

BREEAM INTERNATIONAL NEW CONSTRUCTION 2016 PRE-ASSESSMENT REPORT SIMEONOVO 145

Project	Simeonovo 145
Client	Acme Ltd
BRE Reg No	BREEAM-0075-5637
BREEAM Assessor	Zlatina Sabeva
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1. Executive Summary

EXG Ltd has been appointed by Acme Ltd to provide Sustainability and BREEAM consultancy advice in anticipation of the construction of their proposed new build residential development at 145 Simeonovsko Shose Blvd, Sofia

A pre-assessment meeting was carried out, which led to the production of the pre-assessment strategy which identifies a set of credits which are being targeted to achieve a score of 70.20%.

2. Introduction

The report provides a summary of the BREEAM pre-assessment review of the following project:

Building Name	Simeonovo 145
BREEAM Version	BREEAM 2016 1.0
Assessment Stage	Pre-Assessment
Assessor	Zlatina Sabeva
Target Rating	Excellent(70%)

BREEAM pre-assessment discussions were held on a meeting in Feb 2018 with the main members of the project team. In addition to this a pre-assessment review meeting was held on 08.03.2018 with the design team to discuss the credits highlighted as potential.

The purpose of these discussions was to complete a BREEAM pre-assessment using the BREEAM New Construction 2016 assessment tool for the new building. This report is based on verbal commitments made by those present on the meetings and gives an indication on the likely performance of the scheme at the formal assessment stage, based on the current level of knowledge and design development at that time. The project is aiming to achieve a BREEAM rating of Excellent, for the new build residential development.

It should be noted that this is not a formal assessment and it will not be submitted to BRE for certification. A formal Design Stage (Interim) assessment will be undertaken based on the documentary evidence when the design of the scheme has been finalised. Information required document will be produced which will identify who is responsible for submitting evidence and the particular evidence required for compliance.

3. Scoring Scenarios

The pre-assessment scored based on the following scoring scenarios:

- Targeted: The number currently targeted, likely to be achieved-These are credits that are likely to be achievable under the current scheme design, without any further specification
- Potential: Targeted, plus credits which can be potentially gained with additional cost and commitment-The items identified within the "Potential" column are those that will require additional investment and commitment from the design team and the appointed contractor.

On this basis the following scored are considered achievable under each scenarios for each building:

Scenario	Score	BREEAM Rating
Targeted	84	70.20%
Potential	90	74.97%

3.1. Minimum Standards

BREEAM requires minimum standards to be met. The minimum standards for Very Good and Excellent Rating are outlined in the table:

BREEAM ISSUE	PASS	GOOD	VERY GOOD	EXCELLENT	OUTSTANDING
Man 03	Criterion 2	Criterion 2	Criterion 2	1 credit	2 credits
Man 04	None	None	None	Criterion 10	Criterion 10
Man 05	None	None	None	1 credit	1 credit
Hea 01	Criterion 1	Criterion 1	Criterion 1	Criterion 1	Criterion 1
Hea 02	Criterion 1	Criterion 1	Criterion 1	Criterion 1	Criterion 1
Hea 06	None	None	None	None	2 credits
Hea 08	None	None	None	None	2 credits
Hea 09	Criterion 1	Criterion 1	Criterion 1	Criterion 1	Criterion 1
Ene 01	None	None	None	6 credits	10 credits
Ene 02	None	None	1 credit	1 credit	1 credit
Wat 01	None	1 credit	1 credit	1 credit	2 credits
Wat 03	Criterion 1	Criterion 1	Criterion 1	Criterion 1	Criterion 1
Wst 01	None	None	None	None	1 credit
Wst 01	None	None	None	None	1 credit
Wst 03a	None	None	None	1 credit	1 credit

