

London Borough of
Hackney

Sustainable Design and
Construction
Supplementary Planning
Document

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Sustainable Construction and Design Glossary

ALGG	All London Green Grid
ASHP	Air Source Heat Pump
BAP	Biodiversity Action Plan
BER	Building Emission Rate
BMS	Building Management System
BRE	Building Research Establishment
CfSH	Code for Sustainable Homes
CHP	Combined Heat and Power
CLT	Cross Laminated Timber
COP	Coefficient of Performance
CPET	Central Point of Expertise on Timber
DHN	District Heat System
ECO	Energy Company Obligation
FSC	Forestry Stewardship Council
g- Value	Solar energy transmittance of glass
GPDO	General Permitted Development Order
GSHP	Ground Source Heat Pump
GWP	Global Warming Potential
LED	Light Emitting Diodes
MHRV	Mechanical Heat Recovery Ventilation
NPPF	National Policy Planning Framework
ODP	Ozone Depleting Potential
PV	Photovoltaic
RES	Renewable Energy Source
SuDS	Sustainable Urban Drainage System
SWMP	Site Waste Management Plan
TER	Target Emission Rate
TRV's	Thermostatic Radiator Valves
u values	Heat transfer co-efficient
y value	Thermal bridging factor
VOC	Volatile Organic Compounds

Foreword Cllr Nicholson

The Council is committed to achieving high quality sustainable development in the borough of Hackney. It is the experience of the Council that developers often consider sustainability after and not as part of the initial design process. It is therefore the intention of our Sustainable Design and Construction SPD to ensure that all developments that come forward achieve a high design standard which ensures a high quality experience for the people that will be using and occupying the buildings for many years to come.

This SPD is intended to provide guidance on how sustainable design and construction can be embedded into development in Hackney. It has multiple audiences - the public, developers and those submitting planning applications. It articulates the issues that have been judged to be the most important matters that should be taken into account and incorporated into any scheme in order to maximise sustainable design in future developments within Hackney.

The objective of this SPD is to provide well designed buildings with sustainability measures incorporated up-front, that will provide carbon and financial benefits throughout the building's lifetime.

Introduction

Hackney's Approach to Sustainable Design and Construction

Sustainable development can be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (the Brundtland Commission report (1987), *Our Common Future*, Oxford University Press). The overarching aim of this Supplementary Planning Document (SPD) is to enable people to adapt to climate change, resource depletion and environmental damage, and where possible to improve their health and wellbeing. This can be achieved through reducing energy and resource use, decreasing pollution, increasing biodiversity and through applying best practice standards to the built environment to facilitate climate change adaptation.

This SPD is intended to provide guidance on how sustainable design and construction can be embedded into development in Hackney. It has multiple audiences - the public, developers and those submitting planning applications. It articulates the issues that have been judged to be the most important considerations that should be taken into account and incorporated into any scheme in order to maximise sustainable design and carbon reduction in future developments within Hackney.

This SPD is not intended to be prescriptive. It provides strategic level guidance as a starting point for discussion between the applicant's design team and the Council.

This SPD sets out possible design options. The opportunities to reduce carbon range from simple to technically complex and from low to significant cost. Choices of interventions are available and some which have not been listed will still be appropriate for the specific requirements of a new development. The intention of this SPD is to ensure well-designed buildings with sustainability measures incorporated up front, that will provide carbon and financial benefits throughout the building's lifetime.

The use of high quality, high specification materials which adapt and mitigate for climate change is a design issue. This is reiterated in the Council's sustainable design-led approach.

Hackney is seeking to mainstream sustainability in the developmental design process, rather than it being a consideration after plans have been finalised. Hackney is therefore asking developers to frontload sustainability into the design process. It is intended that this document and the technical appendices be used by all parties involved in the development process, from initial design through to construction and final delivery of the building.

Policy Update January 2016

Since this document was taken to Cabinet for approval for consultation in May 2015, the Council has received the Planning Inspectorate's report on Hackney's Development Management Local Plan ("DMLP"). Within this report the Inspector recommended modifications to the Council's Energy and Sustainability policies to take into account the recent signposting of the Government's upcoming policy changes in regards to energy standards and amendments to the Energy Act as set out in the Department for Communities & Local Government ("DCLG") Ministerial Statement (March 2015). The Chancellor has also outlined, within the July 2015 Budget, a number changes that may also require amendments to this document.

As such, Hackney Council local policy now requires carbon emissions reduction in line with the Building Regulations. The Council no longer requires Code for Sustainable Homes assessments to be carried out and will not pursue a Zero Carbon Standard. However, the existing energy and carbon polices contained within the London Plan still apply. These include, and are not exclusive to, Policy 5.2 and the GLA's Guidance on preparing Energy Assessments 2015. Full details of the requirements are set out within the London Plan Sustainable Design and Construction SPG:

<http://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/sustainable-design-and>

Existing standards for non-residential major developments are still required to be achieved in line with policies set out within Hackney's DMLP.

The below summarises the legislative changes that are expected to be enacted in October 2016 and the implications for policy:

- All residential development (minor and major) will be required to meet the energy standards set out in Building Regulations Part L 2013.
- The Code for Sustainable Homes will not be required for new planning applications.
- The Government will no longer be pursuing the Zero Carbon Standards on domestic development, and the Allowable Solutions Framework will not be enacted.
- Energy Standards within Building Regulations (Part L) will no longer be updated in 2016.
- Standards for non-domestic developments will remain.

Policy Context

The National Planning Policy Framework (NPPF)¹, the London Plan² and the Mayor of London's Sustainable Design and Construction³ Supplementary Planning Guidance set out specific priorities in sustainable design and long-term climate change targets for London as a whole in order to meet national carbon reduction targets, while taking into account the outcome of the Housing Standards review.

In 2014 DCLG issued the Housing Standards Consultation⁴. The intention of the review was to streamline current legislation and standards and ensure that one standard is applied across the country. The following legislative amendments have since been issued by the government and are expected to be adopted in October 2016:

- All Energy and Sustainability standards will be set at a national level and Local Authorities will not be able to exceed these national requirements.
- The Code for Sustainable Homes will be phased out and withdrawn from national legislation.
- The Energy and Water standards from the Code will be absorbed into the Building Regulations; assessment of the remaining standards that were covered within the Code will become optional at the developers' discretion.

