Grosvenor sustainable fit-out guide

Part 2:

Technical fit-out guide for occupiers

GROSVENOR

Introduction

Welcome to Grosvenor's Technical Fit-out Guide.

The purpose of the Sustainable Fit-out Guide is to provide guidance on fit-outs for retail, leisure, or office occupiers. There are two documents that make up the Sustainable Fit-out Guide:

1. **General Fit-out Guide** – This is to be read by the tenant and explains the processes and approval steps you need to follow to complete your fit-out as well as offering recommendations to make your fit-out as sustainable as possible. Click here to read the General fit-out Guide.
2. **Technical Fit-out Guide** – This is to be read carefully by the design team and contractors undertaking the fit-out. It provides a summary of the Grosvenor Specification and offers recommendations to help improve the sustainability of your fit-out.

It should be noted that these documents are intended to provide practical guidance, and that in all instances the terms of the Lease, Licence to Alter or the Grosvenor Specification takes precedence.

Should there be any doubt as to its interpretation of this fit-out guide, the decision of Grosvenor shall be final.

Why have we provided this guide?

Mayfair and Belgravia are historic neighbourhoods that we at Grosvenor have helped steward over the last 340 years. This guide is designed to help protect and maintain the look and feel of these iconic locations as well as contribute to creating positive social and environmental impact.

We want to support you in making your fit-out more environmentally and socially sustainable by:

1. Reducing waste
2. Reducing energy use
3. Improving accessibility and inclusivity
4. Improving wellbeing of staff and customers

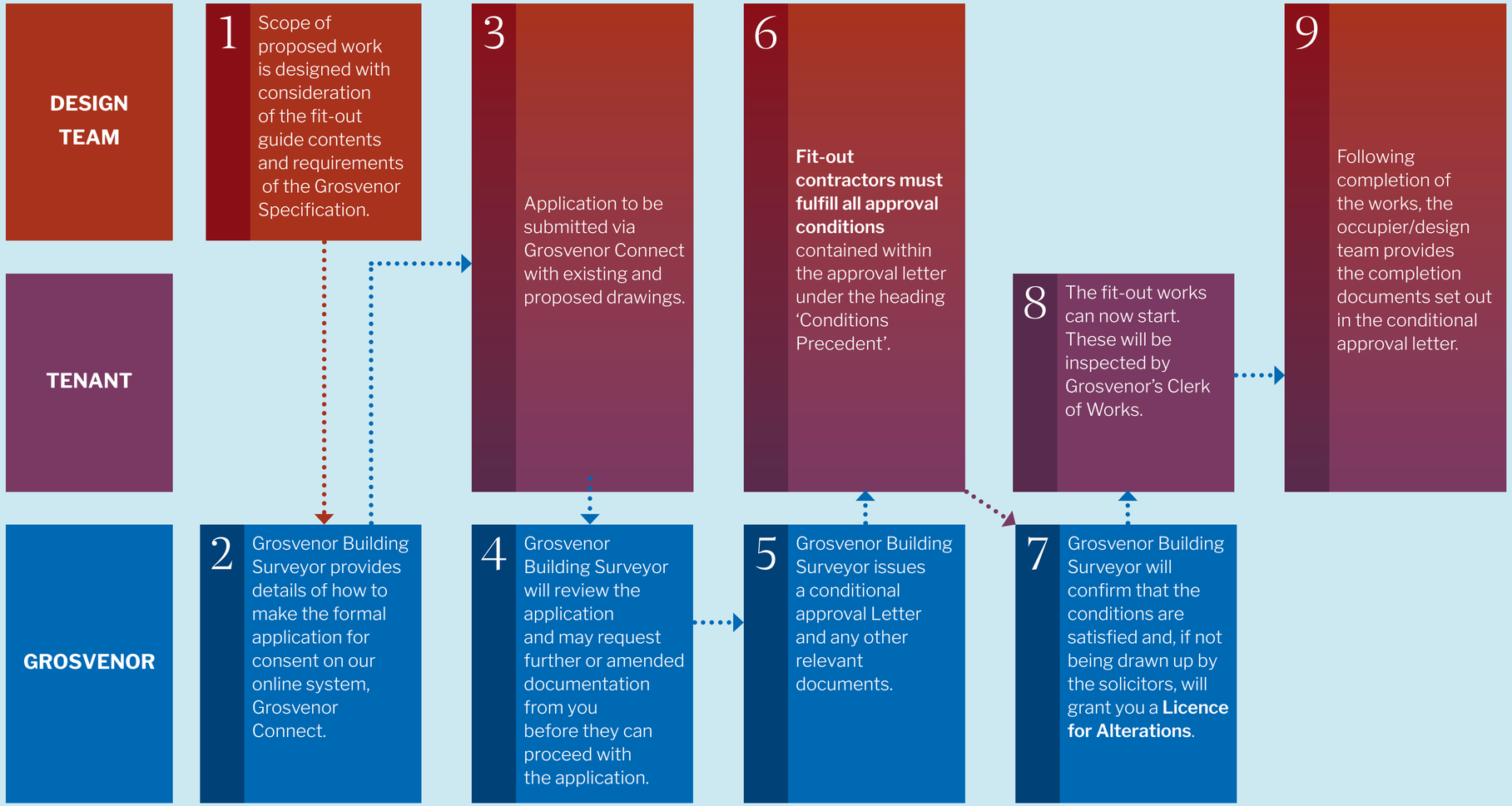
To find out more about Grosvenor's strategic targets to achieve our environmental goals and how Grosvenor supports the needs of communities follow the links below:

Zero Carbon (grosvenor.com)

People Positive (grosvenor.com)

2 The Fit Out Process

In order to start your fit-out you will need to go through the following approval steps:



Please note that works to the unit can only commence once the approval conditions of the application have been satisfied.

Conditions

Grosvenor's formal consent is required for many works you are likely to design for your client. It is important you read the Grosvenor Tenant Sustainable Fit-Out Guide carefully outlining which works require formal consent. The process you are required to follow to obtain this consent is displayed above.

Please note, **all conditions set out in the approval letter issued to the tenant (subject to contract) must be fulfilled before any works can commence on site**. Your client may ask you to provide some of the information requested by Grosvenor to fulfil these required conditions.

Grosvenor shall have the right of access to the premises at all reasonable times for the purpose of inspecting the works being carried out and to all site drawings and details. They shall have the right to have any of the works opened up for inspection if it is considered that faulty or defective materials or workmanship have been used.

3 Delivering the fit-out

The following sections outline some of the key requirements that you need to follow as well as some sustainability targets and recommendations to help ensure the fit-out is as sustainable as possible.

3.1 Materials and Finishes

The materials and finishes used in the fit-out play an important role in the look, feel and sustainability of the unit.

Quality of materials and workmanship

All materials and workmanship shall be the best of their respective kinds in accordance with good current practice. They shall comply with the latest edition of the relevant British Standards Specification or Code of Practice or be subject to independent certification by the Building Research Establishment (BRE).

Durable materials should be used in areas of high pedestrian traffic such as main entrances, public areas and circulation spaces, and doors and walls should be suitably protected.

Although specification of reused materials is favoured, this will not always be feasible. Materials specification should consider:

- Local procurement (financial, carbon and social benefits)
- Low carbon materials (with a high recycled content) or renewable materials (i.e. from natural sources such as wood, plant fibres and bio-based materials), with a third party Environmental Product Declaration (EPD)
- Responsible manufacturers, with a third party responsible sourcing certification
- Healthy materials, with a third party low toxin and volatile organic compound (VOC) certification.

Sustainability recommendation:

Quality of materials and workmanship:
Aim to use materials as efficiently as possible. Wherever possible obtain reused materials and products or those with certified high recycled content. Avoid plastic products and ensure all products are low VOC and sourced responsibly. Refer to Best practice case studies.

