**REAL ASSETS** 

# **Sustainable Design Brief**

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Confidential



For today's investor

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### Introduction

The purpose of this Sustainable Design Brief is to promote and improve Sustainable Development, to standardise the approach to Sustainability across the development portfolio and to ensure that real estate funds deliver on the Sustainability KPIs.

We are looking for a concise way to improve standards. One that:

- Doesn't over burden the design team with process
- Focusses on results and achieving and measuring outcomes
- Embeds in existing processes

### Sustainability KPIs: Reported at Fund Level

The following KPIs are reported at fund level. This Design Brief has been developed to ensure that developments deliver against these.

- 1. Reduce carbon emissions from our real estate equity investments by 30% by 2025
- 2. Reduce energy intensity in our real estate equity investments by 10% by 2025
- 3. Create healthy, safe, fair and accessible employment for our customers, suppliers and communities

### **Design Standards**

These design standards cover all building types. Some building types will perform better than others on particular categories therefore it is important to treat projects on a case-by-case basis. If all targets and good practice goals are achieved the building will be zero carbon ready, and over time the targets will become tougher. It is expected that all buildings will have a high-quality green tariff in operation.

### Priority goals for achieving zero carbon:

1. Fossil fuel free development

#### 2. Achieve target Energy Use Intensity and have a CRREM stranding date of at least 10 years after PC

3. Achieve target Upfront Embodied Carbon Intensity

#### Table 1: Energy use intensity (based on GIA)

Туре	Minimum standard	Target
Offices	144 kWh/m2	
Retail - Shopping Centre	255 kWh/m2	100 kWb/m2
Retail – High street	111 kWh/m2	100 KWH/IIIZ
Industrials – conditioned warehouses	125 kWh/m2	
Industrials – unconditioned warehouses	60 kWh/m2 (whole building) 144 kWh/m2 (office area only)	40 kWh/m2 (whole building) 100 kWh/m2 (office area only)
Science Labs	500 kWh/m2	300 kWh/m2
Residential	70 kWh/m2	50 kWh/m2

#### Table 2: Wider environmental impact

	Minimum standard	Good practice
BREEAM	Excellent	Outstanding
Home Quality Mark (Residential)	HQM 3 stars	HQM 4 Stars
EPC	В	A A+ (Industrials)
Advanced energy modelling	Commercial: CIBSE TM54 Residential: Use benchmarks to estimate total energy consumption	Commercial: NABERS Design for Performance Residential: Passive House Planning Package (PHPP) or metering that allows for accurate operational energy monitoring and reporting
Upfront embodied carbon <sup>1</sup>	700 kgCO <sub>2</sub> /m <sup>2</sup> (Non-residential) 500 kgCO <sub>2</sub> /m <sup>2</sup> (Residential)	475 kg CO <sub>2</sub> /m <sup>2</sup> (Non-residential) 300 kg CO <sub>2</sub> /m <sup>2</sup> (Residential)
Biodiversity Net Gain <sup>2</sup>	Meet planning requirements set out by local planning authorities	Exceed planning requirements by 5%

<sup>1</sup> RICS A1-A5, using a RICS compliant methodology including all building elements including MEP and FFE and comparing against GIA. In some instances (depending on asset type and size of development) a BREEAM compliant LCA will be considered acceptable as an alternative.

<sup>&</sup>lt;sup>2</sup> Assets under REALTAF must meet good practice requirements (5% beyond planning) for biodiversity net gain.

### **Building energy systems**

### Table 3: Energy supply

	Minimum standard	Target
Energy supply	Fossil fuel free and low temperature heating (e.g. flow temperatures of 60°C)	Generate the annual energy requirements for equivalent of at least two floors of the development.
		Residential: 100% of available roof space to include solar PV
Refrigerant usage	Direct effect life cycle CO₂ equivalent emissions (DELC) of ≤1,000 kgCO₂-eq/kW	DELC of $\leq 100 \text{ kgCO}_2\text{-}eq/kW$
EV Charging	Install infrastructure to allow future EV charging	Infrastructure installed for 100% passive EV charge points. Active charge points installed to meet tenant requirements.