The Council's Core Strategy incorporates policies on resource efficiency, energy performance and sustainability standards (Policies 29 and 30). The Council adopted the DMLP in July 2015 which provides an up-to-date policy position on sustainability requirements for the Borough taking into account the recent legislative changes. Policies DM38 and 39 set out the sustainability standards for residential and non-residential development and DM40 stipulates the requirements for off-setting should these standards not be achieved. It is the intention that this SPD provides further detail and guidance on the implementation of the Council's energy and sustainability policies. The SPD therefore sets out the Council's aspirations, proposed strategy, and requirements for future developments within Hackney to reach the highest standards of sustainable design. The standards and requirements that are set out within this document will apply until the legislation for the changes proposed by the government has been enacted.

¹ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

² <https://www.london.gov.uk/priorities/planning/london-plan>

³ <https://www.london.gov.uk/file/18489/download?token=wkL8tUqw>

⁴ <https://www.gov.uk/government/consultations/housing-standards-review-technical-consultation>

How to use this SPD

Hackney is a vibrant and diverse borough with an appetite for sustainable growth.

The SPD is split into two parts. The first section highlights the different development types (referred to as typologies) of the borough and emphasises the most important sustainable design considerations.

For each development type a range of sustainability measures is illustrated which promotes either individually, or in combination, the following:

- Increased energy efficiency
- Reduced carbon emission
- Reduction of land, water, noise and air pollution
- Increased biodiversity and urban greening
- Increased uptake of sustainable modes of transport
- Reduce resource use and waste

The Technical Appendices, in Part Two, detail the most pragmatic methods to achieve the specific design considerations dependent on the building type. It is not intended that the methods outlined in the separate Technical Appendices are taken individually, but instead the appendices should be used to take a holistic approach to achieve the most sustainable development possible.

PART 1

Step One

Review the overarching sustainability measures set out in the Sustainable Design Measures on page 13. Refer to the development typologies and choose the typology that best matches the proposed development.



Step Two

Review the options and decide which combination of the measures illustrated will be incorporated into the development. Where a measure is not to be included, Hackney will require reasoned justification.



PART 2

Step Three

Use the Technical Appendices in Part 2 of the SPD to finesse the approach and finalise the scale of the action to maximise the environmental benefits

Part 1: Development Types and Interventions

The Council appreciates that modern developments are often mixed use, be it commercial with residential units above or the innovation of mixed use education schemes. Therefore, in structuring your approach to sustainable design, review the typologies and choose the typology which most closely represents the proposed development.

Once chosen, ensure that the design of your development takes into account the design considerations that are highlighted by the specific illustration. It is not expected that every design idea is incorporated into all development, as Hackney understands that in certain situations this will not be possible, but a balanced, holistic and innovative approach should be taken to maximise efficiencies.

Part 2: Technical Appendices

This suite of appendices sets out minimum standards and technical requirements for sustainable design and construction. The SPD provides an outline to the policy requirements for new developments and refurbishment in Hackney.

Once the decisions about the measures have been made, the Technical Appendices should be used to ensure that the measures chosen are developed and modelled to maximise environmental benefits. The information in the Technical Appendices is, over time, likely to require updating as new regulations are released, technologies improve, and targets are raised. For this reason they will be periodically updated as and when required.

Other documents are available from the Hackney website and may also prove useful to developers, including:

- Refuse and Waste Recycling:
<http://www.hackney.gov.uk/Assets/Documents/Architects-Recycling-Guide.pdf>
- Noise and Air Quality
- Public Health and Impacts:
<http://www.hackney.gov.uk/public-health.htm>
- Interim SuDS Guidance:
http://www.hackney.gov.uk/Assets/Documents/LBH-Interim-SuDS_Policyv6.1.pdf
- Biodiversity Action Plan 2012-2017:
<http://www.hackney.gov.uk/Assets/Documents/Biodiversity-Action-Plan-2012-2017.pdf>

Working with Hackney

Hackney takes a flexible, qualitative approach to sustainable design and construction. The development type will determine which sustainable design strategies are included. The Council is committed to high quality sustainable development and currently utilises the BRE's building assessment models to ensure that this is achieved. Details of these schemes are available on the BRE website⁵.

It is the experience of the Council that developers often consider sustainability after and not as part of the design process. As such the building assessment models should be treated as minimum requirements. Further details of the specific requirements are contained within the Technical Appendices in Part 2. The requirements will be updated regularly in line with regulations.

It is not the intention of this SPD to take away the flexibility that BRE's assessment methodology offers. What it does do is ensure that all developments that come forward achieve a high design standard which ensures a high quality experience for the people that will be using and occupying the buildings for many years to come.

This SPD does not focus on the size of the development. Its focal point is on ensuring that the development is designed with the appropriate sustainability strategy in place to minimise environmental impacts. However, the SPD does give guidance on the levels of information that the Council will require in order to assess a planning application.

⁵<http://www.bre.co.uk/>

Hackney requires a 'Sustainability Statement' and an 'Energy Statement' to be submitted in order to allow verification that the design of the proposal complies with the corporate and planning objectives of the Council. The statements should show how the scheme complies with national, regional and local policy. Further details on the level of information required within these statements are available within Technical Appendix TA-1.

In residential and mixed use developments it will be necessary to review the minimum standards and other Technical Appendices.

Included within Appendix TA-10 of this SPD is the Sustainable Measures Monitoring Form. When an application is granted permission it will be conditioned that all applicants complete this monitoring form at design and post completion stages and return it to the Council's Sustainability Officer. This is to enable the Council to monitor the sustainable design measures within all developments undertaken within Hackney.

Part 1

Sustainable Design and Construction Supplementary Planning Guidance

Development Types + Interventions

Development Types

The diversity of the Borough and those that live, work and play in Hackney is reflected in the range of the different development types. From Hackney's oldest residence, Sutton House, to the Hackney Empire, the Olympics Media Centre, Stadthaus, and everything in between. Environmentally sustainable residential, office and retail units are part of Hackney's requirement for sustainable design. Hackney Council will expect all developments, including those that involve enhancement to existing heritage and conservation buildings, to be sustainable.