4. Pre Assessment Comments and Credit Scenarios

Section	Available	Targeted	Potential	Score Achievable/Potential	Comments
Management					
Man 01 Project Brief & Design	Stakeholder consultation(project delivery)	1	1	-	-A clear sustainability brief is developed prior to completion of concept design -Prior to completion of the Concept Design (RIBA Stage 2 or equivalent), the project delivery stakeholders have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery. -demonstration of the contributions and outcomes of the consultations
	Stakeholder consultation (third party)	1	1	-	Compliance None CN3 –minimum consultation of all relevant third parties by the design team Consultation feedback given and received
	Sustainability Champion(design)	1	1	-	Appointment of sustainability champion (AP) at design stage
	Sustainability champion(monitoring process)	1	1	-	The AP to monitor progress against the targets
Man 02 LCC and service life planning	LLC	2	0	-	An asset elemental lifecycle plan has been carried out that provides indication of the future replacement cost over
	Component Level LCC options appraisal	1	0	-	A component level LCC options appraisal has been carried out in line with ISO15686-5:2008
	Capital Cost Reporting	1	0	1	Report the capital cost of the building. To decide whether or not to report it to achieve the credit.
Man 03 Responsible Construction Practices	Environmental Management	1	1	-	all timber is legally harvested The contractor operate environmental management system completed checklist 9-actions to minimise water pollution during construction works
	Sustainability Champion	1	1	-	A sustainability champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance and process criteria, and therefore BREEAM targets, during the construction, handover and close out work stages.
	Considerate Construction	2	1	1	The principal contractor to achieve items in checklist A. the additional credit can be achieved if we score all 10 items on Checklist A1.

	Monitoring Site Impacts	2	2	-		Individual reporting of energy use, water consumption and transport data; monitor transport impact from and to site including CO2 emissions
Man 4 Commissioning and Handover	Commissioning responsibilities	1	1	-		-There is a schedule of commissioning and testing that identifies the appropriate commissioning required -project team member is appointed to monitor and programme pre-commissioning, commissioning and testing -The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and the main programme of works
	Commissioning building services	1	1	-		Project team member is appointed for commissioning of services during design
	Testing and Inspecting building fabric	1	1	-		The integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths is quality assured through completion of post-construction testing and inspection
	Handover	1	1	-		A building or home user guide is developed, prior to handover for distribution to the building occupiers and premises managers
Man 05 Aftercare	Aftercare support	1	1	-		There is (or will be) operational infrastructure and resources in place to provide aftercare support to the building occupiers
	Seasonal Commissioning	1	1	-		The following seasonal commissioning activities will be completed over a minimum 12-month period, once the building becomes substantially occupied: Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback Take all reasonable steps to recommission systems following the review to take account of deficiencies identified and incorporate any relevant revisions in operating procedures into the O&M manuals.
	Post Occupancy Evaluation	1	1	-		The client or building occupier makes a commitment to carry out a POE exercise one year after initial building occupation. This is done to gain in-use performance feedback from building users to inform operational processes. This includes recommissioning activities, and to maintain or improve productivity, health, safety and comfort. The POE is carried out by an independent third party

Man Total		21	16	18	9.31%/10.48%	
Health & Wellbeing						
Hea 1 Visual Comfort	Glare Control	1	1	-		The potential for disabling glare has been designed out of all relevant building areas. Good practice daylighting levels have been met. Floor space in the relevant building areas has an adequate view out to reduce eye strain and provide a link to the outside. Internal and external lighting systems are designed to avoid flicker and provide appropriate illuminance (lux) levels. Internal lighting is zoned to allow for occupant control.
	Daylighting	3	3	-		Building type dependant
Hea 2 Indoor Air Quality	No Asbestos	1	1	-		Minimizing sources of air pollution through careful design, specification and planning.
	Ventilation	1	1	-		Building ventilation strategy is designed to be flexible and adaptable to potential future building occupant needs and climatic scenarios
	Emissions from building products and natural ventilation	1	1	-		
Hea 3 Not Applicable						
Hea 4 Thermal Comfort	Thermal Modelling	1	1	-		Thermal modelling carried out to appropriate standards.
	Adaptability	1	-	1		Thermal modelling to be achieved in order to get the credit. Projected climate change scenarios considered as part of the thermal model
	Thermal Zoning & Controls	1	-	-		The thermal modelling analysis has informed the temperature control strategy for the building and its users.
Hea 5 Acoustic Performance	Insulation values	4	3	-		A suitably qualified acoustician is appointed. The building meets appropriate acoustic performance standards and testing requirements in terms of: Sound insulation Indoor ambient noise levels Reverberation times.
Hea 6 Accessibility	Safe Access	1	1	-		Dedicated cycle paths, footpaths, safe access
	Inclusive and accessible design	1	-	1		Where there are national best practice standards or local legislation in place that cover (as a minimum) the Lifetime Homes checklist requirements (see Checklist A4), the assessed development must ensure compliance with these standards or legislation.
	Inclusive and accessible design	1	-	1		Where the country of assessment does not have a compliant local standard the developer or designer must confirm (using Checklist A4) that the