### Table 4: Achieving operational performance for all buildings, including domestic where appropriate

	Minimum standard	Good practice
Metering & data	Separate tenant meters for HVAC, lighting and small power in line with NABERS requirements	Energy model aligned with metering to allow fine tuning and optimization.
management	All developments to install an open protocol BMS system, that is accessible remotely by Aviva.	Domestic Hot Water metered separately
	In limited circumstances where a BMS is not appropriate, ensure an energy management system is installed to provide Aviva with remote access to energy consumption data from all sub-meters.	
	Data is logged and stored for 18 months.	
	Metering strategy in line with BREEAM Ene02 criteria 1-5 and linked to the BMS and accessible remotely by Aviva.	
Environmental quality	Data (such as temperature and CO <sub>2</sub> ) is logged and stored for 18 months.	BMS logs and stores air quality and light level data
		Air quality sensors installed in offices as per WELL v2 Air Quality Core preconditions.
Controls	Systems can be turned down when not needed without compromising efficiency (e.g. lighting and ventilation).	There are extended periods of times when the building operates passively.
	Buildings are zoned to ensure energy is only used when needed.	
	Enable Aviva to retain control over and set requirements for plant controls and sequences and tenancy set points.	
Enhanced commissioning	Schedule is in place for commissioning and recommissioning to appropriate standards.	Seasonal commissioning
	Meters are clearly labelled with serial numbers and end uses. Meter readings are verified (e.g. manual compared to half hourly, and cross-referencing meters).	
	Enhanced testing of building fabric including air tightness testing and thermographic survey	
Handover & verification	First two years of quarterly energy data broken down by end use is supplied to Aviva.	Soft landings and POE
	A simplified user guide is produced that outlines design intent and systems operation.	



### Social value and wellbeing

Table 5 - AVIVA Investors Social Value and Wellbeing supplement to the Sustainable Design Brief.

	Minimum Standard	Good Practice
Social Value	Social value requirements written into construction and operational contracts	Social value considered during design and during appointment of design team. Project aligned with UKGBC Framework for Defining Social Value
Wellbeing	WELL-Ready <sup>3</sup>	WELL Certified <sup>3</sup>
Assessment	Meet all WELL: Pre-conditions + 50 Optimisation credits / Fitwel: Strategy Requirements from Design and Construction elements, confirmed via tracker.	WELL Core Certification / Fitwel Design Certification for Shell&Core, Minimum WELL Silver / FITWEL Silver for Fully Fitted
"Affordable" space on-site (real estate assets only)*	Support a diverse range of retail and office unit sizes and tenures. % of affordable residential units or commercial space meet local planning	Use local needs analysis to inform affordable housing and workspace provision. Support a diverse range of retail and office unit sizes and tenures. % of affordable residential units or commercial space must exceed local planning requirements.
	requirements.	<b>Residential:</b> 20% rented dwelling units affordable (no more than 40% gross pay) for up those earning 50% of the local median income (LMI), 40% dwelling units' affordable units for 80% LMI.
		<b>Commercial</b> : If not stipulated by planning requirements, must be no less than 10% of total GLA. Affordable workspace rent $\pounds/m^2$ to be determined by discounting local market rent by 20%.
Community/public" Development reduces inequity in access space on-site* to high quality space. On site amenity, recreational and restorative spaces is	Include one publicly accessible space, located within the building, i.e. library, post office, public transit station or a publicly accessible lobby that includes seating, art or commercial space.	
	accessible to the public, where possible.	Occupation by small or independent retailers, particularly for essential services.
		Designated community or public space on site is equivalent to at 10% of the total proposed gross internal retail floorspace.
Green / Amenity space on-site*	Physical activity and/or mindfulness is considered when designing green spaces. Consider opportunities for sports, connecting with nature and meditation.	Include an outdoor space amenity that is free of charge to all regular occupants. Outdoor amenity space will include seating and shelter. Outdoor space of an area of at least 5% of the project interior area must be accessible to all regular occupants.
Air Quality	Indoor and outdoor air quality is considered as part of the design process.	Indoor and outdoor air quality will be monitored considered as part of <u>WELL</u> guidelines (see WELL Building Standard). Transparent and accurate air quality monitoring data will be publicly available.
Bicycle provision		Bicycle parking: is free of charge to all regular occupants, secure, and is sheltered or indoors. Bicycle parking meets demand of a minimum of 2.5 % of regular occupants.
Sustainable Transport Options		Encourage walking and cycling by creating safe routes, safe storage for bicycles, and comfortable showers and changing rooms.
Security and Safety		Create spaces that are well lit with good lines of sight from i.e. doorways to streets. Footpaths will be overlooked by neighbouring residential and retail.