This SPD focuses on the following types of development:

- Estate Regeneration
- Community facilities
- Hotels
- Light Industrial
- Industrial (B2 and Industrial processes)
- Offices
- Residential and Mixed Use
- Retail and Food outlets/restaurants
- Schools
- Conversions and Refurbishments

Developments types which have not been listed include:

- Theatres
- Leisure Centres
- Hospitals
- Student Accommodation

For the above four schemes, principles can be taken from other development types and early discussion with the Council will ensure that the appropriate sustainability measures can be incorporated.

Sustainable Design Measures

A number of sustainable design measures are suitable for all typologies and as such need to be considered and incorporated as standard for all development typologies on major applications. These include:

- Fabric first - improve fabric efficiency, quality and durability of buildings before all other measures.
- Transport – maximise links to public transport, provide cycle storage, car charging points and facilitate pedestrian desire lines.
- Urban Greening - increase biodiversity wherever possible, provision of areas for food growing and composting.
- Rainwater capture - avoid using potable water for irrigation and investigate the opportunity for gravity fed rainwater systems.
- ‘Secured by Design’.
- Passive heating and cooling - prioritise zero or low energy measures to heat and cool the development over non passive systems.
 - Provide ventilation and thermal comfort strategies at application stage.
- Building Management Systems - where feasible incorporate a BMS, and ensure the occupant/management is trained in its use and the system is user friendly.
- Design out waste and minimise resource use - work with the designers and contractors to reduce construction waste and recycle materials for re-use wherever possible.
- Permeable hard landscaping – absorbent and porous materials to be specified in all cases.
- Low Carbon/Communal Heating systems/Decentralised Energy - ensure that plant room is oversized to allow future connectivity, and act as anchor for future developments.

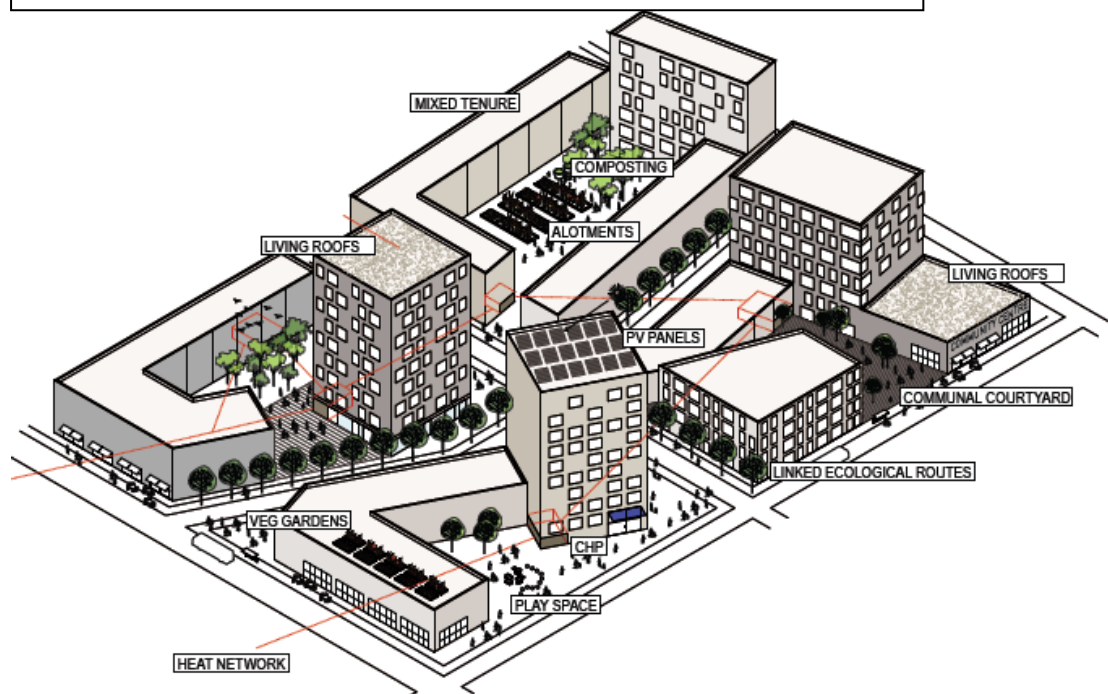
Further sustainable measures specific to each typology are included within the following illustrations.

1 Estate Regeneration

The Council has embarked on an extensive estate regeneration programme. A number of large estate regeneration projects are being undertaken across the Borough that will deliver over 8000 new homes as well as refurbishing existing dwellings. The programme will improve the physical environment for thousands of residents and the social and economic impact for existing and new residents will be significant. Estate regeneration projects should prioritise estate-wide District Heat Networks and interconnection with neighbouring developments.

Sustainability Focus

- Community engagement and ownership throughout the project
- Low Carbon Technologies (with a focus on being a catalyst for District Heat Network connectivity)
- Whole estate rather than block approach
- Fully inclusive and accessible residential and non-residential blocks
- Minimise noise and air pollution
- Provide open space and increase urban greening
- Innovate and increase recycling opportunities
- Maximise energy efficiency

