance within the BREEAM categories and issues, and the minimum scores and standards required for each BREEAM rating. These are explained in more detail below.

Categories and Issues

To attain the required BREEAM rating, it is necessary to demonstrate performance in seven categories. Each category contains up to ten issues where credits can be awarded to build up a total score. Within each issue, there are several criteria which must be adhered to in order to score one or more credits. These criteria often vary depending on the building type or context.

Minimum Scores

The weighted totals of achieved credits are used to create an overall percentage score for the development. Each BREEAM rating requires a minimum total percentage score, ranging from 'Pass' at 30% to 'Outstanding' at 85%. The minimum total scores required to attain each BREEAM rating are shown below. A project which does not achieve a rating of at least 30% is considered unclassified.

BREEAM Rating	Minimum Score
Outstanding	85%
Excellent	70%
Very Good	55%
Good	45%
Pass	30%

Minimum Standards

A BREEAM rating may also have minimum standards for some mandatory criteria. For example, an 'Outstanding' development is required to achieve at least 3.5 credits under *Ene 02: Energy Efficiency Rating Post Development*. This is applicable regardless of the total score.

The Certification Process

It is possible to be awarded BREEAM certification at two stages, known as design stage and post refurbishment (or post construction) stage. A development is not considered to have achieved BREEAM until the post construction certification has been issued.

The design stage assessment provides a rating of the refurbishment as specified, and is sometimes referred to as an 'interim' rating. This assessment should ideally be carried out prior to refurbishment. Is it not necessary to attain design stage certification in order to be certified at the post refurbishment stage, although an interim certificate is sometimes required as a planning condition or similar. The post refurbishment stage assessment is considered to determine the final BREEAM rating for the project.



BREEAM certificates are issued by BRE following the submission of a BREEAM report and compiled evidence by the assessor. A robust evidence policy is operated by BRE when considering projects for certification under BREEAM. Every criteria and requirement must be demonstrated by detailed documentary evidence in order for the credits to be awarded and for the certificate to be released. It is not the role of the assessor to produce evidence, instead evidence of compliance must be provided by the design team and compiled by the assessor for submission.

Next Steps

Please contact Build Energy prior to RIBA Stage 4 or after planning permission is granted for advice on securing BREEAM certification at Design Stage and Post Construction. You can reach Sean at sean@buildenergy.co.uk or on 0330 055 34 05.

Proposed Credits for 16 Strawberry Hill Road

The requirements outlined below have been drawn from the technical guide published by BRE and sorted into those appropriate for the project type and required scoring at 16 Strawberry Hill Road. Following consultation with the design team we believe these criteria to be the best possible route for attaining compliance.

Issue	Credits	Requirements	Comments
Management			
Man 01: Home User Guide	3 of 3.	A Home Users Guide must be supplied to all dwellings and as a minimum this must include all of the issues in the 'User Guide Contents List' published by BRE. This must include information on both new and retained existing features. Please refer to page 31 of the BREEAM Domestic Refurbishment Technical Manual 2014 for a detailed contents list. Alternatively, Build Energy can quote to provide a compliant Home User Guide.	
Man 02: Responsible Construction Practices	3 of 3.	The contractor should sign up to the Considerate Constructors Scheme before work begins, and score 13 points per section and 39 overall.	
Man 03: Construction Site Impacts	1 of 1.	Two of the following from checklist A4 must be undertaken: <ul style="list-style-type: none"> • Monitor, report and set targets for CO2 production of energy use arising from site activities • Monitor, report and set targets for water consumption arising from site activities • A main contractor with an environmental materials policy • A main contractor that operates an Environmental Management System • 80% of site timber is reclaimed, re-used or responsibly sourced Please see Checklist A4 for details on the requirements of each of these.	
Man 04: Security	1 of 2.	Retained external doors and accessible external windows must be of good quality with working key locks and a strong frame. All glazing including in doors should be a minimum of double glazing. Putty or beading to glazed areas should be on the unexposed side of the door or window, in good condition, with no sign of degradation. In all cases there can be no sign of warping, splitting or rot. New external doors must be certified to PAS24:2007 or LPS 1175 Issue 7 Security Rating 1 or equivalent. New external windows must be certified to BS7950:1997 (36) or LPS 1175 Issue 7 Security Rating 1 or equivalent.	