						assessed development meets all of the Lifetime Homes criteria.
Hea 7 Not Applicable						
Hea 8	Outdoor space	1	1	-		The outdoor space (private or semi-private) must comply with the following requirements: Is of a size that allows all occupants to sit outside Is accessible for all occupants, including wheelchair users Is accessible only to occupants of designated dwellings The outdoor spaces need to be adjacent, or in close proximity to the dwellings and meet the minimum size requirements
Hea 9	Water Quality	1	1	-		Minimising risk of contamination Provision of fresh drinking water
Hea Total		19	14	17	12.58%/14.38%	
Energy						
Ene1 Reduction of energy use and carbon emissions	Use of appropriate building energy calculation software	15	7	-		Calculate and energy performance ratio for International New Constructions. Compare the achieved with benchmarks in Table 26
Ene 2 Energy Monitoring Not Applicable						
Ene 3 External Lighting	To recognise and encourage the specification of energy efficient light fittings for external areas of the development	1	1	-		The building has been designed to operate without the need for external lighting (which includes on the building, signs and at entrances). OR alternatively, where the building does have external lighting, one credit can be awarded as follows: The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt. All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic
Ene 4 Low Carbon Design	Passive design (2 credits) Low or zero carbon technologies (1 credit)	3	1	-		The first credit within issue Hea 04 Thermal comfort has been achieved to demonstrate the building design can deliver appropriate thermal comfort levels in occupied spaces. The project team carries out an analysis of the proposed building site during the Concept Design stage and identifies opportunities for the implementation of passive design solutions that reduce building energy demand (see compliance note 5). The building uses passive design measures to reduce the overall building energy demand,

						primary energy consumption or CO ₂ emissions by at least 5%, in line with the findings of the passive design analysis.
Ene 5 Not Applicable						
Ene 6 Energy efficient transportation systems	Energy Consumption and Energy efficient features	3	3	-		To recognise and encourage the specification of energy efficient transport systems
Ene 7 Energy efficient laboratory systems Not applicable						
Ene 8 Energy efficient equipment Not Applicable						
Ene 9 Drying space	To provide a reduced energy means of drying clothes.	1	1	-		For self-contained dwellings: an adequate internal or external space with posts and footings, or fixings capable of holding One to two bedrooms: 4m+ of drying line Three or more bedrooms: 6m+ of drying line. OR Individual bedrooms: an adequate internal or external space with posts and footings, or fixings capable of holding Two metres or more of drying line per bedroom for developments with up to 30 individual bedrooms; plus One metre of additional drying line for each bedroom over the 30 individual bedroom threshold AND The space (internal or external) is secure.
Total Energy		23	13	13	9.68%	
Transport						
Tra 01 Public Accessibility	Public transport accessibility index as per Tra 1 calculator Building dedicated bus service	4	3	-		To recognise and encourage development in proximity of good public transport networks, thereby helping to reduce transport-related pollution and congestion.
Tra 02 Proximity to Amenities	Building type dependant proximity to local amenities	2	1	1		To encourage and reward a building location that facilitates easy access to local services and so reduces the environmental, social and economic impacts resulting from multiple or extended building user journeys, including transport-related

emissions and traffic congestion						
Tra 03 Alternative Modes of Transport		2	2	-		Electric recharging stations have been provided for the dwelling occupants. Table 35 The design team can demonstrate electric vehicles using these charging points will have lower CO ₂ emissions than their petrol or diesel counterparts
Tra 04 Max Car Parking Capacity Not Applicable						
Tra 05 Travel Plan	Travel Plan Site specific travel assessment	1	1	-		A travel plan has been developed as part of the feasibility and design stages A site-specific travel assessment or statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the following (as a minimum) Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified Travel patterns and transport impact of future building users Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children) Disabled access (accounting for varying levels of disability and visual impairment) Public transport links serving the site Current facilities for cyclist The travel plan includes a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the building's operation and use If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post-construction and be supported by the building's management in operation
Tra 06 Home office Not applicable						
Total Transport		9	7	8	6.34%/7.24%	
Water						
Wat 01 Water Consumption	Reducing the demand for potable water through the provision of efficient sanitary fittings, rainwater collection and water recycling systems.	5	3	-		Domestic water efficiency measured by Wat 01 calculator The water consumption (L/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based