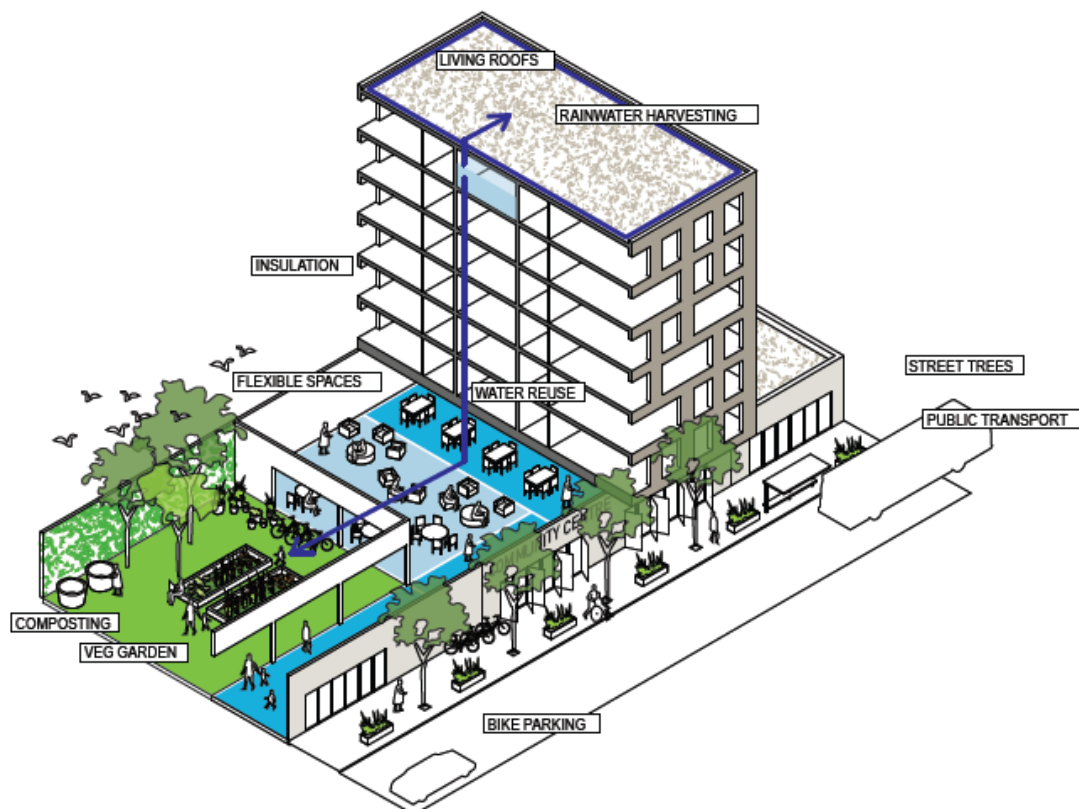


2 Community Facilities

Community facilities form an important part of the fabric of new developments, especially as part of a large scheme. They can vary in size and scale, and need to be built to be flexible yet functional to cater for multiple occupancy and the diversity of needs within the Borough. Community engagement should be sought at the earliest opportunity in the design process to ensure that the development will meet the needs of the local community.

Sustainability Focus

- Secure and inclusive for all users
- Maximise urban greening
- BREEAM Excellent rating
- Funding management plan in place for perpetuity
- Maximise energy and water efficiency

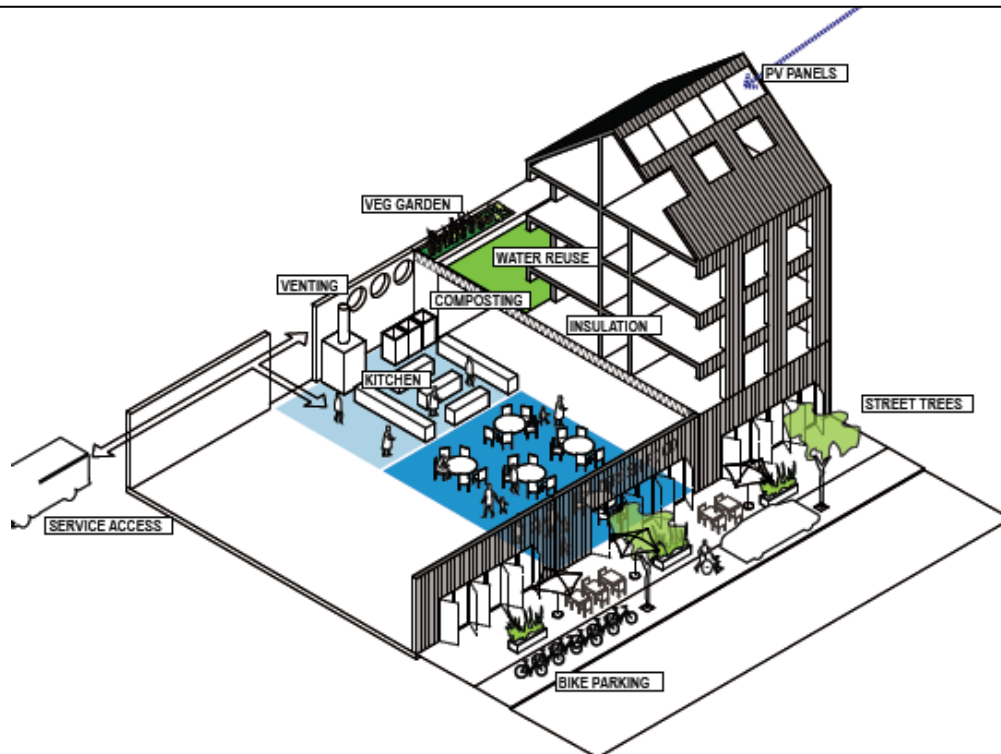


3 Retail & Food Outlets/Restaurants

Cafe and restaurant culture is important in Hackney. It not only represents the diversity of the people who live and work here, it also becomes a destination for high quality and highly diverse eateries. The requirements will depend on the size and type of the establishments and will be judged on their individual merits. Wherever possible, new units need to be pre-let to ensure that the fit out is designed to meet BREEAM Excellent.

Sustainability Focus

- Minimise noise and air impacts
- Accessible and secure by design
- Install flues at the correct specification
- Investigate opportunities for growing food/sourcing product locally
- BREEAM Very Good rating (Conversions) or BREEAM Excellent rating (New Construction)
- Incorporate MHRV from kitchens
- Reduce potable water consumption