Man 05: Protection and Enhancement of Ecological Features	2 of 2.	<p>A site survey must be carried out by a Suitably Qualified Ecologist (SQE) to determine the presence of ecological features. All features of ecological value on the refurbishment site potentially affected by the works must be maintained and adequately protected. These are defined as:</p> <ul style="list-style-type: none"> • Trees which have either a trunk with a 100mm trunk diameter or larger, or are over 10 years old, or are otherwise of significant ecological value. • Mature hedgerows over 1m tall and 0.5m wide • Natural areas (e.g. Flower-rich meadow or grassland and heathland which includes habitat or plants that thrive on acidic soils, such as heather and gorse) • Watercourses (rivers, streams and canals) • Wetlands (ponds, lakes, marshland, fenland) • Protected Species. The relevant Statutory Nature Conservation Organisation (SNCO) must be notified if present. • Local Priority UK BAP species • Either roosting or nesting opportunities, or both, in buildings for bats and birds (refer to RSPB and Bat Conservation Trust guidance). <p>A Suitably Qualified Ecologist must in addition be appointed to recommend appropriate ecological features that will positively enhance the ecology of the site. All general ecological recommendations and 30% of additional recommendations must be adopted.</p>	
Man 06.1: Project Management - Roles and Responsibilities	0 of 1.	This issue will not be targeted at present.	
Man 06.2: Project Management - Handover and Aftercare	0 of 1.	This issue will not be targeted at present.	
Man 06.3: Project Management - Early Design Input	0 of 1.	This issue will not be targeted at present.	
Man 06.4: Project Management - Thermographic Surveying and Airtightness Testing	0 of 1.	This issue will not be targeted at present.	

Health and Wellbeing			
Hea 01.1: Daylighting - Impact	0 of 1.	This issue will not be targeted at present.	
Hea 01.2: Daylighting - Standards	0 of 2.	This issue will not be targeted at present.	
Hea 02: Sound Insulation	2 of 4.	<p>Sound testing must be carried out between habitable rooms to meet or exceed Part E of the Building Regulations. The number of credits awarded to a dwelling is determined by the lowest performing separating wall or floor (taken from all specific plots, groups and subgroups combined), which must be clearly identified by the testing.</p> <p>Testing must be carried out by a compliant test body, which is defined as any one of the following:</p> <ul style="list-style-type: none"> • 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. • Organisations or individuals registered with the Association of Noise Consultants (ANC) Registration Scheme. • Organisations or individuals who can provide evidence that they follow the relevant principles of BS EN ISO 17024 (Conformity assessment—General requirements for bodies operating certification of persons) in relation to BREEAM requirements. <p>A Suitably Qualified Acoustician is 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.</p>	
Hea 03: Volatile Organic Compounds	1 of 1.	<p>Where at all decorative paints and varnishes meet the requirements in table 16 , AND</p> <p>Where at least five of the other remaining product categories listed in table 16 meet testing requirements and emissions levels specified. If there are less than five of these in the build, then all must pass.</p>	
Hea 04: Inclusive Design	0 of 3.	This issue will not be targeted at present.	
Hea 05: Ventilation	2 of 2.	Ventilation is to be provided which meets Section 5 (New Dwellings) of Building Regulations Part F in full.	

Hea 06: Safety	1 of 1.	<p>Fire Detection:</p> <p>The dwelling must be provided with a compliant fire detection and alarm system to the following specification:</p> <ul style="list-style-type: none"> • To at least a Grade D Category LD3 standard as described in BS 5839–6:2013. LD1 & LD2 Grade C systems are considered to meet and exceed this. <p>Or, if a dwelling has one storey larger than 200m² and two storeys total excluding basement:</p> <ul style="list-style-type: none"> • A fire detection system of Grade B Category LD3 as described in BS 5839–6:2013. <p>Or, if a dwelling have one storey larger than 200m² and three storeys total excluding basement:</p> <ul style="list-style-type: none"> • A fire detection system of Grade A Category LD2 as described in BS 5839–6:2013. <p>In all cases:</p> <ul style="list-style-type: none"> • Must be positioned in accordance with building Regulations Part B Fire Safety Volume 1—Dwellinghouses 2006 section 1 Paragraphs 1.11–1.18. Building regulations have separate requirements for the positioning of alarms in refurbishment projects. However, for the purposes BREEAM, all alarms must meet part B Building Regulations as outlined for new build. • Must be positioned in accordance with the recommendations of BS 5839–6:2013 for a category L2 system. <p>Power Supplies</p> <p>Where there is a full rewire of all electrical circuitry, or a partial rewire taking place in an area that is suitable for the position of a detection system as detailed above:</p> <ul style="list-style-type: none"> • The fire detector and alarm system must be mains powered. These should have a standby power supply, such as a battery (either rechargeable or non-rechargeable) or capacitor. This is a requirement of a grade D1 or D2 system. • Smoke and heat alarms must conform to BS EN 14604:2005 (which has preceded BS 5446–1: 2000) or BS 5446–2:2003 respectively. • There should be a means of isolating power to the smoke alarms without isolating the lighting. <p>Where the project does not involve electrical rewiring:</p> <ul style="list-style-type: none"> • The power supply for any smoke alarm and carbon monoxide alarm systems must be derived from a battery supply. 	
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Energy			
Ene 01: Improvement in Energy Efficiency Rating	2.5 of 6.	Credits are awarded Part L performance. Refer to separate Energy Statement for details.	
Ene 02: Energy Efficiency Rating Post Refurbishment	3 of 6.		
Ene 03: Primary Energy Demand	7 of 7.		
Ene 04: Renewable Technologies	2 of 2.		