<sup>3</sup> Applicable to Retail, Multi-residential, Offices, Offices with Laboratories. Industrial development must target to reference WELL/Fitwel standards in the Design.



### **Design Principles**

These principles will promote lower carbon emissions but may not be applicable in all situations.

### **Passive buildings**

Building should be designed so that they can run passively some of the time. The longer a building can run with little or no energy input the better.

#### **Table 5: Commercial Passive design**

	Good practice
Building fabric	Maximise insulation, air tightness and glazing specification
Glazing	Glazing ratio (based on floor area) is between 20% and 30%
Floor depths	7m (depth to enable daylight and natural ventilation)
Ventilation	Mixed mode and demand controlled
Lighting	Daylight sensing, with appropriate zoning and PIR linked to reduce energy consumption
Hot water	Minimise dead legs, specify low flow fittings, pipework insulation
Temperature set	Design to achieve 22C cooling but enable operation at 26C
points	Design to achieve 21C heating but enable operation at 19C
Lighting set points	Design for CIBSE/BCO with daylighting controls but enable operation at 20% output

#### **Table 7: Residential Passive design**

	Good practice
Building fabric	Maximise insulation, air tightness $(3m^3/(hm^3))$ and glazing specification $(1.0 \text{ W/m}^2.\text{K})$
Glazing	Glazing ratio (based on floor area) is between 20% and 30%
Form	Prioritise projecting balconies over inset balconies to reduce form factor and thermal bridges
Ventilation	Cross ventilation and secure night time purge if possible. MVHR provides consistent background ventilation. Carry out TM59 analysis on a sample of dwellings at greatest risk of overheating.
Construction Details	Accredited thermal bridging
Hot water	Minimise dead legs, specify low flow fittings, pipework insulation, and waste water heat recovery

### **Power management**

• Identify opportunities for battery storage and load shedding.



### Low impact materials

The embodied impacts of a development can be reduced by considering the carbon impacts of design and material decisions. Efficiency in material use can reduce cost as well as environmental impacts.

Table 8: Material considerations an	d embodied carbon impact
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Building elements	Embodied carbon impact	Suggestions and Considerations
Substructure	High	Consider avoiding basements and atriums Use high cement replacement Use local aggregates
Frame	High	Use efficient frame structures, avoid cantilevers where possible Facilitate steel re-use and high recycled content steel
Facade	Medium	Avoid using brick slips and fully unitized glazing systems. Pre-cast concrete, handset brick and aluminum rainscreen with SFS backing Aim for 20-30% glazing ratios based on floor area Consider using reclaimed / recycled materials i.e. aluminum, steel, bricks Design for deconstruction
Building services	High/ medium	Select equipment for longer lifetimes and lower weight Low impact refrigerants such as water and CO <sub>2</sub> Ensure careful refrigerant management especially when using VRF Easy access for inspection, maintenance and replacement
External works (m² dependent)	Medium	Reclaim demolition material- splitting bricks used as pavers Use natural materials Avoid plastics Recycled/local sub-bases
Internal finishes	Low	Avoid raised access flooring or reuse where necessary Reduce material intensity i.e. use exposed surfaces
Furniture	Low	Use of natural materials including wood, stone

### **Minimum BREEAM credits**

## Specific credits must be targeted for BREEAM to meet the requirements for Article 8 funds and support improvements in GRESB scores.

The table below outlines the credits that should be targeted as a minimum, along with supplementary requirements to demonstrate alignment with the EU Taxonomy<sup>4</sup>.