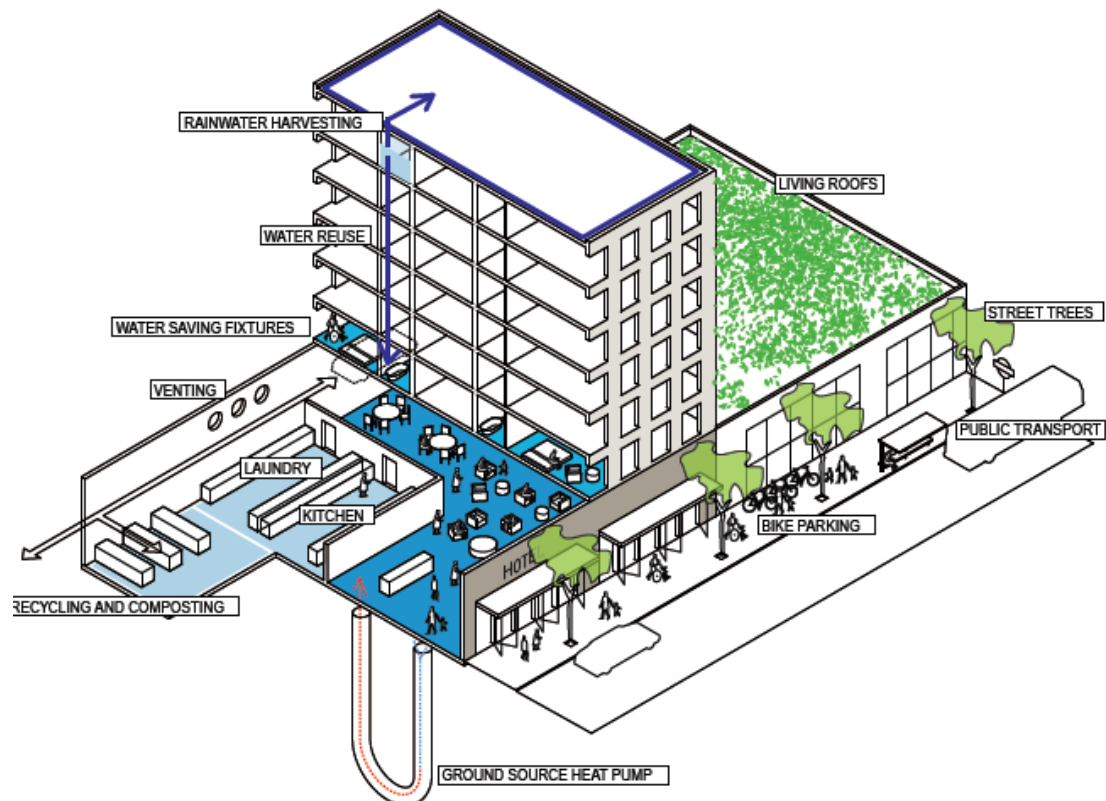


4 Hotels

Hackney is situated close to the Olympic Park and the City. It has a thriving night time economy as well as a growing technical industry and an established business community. From small boutique establishments to larger, corporate-focused conference opportunities, budget and high end, Hackney is ideal for hotels.

Sustainability Focus

- Reduce water consumption
- Maximise energy efficiency
- Low carbon technologies and heating strategy
- Prioritise useable, inclusive rooms
- Incorporate passive cooling strategies

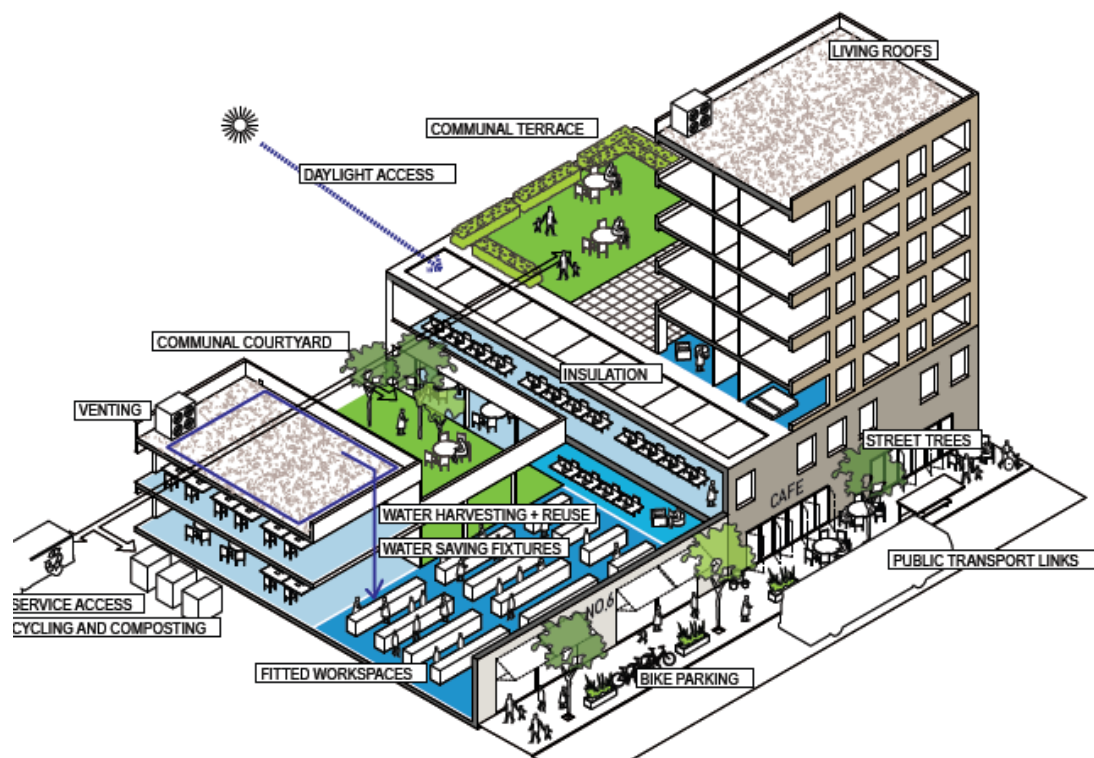


5 Light Industrial

Light industrial activities are flourishing in Hackney and often form part of the creative output. This category of development covers a vast range of activities and needs to be considered on a site by site basis.