Ene 05: Energy Labelled White Goods	2 of 2.	<p>White goods should be provided to the occupants on the following basis (under the most recent EU energy efficiency labelling scheme):</p> <ul style="list-style-type: none"> • Fridges and freezers, or fridge freezers, must have an E rating or better. • Washing machines have an B rating or better. • Dishwashers have a D rating or better. • Washer-dryers and tumble dryers have a D rating or better (where a washer dryer is provided, it is not necessary to also provide a washing machine) <p>OR, where a washer dryer or tumble dryer is not provided, the EU energy efficiency labelling scheme information leaflet is provided to each dwelling.</p> <p>If existing appliances are present, these can be considered under some circumstances. Please inform us if this is the case.</p>	
Ene 06: Drying Space	0 of 1.	This issue will not be targeted at present.	
Ene 07.1: Lighting - External	1 of 1.	<p>External Space Lighting</p> <p>Energy efficient space lighting, including communal areas, should be provided to at least 45 lumens per circuit watt.</p> <p>External Security Lighting</p> <p>Security lighting must be energy efficient or absent as per the below:</p> <ul style="list-style-type: none"> • Burglar security lights have a maximum wattage of 150W, movement detection control devices (PIR) and daylight cut-off sensors. • Other security lighting which has 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. • Or alternatively, no security lighting should be present at all. Statutory safety lighting can be excluded from the above. 	
Ene 07.2: Lighting - Internal	1 of 1.	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/m ² .	
Ene 08: Energy Display Devices	3 of 3.	<p>The Energy Display Device (EDD) must display current electricity AND primary heating fuel consumption data to the occupants. BRE define an EDD as a system comprising a self-charging sensor(s) fixed to the incoming mains supply or supplies, to measure and transmit energy consumption data to a visual display unit.</p> <p>As a minimum the visual display unit must be capable of displaying the following information:</p> <ul style="list-style-type: none"> • Local time • Current (real time) energy consumption (kilowatts and kilowatt hours) • Current (real time) estimated emissions (g/kg CO₂) • Current (real time) tariff • Current (real time) cost (per hour) • Visual presentation of data (i.e. non-numeric) to allow consumers to easily identify high and low level of usage • Recording of Consumption Data - Historical consumption data so that consumers can compare their current and previous usage in a meaningful way. This should include cumulative consumption data in all of the daily, weekly, monthly or other billing periods. The data must be stored internally for a minimum of two years or be connected to a separate device with automatic upload from the energy display device. 	
Ene 09: Cycle Storage	2 of 2.	Seven bicycles must be accommodated based on current plot and bedroom numbers.	