#### **Table 9: Minimum BREEAM credits**

Credit	Supplementary requirements
Man 03 – Responsible construction practices	Measures are taken to reduce noise, dust and pollutant emissions during construction or maintenance works
Man 04 – Testing and inspecting building fabric	For buildings larger than 5,000m <sup>2</sup> carry out enhanced testing of building fabric including air tightness testing and thermographic survey.
Hea 02 – Indoor air quality	Internal surfaces exposed to occupiers must meet technical specifications for emissions for indoor air quality
	Building components and materials used in the construction that may come into contact with occupiers emit less than 0.06 mg of formaldehyde and less than 0,001 mg of other categories 1A and 1B carcinogenic volatile organic compounds per m <sup>3</sup> of material
Hea 04 – Design for future thermal comfort	-
Ene 01 – Energy Performance	Achieve the minimum number of credits for a BREEAM Excellent rating, and where targeted BREEAM Outstanding.
	Demonstrate a 10% improvement upon Part L 2021 for CO <sub>2</sub> and Primary Energy Demand (PED). Major renovations may alternatively demonstrate a reduction of PED of at least 30%.
Ene 04 – Low and zero carbon technologies	Test the feasibility of high efficiency alternative energy systems. Fossil fuels should only be used if necessary for back up energy generation.
Wat 01 – Water consumption	Wash hand basin taps and kitchen taps have a maximum water flow of 6 litres/min;
	Showers have a maximum water flow of 8 litres/min;
	of 6 litres and a maximum average flush volume of 3,5 litres
	Urinals use a maximum of 2 litres/bowl/hour; flushing urinals have a maximum full flush volume of 1 litre.
Wat 02 – Water monitoring	-
Mat 01 - Environmental impacts from construction products – Building life cycle assessment (LCA)	For buildings larger than 5,000m² carry out a life cycle carbon analysis looking across all life stages
Mat 06 – Material efficiency	-
Wst 01 – Construction waste management	At least 70 % (by weight) of the non-hazardous construction and demolition waste generated on the construction site is reused, recycled or recovered

<sup>&</sup>lt;sup>4</sup> For further details on requirements for Article 8 and 9 funds, please see the EU Taxonomy calculator relating to the construction of new buildings: <u>https://ec.europa.eu/sustainable-finance-taxonomy/activities/activity/223/view</u>



Wst 05 – Adaption and responding to climate change	A climate risk and vulnerability assessment has been performed to identify material physical climate risks. The vulnerability assessment should be:
	<ul> <li>Scaled appropriately for the investment (time and cost)</li> <li>Based on best-practice (see UKGBC Framework for Climate-related Physical Risks<sup>5</sup>) and state-of-the-art science for vulnerability and risk analysis.</li> </ul>
	The adaptation solutions should:
	<ul> <li>not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities;</li> <li>favour nature-based solutions;</li> <li>rely on blue or green infrastructure;</li> <li>be consistent with local, sectoral, regional or national adaptation plans and strategies;</li> <li>be monitored and measured against pre-defined indicators and</li> <li>Consider remedial where indicators are not met;</li> </ul>
Wst 06 – Design for Disassembly and Adaptability	Building designs and construction techniques support circularity and demonstrate the disassembly or adaptability of buildings, with reference to ISO 20887(297) or other standards.
LE 01 – Contaminated land	Where the new construction is located on a potentially contaminated site (brownfield site), the site has been subject to an investigation for potential contaminants, with required remediation of the site carried out
LE 02 – Survey and Evaluation	BREEAM compliant site survey to confirm development is not on:
	<ul> <li>farm land with a moderate to high level of soil fertility and below ground biodiversity,</li> </ul>
	<ul> <li>greenfield land of recognised high biodiversity value and land that serves as habitat of endangered species;</li> </ul>
	land defined as forest.
	Set out appropriate solutions and measures to ensure the chosen option has long term feasibility and successful implementation
LE 03 – Determining ecological outcomes	The hierarchy for managing negative impacts on site is followed for site preparation and construction works e.g. mitigation measure to protect existing ecological features
LE 04 – Change and enhancement of ecology	Locally relevant ecological measures have been implemented that enhance the site's ecological value e.g. bird/bat boxes, planting of ecologically appropriate species
Pol 03 – Flood resilience	A climate risk and vulnerability assessment has been performed to identify material physical climate risks.

<sup>&</sup>lt;sup>5</sup> UKGBC, A Framework for Measuring and Reporting of Climate-related Physical Risks to Built Assets: <u>https://ukgbc.org/resources/a-framework-for-measuring-and-reporting-of-climate-related-physical-risks-to-built-assets/</u>

### **Contact Details**

### **United Kingdom**

Trevor Keeling, St Helens, 1 Undershaft, London EC3P 3DQ <u>trevor.keeling@avivainvestors.com</u>

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