Sustainability Focus

- Minimise noise and light impacts
- Maximise urban greening opportunities and energy efficiency
- BREEAM Excellent rating- not shell and core, fit out designed at application stage
- Ensure activity does not impact on neighbours or pollute the atmosphere
- Transport links - provide electric vehicle charging points and cycle storage
- Local jobs/apprenticeships – connections with local education establishments
- Flexibly designed module units that can expand flexibly to provide larger units as businesses grow

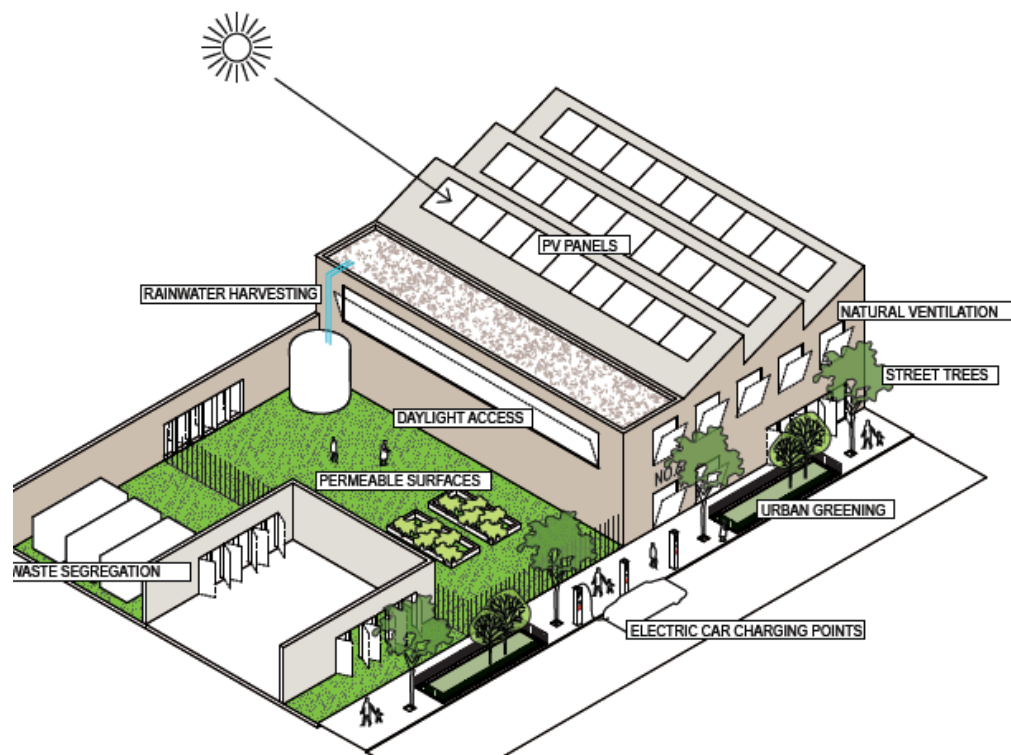


5a Industrial processes

Throughout the borough there are locally significant industrial areas that are protected. These areas are important for local employment and when renewal occurs, employment is a priority.

Sustainability Focus

- Minimise noise and light impacts
- Minimise air pollution
- Increase local employment
- Maximise urban greening opportunities
- BREEAM Excellent rating- not shell and core, fit out designed at application stage
- Transport links- provide electric vehicle charging points and cycle storage
- Safe waste segregation area

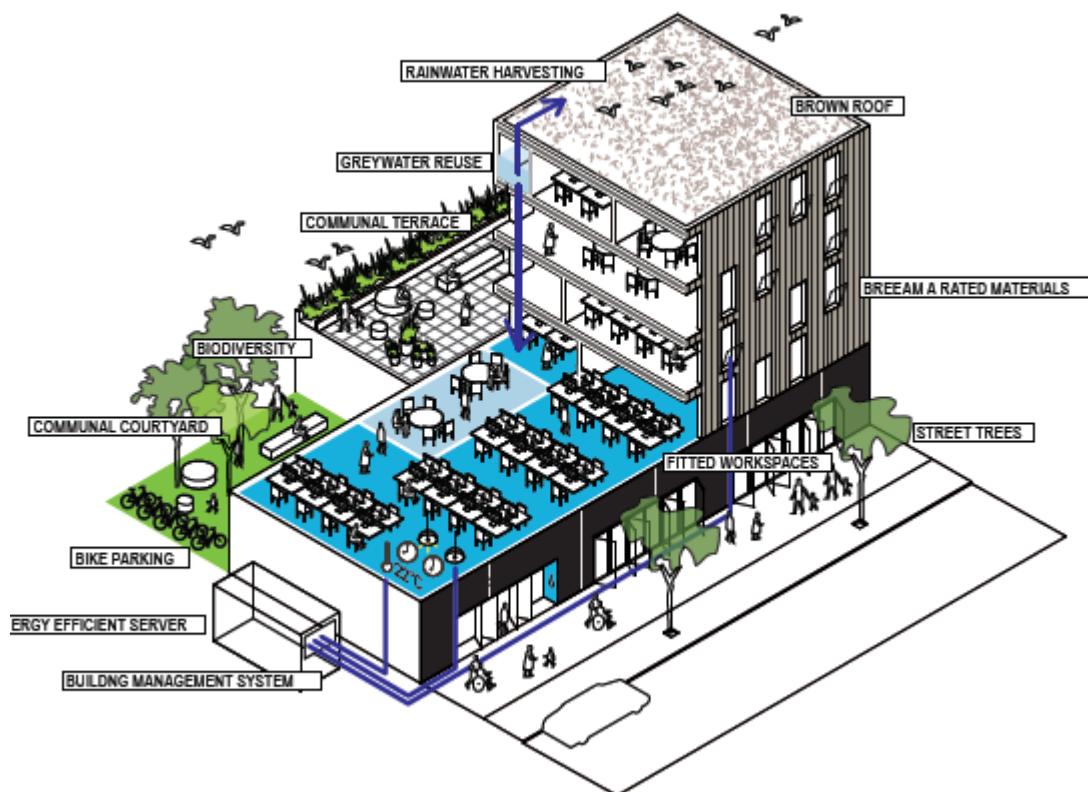


6 Office Space

Tech City, a high-tech 'creative cluster' located in south west Hackney, provides different forms of affordable work space with excellent transport links. Hackney is well positioned for local and regional workers. In both traditional and modern organisations office space needs to be flexible to accommodate variable requirements.