	<p>Facilities for storing and accessing bikes must be provided as follows:</p> <ul style="list-style-type: none"> • The space must be covered overhead to protect from the weather. • Cycles must be secured within spaces in rack(s) or fixtures to allow cycles to be freestanding and locked. 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. • The covered area and the cycle racks or fixings must be set in or fixed to a permanent structure (building or hardstanding). 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), must allow for access to the cycle storage space, to enable bikes to be easily stored and accessed. <p>If storage is communal:</p> <ul style="list-style-type: none"> • Communal cycle storage must as a minimum be located within 100m of each dwelling's main entrance, or the main communal entrance in the case of flats. <p>Note: Where due to site constraints, the distance requirements for communal cycle storage or the number of spaces cannot be met, BRE may award these credits where everything possible has been tried, on a case by case basis. Ask us for help if this is the case.</p> <p>If storage is in individual gardens:</p> <ul style="list-style-type: none"> • Space should include 1m² space for tools. • If 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: <ol style="list-style-type: none"> 1. Access through the property to the cycle storage must be gained without going through the lounge, living room, bedrooms (where located on the ground floor) dining room, bathroom or kitchen 2. 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 	
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Ene 10: Home Office	1 of 1.	<p>Facilities for a home office provided as follows:</p> <ul style="list-style-type: none"> • Located in a room other than the kitchen, living room or bathroom. For dwellings with three or more bedrooms, also located in a room other than master bedroom. For studio homes, where the living room, kitchen or both forms part of the same room as the master bedroom, the home office can be in this space. • 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. • 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). <p>The following services must be provided in the suitable room intended as a home office:</p> <ul style="list-style-type: none"> • Two double power sockets (within the above 1.8m length) • Telephone point (within the above 1.8m length) • Window (either of the width and height are to be no less than 450mm) • Where the room relies on a window for ventilation, the minimum openable casement must be 0.5 m2. Alternatively, where at least one credit has been achieved under issue Hea 05 Ventilation, this is deemed to meet the requirements for adequate ventilation. A room with only an external door does not meet this requirement. 	
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Water			
Wat 01: Internal Water Use	2.5 of 4.	Water consumption must fall between 96 and 107 litres per person per day as demonstrated by a water calculation.	
Wat 02: External Water Use	1 of 1.	<p>In any one of the following cases the credit can be awarded by default and without providing a water collection system:</p> <ol style="list-style-type: none"> 1. Dwellings with no individual or communal garden space 2. Dwellings only have balconies provided 3. The existing down pipe is not in individual or communal garden space and it is unfeasible to relocate the down pipe 4. 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 	
Wat 03: Water Meter	0 of 1.	This issue will not be targeted at present.	

Materials			
Mat 01: Environmental Impact of Materials	13 of 25.	Please provide full materials spec / complete BE form to allow us to calculate scores. Credits awarded for green accreditation of materials chosen.	
Mat 02.1: Legal Timber	N/A mandatory	All timber used during the refurbishment must come from a 'legal source' and not be on the CITES list or, in the case of Appendix III of the CITES list, not be sourced from the country seeking to protect this species as listed in Appendix III.	
Mat 02.2: Sustainable Procurement Plan	0 of 12.	This issue will not be targeted at present.	

Mat 02.3: Responsible Sourcing of Materials	0 of 3.	This issue will not be targeted at present.	
Mat 03.1: Insulation - Embodied Impact	0 of 4.	This issue will not be targeted at present.	
Mat 03.2: Insulation - Responsible Sourcing	0 of 4.	This issue will not be targeted at present.	

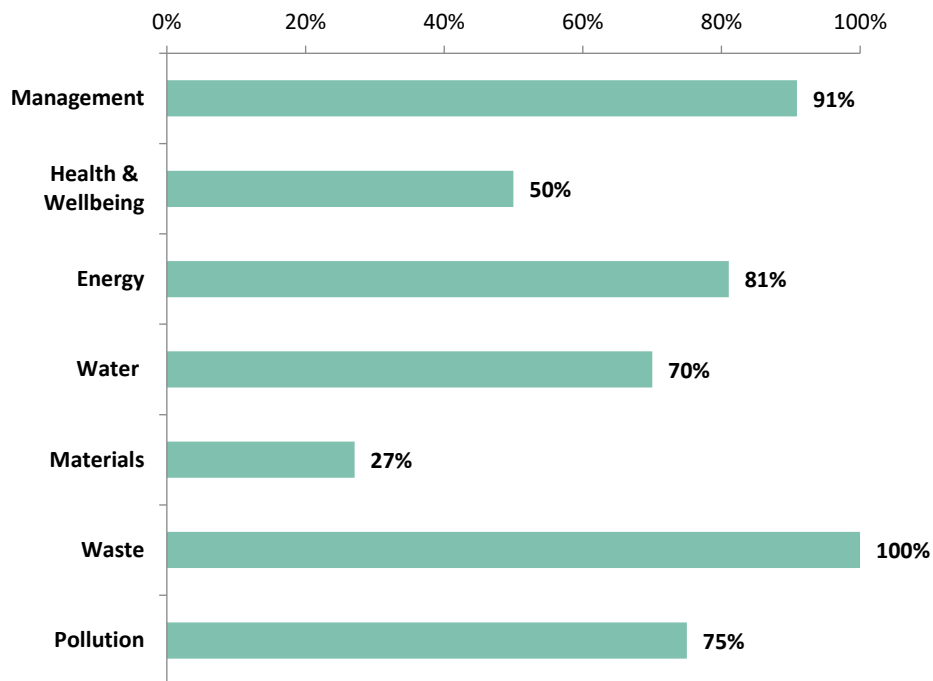
Waste			
Was 01.1: Recycling Facilities	1 of 1.	<p>The Local Authority collects three types of recycling, which are sorted by the occupants before collection. The requirements are therefore three internal recycling containers to the following specification:</p> <ul style="list-style-type: none"> • Minimum 30 litre total capacity, no single container less than seven litre capacity • In a dedicated, 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 . • The scheme (provided privately or by the local authority) must have a minimum collection frequency of at least fortnightly, with a minimum of three recyclable materials collected. 	
Was 01.2: Composting	1 of 1.	<p>In addition to any other bins, an interior container must be provided for kitchen composting waste as follows:</p> <ul style="list-style-type: none"> • This container must be at least seven litres. • It must be located in a dedicated position. <p>Where there a food/kitchen waste collection service in place:</p> <ul style="list-style-type: none"> • A collection service must be provided for food/kitchen waste, by the local authority or by a third party with a management plan. <p>Information Leaflets:</p> <ul style="list-style-type: none"> • Have a home composting information leaflet that is delivered to each dwelling, or as part of the dwelling's home user guide. Where a composting collection scheme is in operation, the information leaflet provided by the local authority is sufficient to meet the information leaflet criteria. Otherwise, it must include the following: <ol style="list-style-type: none"> 1. How composting works and why it is important 2. The materials that can be composted (e.g. raw vegetable peelings and fruit, shredded paper, teabags, etc.) 3. Details of the operation and management plan for the communal composting scheme if applicable. 	