Soil and Waste Pipes

External soil and anti-siphonage pipes, where permitted, are to be of cast iron of L.C.C. pattern and weight in accordance with BS 416-1: 1990 and BS 460: 2002+A2:2007 with caulked lead joints and eared sockets. PVC will be permitted internally if encased in insulating and fire resisting materials. Flexible jointed cast iron piping will be permitted internally only if there is full access available to bolted connections and rodding eyes. Overflow and warning pipes serving water tanks, cisterns, etc. must not discharge onto or overhang adjoining properties. All soil and waste pipes are to be kept within the building with any connections being kept as short as possible.

Rainwater Pipes and Eaves Gutters

Rainwater pipes and eaves gutters are to be in cast iron with eared sockets or in aluminium except on rear elevations of non-listed properties where, subject to written approval, black uPVC may be used. All rainwater pipes should be kept 50mm clear of walls but must not discharge onto or overhang adjoining properties.

Plastering

The internal plasterwork is to be not less than two coats and finished in the best manner. Walls and partitions must be plastered to the full thickness behind the skirtings except at basement or ground floor level, where a gap is to be left to provide a break between the damp proof course and the wall finish. Lightweight and vermiculite- plasters are not to be used on external, basement, ground floor or party walls.

Flooring on Timber Joists

In Listed Buildings and, subject to Listed Building Consent being granted, any new flooring on timber joists is to be the best quality 22mm (finished) tongue and groove softwood or 19mm (finished) hardwood. Elsewhere 19mm tongue and groove plywood (marine ply in kitchens, cloakrooms, and bathrooms) in accordance with BS EN 36:2012 + A1:2015, with access panels for services, may be used but chipboard and waferboards are not permitted.

Acoustic Insulation

Where residential apartments adjoin the property, sound insulation to the party wall/floor is to be at least to the standard required by the Building Regulations for new construction.

Painting

The internal and external wood, iron and other work usually painted is to have at least two coats of paint after priming. The finishing coat for external work is to be in high gloss. Previously painted stucco or cement rendering is to be finished to match British Standard Colour 08B15, gloss finish. No paint or staining is to be applied to facing brickwork, stonework, or terracotta. Metalwork, ironwork, and front doors are to be painted high gloss black and window joinery high gloss white unless approved otherwise in writing. The use of Keim paint or similar products will only be permitted where large areas of an elevation have been re-rendered and only on the condition that the elevation is redecorated with gloss paint at the next external redecoration cycle.

Sustainability recommendation:

Plastering: *Consider bio-based alternatives to traditional plaster, e.g. biodegradable and non-toxic lime plaster, which is a traditional, breathable material so a suitable breathable paint must be used.*

Sustainability recommendation:

Flooring and timber joists: *Consider using reused timber flooring. If new specification is required, FSC or PEFC certified and where possible 'Grown in Britain' licencing should be achieved. For plywood, assuming previous requirements are met, the chosen flooring has been reused from a previous project. If this cannot be achieved, no or low VOC specification (i.e. non-toxic adhesive in manufacturing) must also be prioritised. Refer to Additional resources and case studies for further guidance.*

Sustainability recommendation:

Painting: *Consider the specification of paint based on natural materials or with a high percentage of recycled content. A no or low VOC product (i.e. non-toxic paints) should be prioritised. Please note, lime plaster is a traditional, breathable material so a suitable breathable paint must be used.*

3.2 Waste

Waste generated from strip out, construction (including over-ordering), demolition and excavation accounts for 60% of the total waste generated in the UK. Therefore, considerate waste management is important during the fit-out.

Removing old materials

Compressors, generators and percussion hammers may only be used with prior consent. Where plaster is to be removed from pre 20th Century brickwork, this is to be carried out by hand only using hammer and bolster. The occupier shall always ensure that any adjacent roadway is kept clear of mud, rubbish, and other debris. Any waste generated should not be stored or dumped on the premises or pavement outside. The burning on site of waste materials is not permitted.

How to prepare a fit-out waste management plan:

N.B. Grosvenor requires a Fit-Out Waste Management Plan for works costing over £300,000 and it is recommended for all fit outs regardless of size.