						upon Table 38. No grey water or rain system is specified in this case
Wat 02 Water Monitoring	To ensure water consumption can be monitored and managed, and therefore encourage reductions in consumption	1	0	-		The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with easily accessible sub-meters or have water monitoring equipment integral to the plant or area (see Compliance notes) Each meter (main and sub) has a pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption If the site on which the building is located has an existing BMS, managed by the same occupier or owner (as the new building), the pulsed or digital water meters for the new building must be connected to the existing BMS
Wat 03 Water leak detection and prevention		1	1	-		To reduce the impact of water leaks Leak detection system
Wat 4 Water Efficient equipment Not Applicable						
Total Water		7	4	5	3.10%	
Materials						
Mat 01 Lyfe Cycle Impacts	Reductions in the buildings environmental life cycle impacts through assessment of the main building elements	6	3	?		The mandatory requirements identified in the 'Materials assessment tool, method and data' section of the BREEAM International Mat 01 calculator have been met. A member of the project team completes the BREEAM International Mat 01 calculator and determines a score based on the robustness of the LCA tool used and the scope of the assessment in terms of the elements considered. To check Mat 1 calculator as up to 5 credits can be achieved
Mat 02 Hard Landscaping and Boundary Protection Not Applicable						
Mat 03 Responsible Sourcing of Materials	Sustainable procurement plan Responsible sourcing of construction products	4	4	-		All timber and timber-based products used on the project are Legally harvested and traded timber By the end of concept design stage, the client or developer has a documented policy and procedure that sets out procurement requirements for all suppliers and trades to adhere to relating to the responsible sourcing of construction products (see

						<p>The documented policy and procedure must be disseminated to all relevant internal and external personnel, and included within the construction contract to ensure that they are enforceable on the assessed project</p> <p>The documented policy and procedure must encourage the specification of products with responsible sourcing certification over similar products without certification</p>
<p>Mat 04 Insulation Not applicable</p>						
Mat 05 Designing for durability and resilience	Protecting vulnerable parts of the building from damage	1	0	?		<p>The building incorporates suitable durability and protection measures, or designed features or solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements. This must include, but is not necessarily limited to:</p> <p>Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.)</p> <p>Protection against any internal vehicular or trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas</p> <p>Protection against, or prevention from, any potential vehicular collision where vehicular parking and maneuvering occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas</p>
Mat 06 Material efficiency	To recognise and encourage measures to optimise material efficiency in order to minimise the environmental impact of material use and waste without compromising on structural stability, durability or service life of the building	1	0	?		<p>Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the more efficient use of materials in building design, procurement, construction, maintenance and end of life. The above is carried out by the design or construction team in consultation with the relevant parties (see CN3)</p> <p>Dedicated report guiding material efficiency activities during design and construction with aims, objectives, targets, performance indicators. Workshops with the project team</p>
Total Mat		12	7			7.43%
Waste						
Wst 01 Construction Waste and Management	Development of a construction resource management plan. Reducing construction waste related to on site construction and off-site manufacture or fabrication. Diverting non-hazardous construction (on site and dedicated off-site manufacture or fabrication), demolition and excavation waste (where	3	3	-		Specification

	applicable) generated by the project from landfill.					
Wst 02 Recycled Aggregates	To recognise and encourage the use of recycled and secondary aggregates, thereby reducing the demand for virgin material and optimising material efficiency in construction	1	0	-		At least 25% of the high grade aggregate uses (within the development) are provided by secondary or recycled aggregate. This percentage can be measured using either weight or volume The recycled or secondary aggregates are EITHER Construction, demolition and excavation waste obtained on site or off-site OR Secondary aggregates
Wst 03 Operational Waste	Recycling Composting	2	2	-		An adequate external space has been allocated to the storage of both recyclable and non-recyclable or non-compostable household waste Provision of adequate external facilities for the storage or composting of household compostable waste
Wst 04 Speculative floor and ceiling finishes	Speculative finishes	1	1	-		For multiple dwellings (where the future occupant is not known), floor, kitchen and bathroom finishes have been installed in a show area only. In a residential building, future occupants have selected (or agreed to) at least three of the specified floor, kitchen and bathroom finishes
Wst 05 Adaptation to climate change	Adaptation to climate change	1	0			Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design
Wst 06 Functional Adaptability Not applicable						
Total Wst		8	6			5.73%
Land Use and Ecology						
Le 01 Site Selection	Previously occupied land Contaminated land	3	3?	-		Percentage of the proposed development footprint is on an area of land which has been previously occupied by any type of building: 75% -1 credit, 95% 2 credits The site is deemed to be significantly contaminated, i.e. could not be developed or built to the proposed end use without remediation. This can either be confirmed by a contaminated-land professional The more onerous of these criteria have been adopted: Nationally recognised guidance for site investigation, risk assessment and appraisal of contaminated land as set out in the regulations or a nationally recognised code of practice OR A robust site investigation, risk assessment and appraisal have been undertaken, in accordance with the