Sustainability Focus

- Energy efficiency, especially in regards to computer servers
- Prioritise passive cooling strategies and heat recovery
- Increase biodiversity and urban greening
- Building Management Systems (BMS) - ensure building managers are qualified in its use
- BREEAM Excellent rating or BREEAM (Refurbishment) Very Good rating
- Internal layout appropriate to end use
- Private/public space and landscaping
- Flexible and adaptable floor plate design
- Multi-purpose living roofs
- Provision of bicycle parking

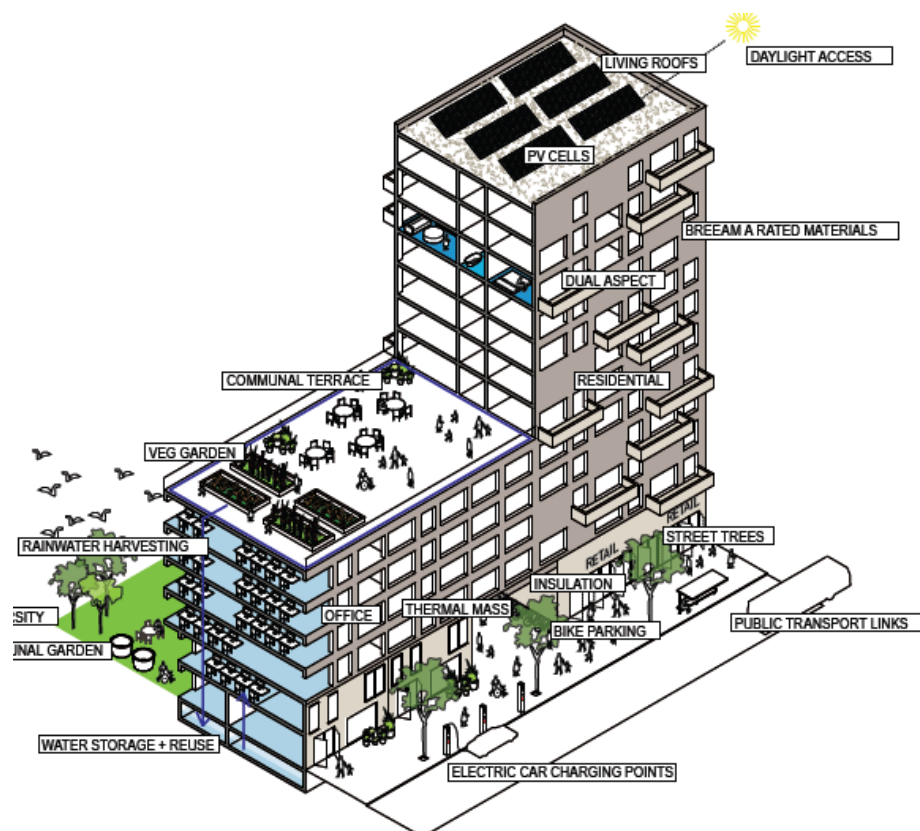


7 Residential and Mixed Use

Hackney is a great place to live with attractive open spaces, excellent transport links, schools, culture and employers. Whether designing houses, penthouses or flats, affordable or privately marketed, every new property in the Borough needs to be built to a high quality specification for current and future generations. It is important to ensure that other demands on mixed use sites do not impact on the residents living within the development.

Sustainability Focus

- Energy and water efficiency
- Provide external space
- Design to GLA space standards
- Smart metering
- Comprehensive waste strategy
- Accessible, secure and inclusive design
- Passive/Low energy cooling and ventilation strategies
- SuDS systems and green roofs/biodiversity
- Provide Resident User Manual

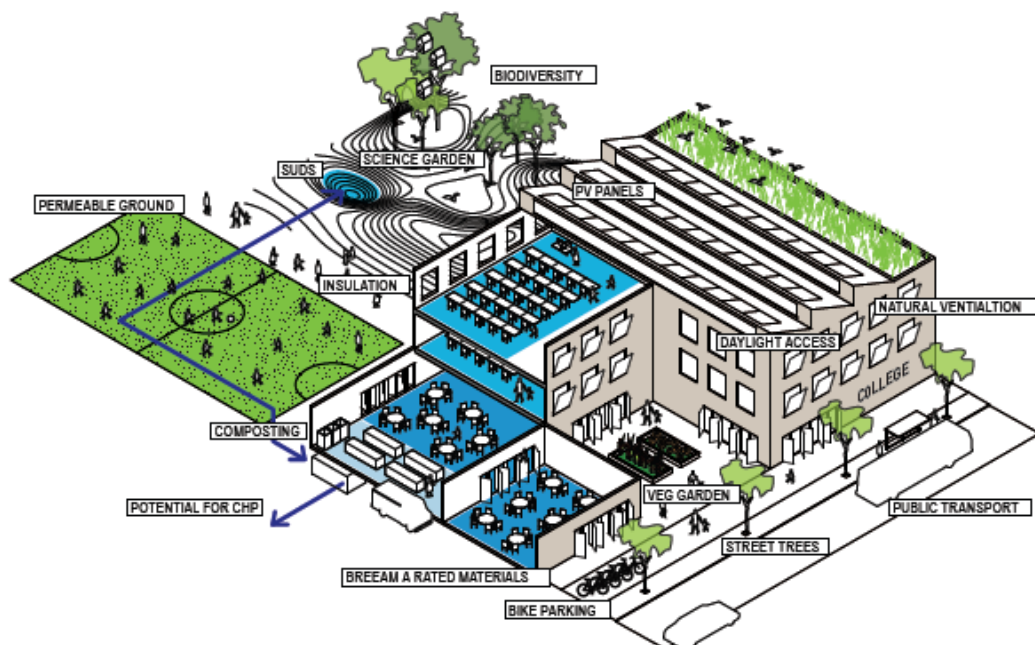


8 Schools

Hackney has a young and growing population. Schools are important not only in terms of formal education but also as places of aspiration. Hackney benefited from a substantial Building Schools for the Future programme and as a result learnt many lessons about which designs do and don't work. New schools in Hackney should incorporate the needs of the existing staff, pupils and parents without hindering the requirement of future generations.