- The Waste Hierarchy should be used to identify opportunities to eradicate waste. A reuse audit should be prepared if any existing materials will be stripped out.
- Identify key areas of waste production during the fit out and include opportunities and targets to reduce this waste (e.g. trading strip out waste for reuse on or off-site).
- Appoint a waste champion responsible for site waste management, reduction, and training of the workforce to implement waste management procedures including:
  - Reduction of movements to/from site (e.g. consolidation centres, local suppliers)
  - Provision of waste storage space (to protect from damage + allow reuse) and segregation requirements (e.g. key waste groups)
  - Use of suppliers who agree to take back any unused, excess products or materials
  - Use of suppliers with zero packaging, reusable packaging, or biodegradable packaging (or work with them to reduce packaging).
- Consider Construction Waste Management Technology to allow calculation and reporting of quantities of waste arising quantities accurately. If you need assistance with finding a provider of this service a member of the Grosvenor team may be able to advise.

The Fit-Out Waste Management Plan should include minimum requirements, aspirations, and targets, for all procurement decisions to be reviewed against, which should consider the targets below:

Recommended Fit Out procurement and waste targets:

Procurement and waste targets	Good practice (target)	Best practice (stretch target)
Reuse of products	10% by material cost	30% by material cost
Recycled content	20% by total material tonnage	50% by total material tonnage
Resource efficiency	≤ 3.2 tonnes waste per 100m^2 (GIA)	≤ 1.2 tonnes waste per 100m^2 (GIA)
Diversion from landfill	98% fit-out waste diverted from landfill	Zero waste sent to landfill

Sustainability recommendation:

Removing old materials: *When removing old materials ensure hazardous materials are managed in accordance with best practice and regulations (asbestos, lead, PCBs) and all waste is managed by a zero waste to landfill waste management facility.*

3.3 Heating and electricity

The built environment is responsible for 36% of all energy consumption, 38% energy related carbon emissions and 50% of resource consumption globally. Good design along with high quality and sustainable energy consuming components will reduce energy consumption and associated costs.

Electricity and Gas Installations

These must be put into and left in a good safe state of repair on completion of the works and test/commissioning certificates are to be obtained for new and amended installations. Fees may be payable by the tenant for Grosvenor's Facilities Management contractor or checking engineer to evaluate the proposals; undertake some, or all the works including any necessary validation and commissioning. All works will need to be coordinated with the relevant Grosvenor Property Manager. Where landlord's riser ducts are located within the demise, the works shall be carried out to ensure suitable access is always maintained to these.

Heating and Hot Water Installation

Any new or adapted heating installation must not overheat the flue or cause danger to adjoining premises. Boiler flues must not discharge through the front or side elevations or across light well pavements and the installation must be installed in accordance with the requirements of the appropriate statutory authority. All heating systems shall include controls to provide frost protection and a minimum level of heating within the building. Plastic (polybutylene only) piping systems for hot and cold-water services and heating installations may be used provided the materials comply with BS 7291-2:2010 and the system is installed in accordance with BS 5955-8:2001.

Pipe Ducts

Where practicable, all mains are to be collected and carried up and down in fire resisting pipe ducts having access doors to valves, etc. The ducts are to be sealed to retain fire resistance to all floor levels. Pipes shall only be laid in solid floors if properly ducted.

Product	Good practice (target)	Best practice (stretch target)
Lighting (LEDs)	70-90 lm/W	110-120 lm/W
Lighting (Controls)	Zoned automated timers (movement control + daylight control)	Lower overhead illuminance and with staff awareness training to turn off lighting
Heating and cooling (Systems)	Design to achieve natural or mixed mode ventilation Do not locate cooling units near warm places, such as cooking areas and areas of direct sunlight. Closed door policy [1]	Consult a MEP specialist to evaluate and specify: Free cooling opportunities (e.g. shading, chilled ceiling systems) Efficient equipment (e.g. ASHPs) Building controls Heat recovery ventilators
Building Energy Management System (BEMS)	All building services equipment, including cooling units, heating systems, ventilation fans and artificial lighting should be controlled by a central programmable time clock or local building management system.	
Energy Efficient Appliances (EU Energy Efficiency Label Targets 2021)	B	A
Cooking appliances + refrigeration	100% electric (zero gas supply) Refrigeration systems to achieve Code of Conduct for carbon reduction in the refrigeration retail sector, Carbon Trust	Design/fit-out to follow CIBSE Guide TM50 Energy efficiency in commercial kitchens All refrigerant parts sourced from ECA ETL [2]