<p>Was 02: Refurbishment Site Waste Management</p>	<p>3 of 4.</p>	<p>For projects over £300k: First credit – Management plan</p> <ul style="list-style-type: none"> • Where a compliant level 2 SWMP is in place, including the following: • 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 three key waste groups as referenced in Table - 32 and recording decisions taken: http://tinyurl.com/mtvn7uy • 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 off 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 off site • The name or job title of the individual responsible for implementing the above <p>Second credit – Good practice waste benchmarks. In addition to the above:</p> <ul style="list-style-type: none"> • Amount of non-hazardous construction waste generated per £100,000 of project value is no greater than 26.52m3 (actual not bulk)... • ...and also no greater than 16.90 tonnes. • The amount of waste generated per £100,000 of project value is recorded in the SWMP. • Where a pre-refurbishment audit of the existing building is completed. 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. • The pre-refurbishment audit should be carried out using an appropriate methodology. The ICE has produced guidance on pre-demolition audits, including 'The Demolition Protocol' and the Waste Resources Action Programme (WRAP) also provides guidance. • The audit must be referenced in the SWMP. • The audit must include identification and amounts of the key refurbishment materials. • The audit must include potential applications and any related issues for the reuse and recycling of the key refurbishment materials. • Where demolition is included as part of the refurbishment programme, then the audit should also cover demolition materials. <p>Third credit – Best practice waste benchmarks. In addition to the above:</p> <ul style="list-style-type: none"> • Construction waste (non hazardous) meets or exceeds a target of diversion from landfill of 70% by volume (m3)... • ...and also 65% by tonne. • Demolition waste (non hazardous) meets or exceeds a target of diversion from landfill of 80% by volume (m3)... • ...and 90% by tonne. • In all cases diversion from landfill includes only: <ol style="list-style-type: none"> 1. Reusing the material on-site (in-situ or for new applications) 2. Reusing the material on other sites 3. Salvaging or reclaiming material for reuse 4. Returning material to supplier via a 'take-back' scheme 5. Recovery of material from site by an approved waste management contractor and recycled, composted or sent for energy recovery
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Pollution				
Pol 01: Nitrogen Oxide Emissions	3	of 3.	Dry NOx emissions of space heating and hot water systems must be ≤ 40 mg/kWh.	Electric system does not emit NOx
Pol 02: Surface Water Run-off	1	of 4.	<p>One credit may be awarded by default if the following applies:</p> <ul style="list-style-type: none"> • Where there is no change in the size of the building footprint or hard standing as a result of the refurbishment • 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). Any calculations necessary to demonstrate that this will be achieved should be carried out by an Appropriately Qualified Professional. • 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 onsite using appropriate Sustainable Drainage Systems (SuDS) such as Soakaways. An Appropriately Qualified Professional is: <ul style="list-style-type: none"> • 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 advisors or specialists may be required for SuDS techniques that allow infiltration. 	
Pol 03: Flooding	2	of 2.	Credits are awarded for undertaking a Flood Risk Assessment which shows a low risk of flooding.	

Anticipated Scoring

The following scores are achieved within each category if the criteria described above are adhered to and suitably evidenced:



This equates to the following total BREEAM score and rating:

Project Score: 74.62%
 Project Rating: BREEAM Excellent