						<p>requirements of Checklist A7</p> <p>The client or principal contractor confirms that remediation of the site will be carried out in accordance with the recommended remediation strategy and its implementation plan (defined in Checklist A7) as set out by the contaminated-land professional and any relevant national or other legislation</p>
Le 02 Ecological Value of site and features	<p>Ecological value of site (1 credit)</p> <p>Protection of ecological features (1 credit)</p>	2	2	-		<p>Land within the assessment zone is defined as 'land of low ecological value' using either:</p> <p>The BREEAM checklist Table 51</p> <p>OR</p> <p>A suitably qualified ecologist who has identified the land as being of 'low ecological value' within an ecological assessment report, based on a site survey. See the BREEAM definition of a Suitably qualified ecologist (SQE)</p> <p>One credit - Protection of ecological features</p> <p>All existing features of ecological value (see LE 02 Ecological value of site and protection of ecological features within the assessment zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities (see CN3)</p> <p>In all cases, the principal contractor is required to construct ecological protection recommended by the SQE, prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities).</p>
Le 03 Not applicable						
Le 04 Enhancing site ecology	<p>Ecologist's report and recommendations (1 credit)</p> <p>Increase in ecological value (2 credits)</p>	3	2?			<p>A SQE has been appointed by the client or their project representative no later than the conclusion of the design brief, i.e. the ecologist is appointed at the beginning of Concept Design stage.</p> <p>The SQE has provided an ecology report with appropriate ecological recommendations for the enhancement of the site's ecology at Concept Design stage. The report is based on a site visit or survey by the SQE</p> <p>At least 50% of the recommendations within the ecology report for enhancement of site ecology have been, or will be, implemented in the final design and build.</p> <p>A percentage of the recommendations within the ecology report for enhancement of site ecology have been, or will be, implemented in the final design and build</p> <p>75%-1 credit 95%-2 credits</p>



EXCELLGATE CONSULTING

Le 05 Long term impact on biodiversity	To minimise the long term impact of the development on the site and the surrounding area's biodiversity	2	2			Appointment of SQE landscape and habitat management plan is produced
Total LE		10	9		9.17%	
Pollution						
Pol 01 Impact of Refrigerants	No Refrigerant use Ozone depleting potential Impact of refrigerant	3	3	-		Where the building does not require the use of refrigerants within its installed plant or systems, or any off-site system it is connected to
Pol 02 NOx emissions	To contribute to a reduction in national NOx emission levels through the use of low emission heat sources in the building	2	1			Where the plant installed to meet the building's delivered heating and hot water demand has, under normal operating conditions, a NOx emission level (measured on a dry basis at 0% excess O ₂) less than 56 mg/kWh or less than 40mg/kWh for two credits
Pol 03 Surface water run off	Flood risk (1 to 2 credits) Surface water run-off (2 credits) Minimising watercourse pollution (1 credit)	5	3			Flood risk assessment
Pol 04 Not applicable						
Pol 05 Noise Attenuation	To reduce the likelihood of noise arising from fixed installations on the new development affecting nearby noise-sensitive buildings.	1	1	-		Where there are or will be no noise sensitive areas of buildings within 800 m radius of the assessed site
Total Pol		11	8		6.84%	
Total credits and score		130	90		70.20%/74.97%	

5. Conclusion

The new building at 145 Simeonovsko Shose Blvd has the potential to achieve a BREEAM 2016 International New Construction Rating of 'Excellent', subject to the provision of compliant evidence for the targeted and possible credit requirements. The development is expected to achieve a score of 70.20% by achieving all of the targeted credits. The threshold to achieve a BREEAM 2016 'Excellent' rating is 70%; the current targeted score is 0.20% above this threshold.

There are a number of credits highlighted in the list above as potential credits. The project team should investigate each of these to determine if they could also be included as targeted credits to further boost the score. It is recommended that a reasonable margin (approximately 5%) is targeted above the lower threshold to achieve an 'Excellent' rating ($\geq 70\%$) to mitigate some of the credits that may be lost due to unexpected constraints and to ensure that the development achieves the targeted rating. The development is expected to fulfil all of the necessary pre-requisites and minimum standards required to award an 'Excellent' rating.

A workshop should be set up for the project team to identify the credits and issues that require further investigation and consultation with other parties.

NEXT STEPS

Organise workshop with the project team to discuss potential credits and identify credits and issues that require further investigation
Collate evidence in line with the requirements listed the evidence required document.