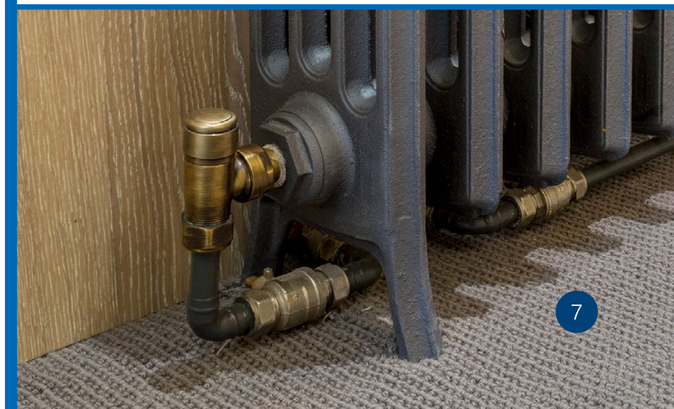
1 Close the door: Retailers
2 Energy Technology List (ETL) – GOV.UK (www.gov.uk)

Sustainability recommendation:

Electricity and gas installations: *All installation works should ensure the asset EPC rating is maintained or improved. Where possible we strongly recommend removing gas and only using as a last resort in your unit. Switching to LEDs and using energy control measures can reduce business energy demand by 75%. Equipment to improve the energy efficiency of the unit are recommended in the table opposite.*

Sustainability recommendation:

Heating and hot water installations:
New heating or hot water installations are recommended to be separately metered via BEMS where provided in the building.



3.4 Water and other services

The scarcity of water is a serious issue, as many countries around the world face severe shortages and compromised water quality due to global climate change. The equipment and services installed in the fit out can contribute to efficient water usage.

Water and drainage installations

Water and drainage installations must be put into and left in a good safe state of repair on completion of the works and test certificates are to be obtained for new and amended installations. Pumped drainage installations are not permitted.

Recommended Water Efficient Sanitaryware

Product	Good practice (target)	Best practice (stretch target)
Dual flush toilets (effective flush volume)	6/3 dual flush (3.75 EFV)	4/2.6 (2.95 EFV)
Urinals (litres/bowl)	1.5	Waterless
Wash Hand Basin taps (litres/min at 5 bar pressure)	4	2
Showers (litres/min at 5 bar pressure)	9	6
Domestic sized dishwashers (litres/cycle)	10	6
Kitchen taps (litres/min at 5 bar pressure)	6	4.5
Waste disposal units	Waterless	Waterless
Commercial sized dishwashers (litres/rack)	3	2

If existing sanitaryware is in good condition, it is encouraged this is retained (to reduce embodied carbon impacts of the fit out). Retrofitting devices to reduce water demand can be used to reduce water consumption instead, i.e. specifying:

1. Flow restricting valves
2. Tap inserts to convert to spray/aerated flow
3. Sensor activated taps
4. Low flow showers/showerheads
5. Proximity detection (e.g. PIR) devices to urinals or toilet areas to restrict flow.

Sustainability recommendation:

Water and drainage installations: *All fit out works are recommended to assess any changes to water consuming systems to allow the asset to achieve BBP's good practice water intensity benchmark (397 litres/m² NLA /year).*

Where sanitaryware is being selected as part of the fit out works it is recommended water efficient fittings are selected, as presented in the table opposite.

You should try where possible to install filtered water taps rather than purchasing bottled water for drinking.

3.5 Lifts

If the unit has a lift or it is intended to install a lift, the guides, machinery or supports for the working of the lifts are not to be placed in contact with the walls adjoining a neighbouring building and the installation is to be adequately insulated to prevent transmission of any noise and/or vibration.

Any lift installed should be able to accommodate wheelchair users and any modifications to existing lifts must not inhibit wheelchair access.

3.6 If the property is located in a Private Mews

All works in private mews shall comply with the requirements of the current versions of the document entitled 'Regulations for Working in Grosvenor's Private Mews'.

3.7 If the property has a private Forecourt

Any private forecourt is to be paved level with the adjoining pavement with a material to be approved. The junction of the public way with the private forecourt is to be defined by a brass strip or studs.

3.8 The practical delivery of the fit-out

Hoarding and Scaffolding

If the proposal includes hoarding, the minimum requirement is that it will be 2.4m in height, painted in British Standard colour Magnolia 08B15 and constructed of materials and in a form to be approved by Grosvenor. Statutory notices may be exhibited but all other signs, advertisements and posters on hoardings, screens or scaffolds are prohibited. Proposals for hoarding to advertise the tenant's forthcoming occupation must be submitted for prior approval to the relevant Grosvenor Building Surveyor and/or local council. It is important that the hoardings are kept as neat and tidy as possible and washed down to ensure a clean appearance.

Hours of Work

The permitted hours of work are as follows:

Weekdays:	8.00am to 6.00pm
Saturdays:	8.00am to 1.00pm (no noisy works)
Sundays and Public Holidays:	No work of any kind.

Sustainability recommendation:

Lifts: *Lift manufacturers should be asked to provide energy consumption calculations in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks and energy efficient features such as lift standby controls, LED lighting and displays and variable speed, variable voltage and variable frequency (VVVF) should be specified.*

Sustainability recommendation:

Private forecourts: *The surface of the forecourt should be smooth and slip-resistant to accommodate a wide range of disabled people. Vehicle drop-off/pick up should also be considered in forecourts to ensure ease of access for disabled people.*

Sustainability recommendation:

Hoarding and scaffolding: *Wherever possible obtain reused hoarding and scaffolding. All timber is recommended to be FSC or PEFC certified. Consider how the hoarding is affecting footways, especially for disabled people or people with pushchairs. Please check the footway width between the hoarding, sign poles and street furniture. If the footway must be blocked off, provide temporary ramps to create a continuous step-free route around the blockage.*

3.9 The staff and customer's wellbeing

Each fit out has the potential to create long term social impact and wellbeing for the local community where it is based. Contractors are encouraged to employ apprentices in the fit-out and source materials/products from local, SME or social enterprises. At Grosvenor we use our Supply Chain Charter to ensure that our suppliers align with our sustainability and ethical values, you can view it here.

Healthy spaces can enhance wellbeing and productivity of the occupiers of the space. All fit out projects are recommended to consider improved staff and customer wellbeing outcomes as shown in the table below:

Topic	Good practice (target)	Best practice (stretch target)
Biophilic design	Specify plants to purify air quality [5] along key circulation routes and in dwelling spaces Specify materials with patterns, colours and textures that mimic nature	Design fit-out interiors to achieve Terrapin Bright Green's 14 Patterns of Biophilic Design [6]
Visual comfort	EN 12464-1 compliant lighting design Use light coloured finishes to diffuse daylight Design lighting to support customer wellbeing	Introduce skylights or light boxes to increase natural daylight into spaces or use circadian lighting to mimic natural light patterns
Ventilation	Replace and clean media filters accordance to O&M guidance (quarterly inspections) Specify healthy materials (as per section 4.2.2)	Monitor indoor air quality (SMART controls) with a metering specialist
Thermal and acoustic comfort	Promote natural ventilation (if an opportunity in the building) Acoustic design and control to allow for occupant comfort	Design zoned thermal areas to allow for different functions and uses within the space
Amenities	Strong WiFi and mobile coverage throughout the building.	Ergonomic furnishing

5 BBP Responsible fit-out toolkit – Air purifying indoor plants: https://www.betterbuildingspartnership.co.uk/sustainable-fit-out-toolkit/requirements-brief/green-infrastructure

6 http://www.terrapinbrightgreen.com/wp-content/uploads/2012/06/Economics-of-Biophilia_Terrapin_2015p.pdf

3.10 Accessibility and inclusion

Opportunities to improve the accessibility of the unit should be carefully considered as part of the fit out. There are 1.8 billion disabled people globally with a consumer spending power of $13 trillion.

Overall, the accessibility of the fit out works should consider, as a minimum:

1. Corridors and facilities wide enough to accommodate wheelchairs.
2. Step free access to the main entrance and all floors of the building.
3. Fire exit strategy.
4. Inclusive design favoured over adaptive design.
5. And additionally: Preparation of an accessible design strategy early in the design process to include the needs of a wide range of users, including people with sensory and cognitive impairments and people with mobility impairments, including wheelchair users. This could also include providing baby change facilities separate to, or in both gender WCs.
6. Wayfinding strategies that help individuals intuitively navigate through the project including signage and any information systems.
7. Safety strategies that support easy access to all spaces and amenities and improve the sense of safety and comfort, such as lighting and clear sightlines. Ensure everyone, including disabled people, are considered within the evacuation strategy for the building.
8. Establish measures to mitigate inherent barriers to access which cannot be addressed within the constraints of the building. For example, provide a portable ramp and a bell to call for assistance where there is no obvious solution to steps at the entrance. Additionally, the choice of location and the features of the door entry call panels must consider a wide range of disabled people's needs, including wheelchair users and people of short stature, as well as people with vision impairments and hearing aid users.

Please see Additional Resources for ways to incorporate accessible design into the fit out.

Please note: Additionally, if during the scope of alterations to the building the accessibility and inclusivity is not improved from the original building, then according to the Equality act 2010 mitigation measures should be implemented, such as a portable ramp.

Glossary

BEMS — BEMS technology (Building Energy Management System) is a system of hardware and software which allows you to monitor, analyse, and most importantly, control your business's energy consumption.

British Standard Colour 08B15 — A specific shade of magnolia required by Grosvenor.

British Standards Specification — British Standard refers to the specification of recommended procedure, quality of output, terminology, and other details, in a particular field making a product, managing a process, delivering a service or supplying materials. These standard specifications are distinguished through a numbering system, for example: BS 416-1:1990.

Building Research Establishment — BRE – is a centre of building science in the UK and provides, advise, training, testing and certification.

Code of Practice — A document that complements occupational health and safety laws and regulations to provide detailed practical guidance on how to comply with legal obligations.

Energy Use Intensity (EUI) targets — This expressed the building's energy use as a function of the building's size or other characteristics.

EPC — Energy performance Certificate that measures the energy efficiency of a building or unit.

FSC — Forest Stewardship Council (FSC). Wood that has FSC certification is the best type of wood that you can use for your wooden projects. FSC certification is the best indicator that the wood that you are using was harvested sustainably.

Grosvenor Partner Handbook — Grosvenor's guidance literature for tenants, demonstrating Grosvenor's recommendations.

L.C.C. — A type of cast iron pipe.

low VOC — VOC stands for volatile organic compound. If a product is described to be low VOC it means that its VOC content is, 150g/L or less.

PCBs — Polychlorinated biphenyls – highly carcinogenic chemical compounds, formerly used in industrial and consumer products.

PEFC — Programme for the Endorsement of Forest Certification endorse national forest certification systems that have been developed through multi-stakeholder processes and tailored to local priorities and conditions.

PIR — Passive infrared sensor.

Tongue and Groove — Tongue and groove is a method of fitting similar objects together, edge to edge, used mainly with wood, in flooring, parquetry, panelling, and similar constructions. Tongue and groove joints allow two flat pieces to be joined strongly together to make a single flat surface.