Sustainability Focus

- Energy efficiency and low carbon technologies
- Incorporate SuDS and a functional and educational landscaping strategy using biodiversity as a resource
- Be inclusive to all
- Orientate buildings to ensure classrooms don't overheat (sunlight analysis)
- Design high quality open space
- Incorporate thermal mass into the structure of the building

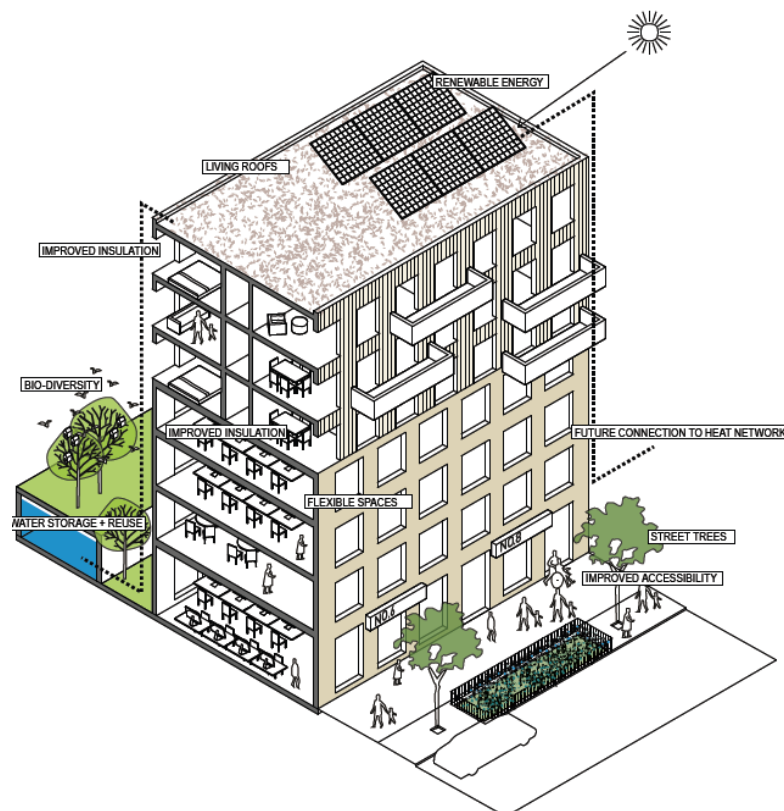


9 Conversions and Refurbishments

Refurbishment should be prioritised over building new properties. Demolishing existing buildings to rebuild from new results in an increase in resource usage and consequent carbon emissions. Whilst the argument could be made that the new building will operate more efficiently, high performance levels can be achieved from well considered design and undertaken refurbishment programmes. These can be achieved significantly increasing the embodied energy of the existing structure. The BRE have developed BREEAM Domestic Refurbishment building assessment for dwellings and the non-residential equivalent was released in 2014. Hackney supports the appropriate refurbishment of properties as part of wider redevelopment and will always seek to achieve the highest standard of sustainable design.

Sustainability Focus

- Indoor air quality
- Energy efficiency and water consumption
- Prevent interstitial condensation where insulation has been up-rated
- Ensure ventilation strategy is updated to take into account the works that are carried out
- SUDS



Interventions

Introduction

The following illustrations provide examples of some of the modern technologies that can be installed to reduce the energy consumption of developments or mitigate the impacts of climate change. The technologies shown are not exclusive to certain typologies, but can be adapted to suit most situations. It should not be assumed that by installing one intervention there is no requirement to install other interventions. Instead, a holistic approach should be taken to maximise the carbon and energy savings within a development. However, in the first instance the improvement of fabric efficiency should take priority before the installation of technologies is considered.

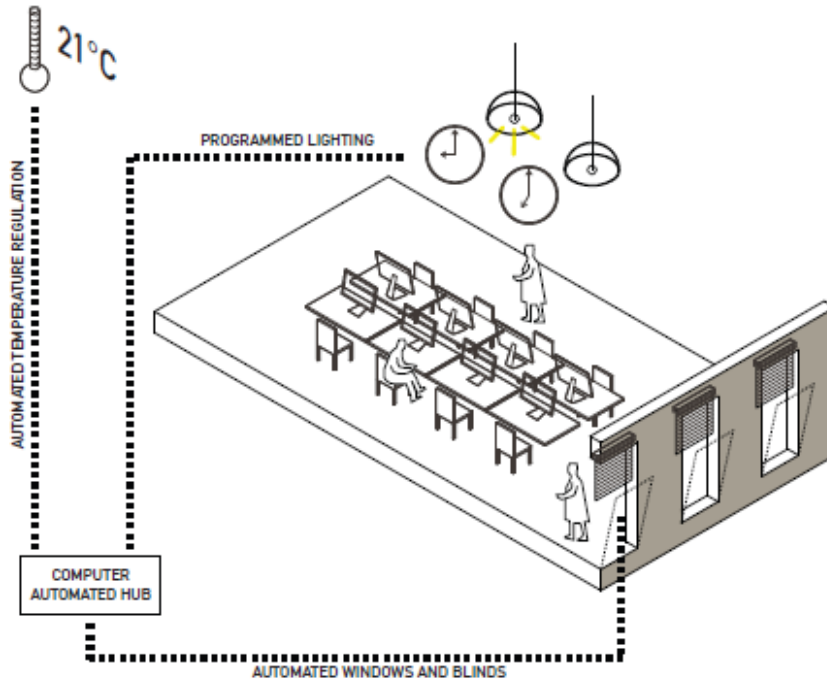
Roof spaces can be used for more than one intervention⁶, for example, living roofs and solar installations, but the perception is that this creates a conflicting demand. Current research has shown that where a living roof and solar installation are integrated on the same roof space, the effects can be beneficial. The variation in habitat across the roof increases biodiversity, and the cooling effect of transpiration from the planted area can increase the efficiency of solar PV panels. The Council encourages innovation in this area and wherever possible the integration of systems.

Building Management Systems

A Building Management System (“BMS”) is used to control, monitor and regulate a building’s energy use. By applying a range of control measures and monitoring routines, both simple and sophisticated, a BMS is capable of operating the building services at optimum efficiency and can reduce the energy consumption of the building, thus reducing the carbon emissions and the energy costs to the building owner or user. Traditionally, BMS was only suitable in larger buildings or commercial schemes. However, smaller systems are now becoming available for the domestic market. It’s essential that building managers/users receive comprehensive training in the use of the BMS on commissioning of the development to maximise the potential energy savings. BMS should be simple and user friendly and training provided to the end user to ensure the system can be managed correctly.

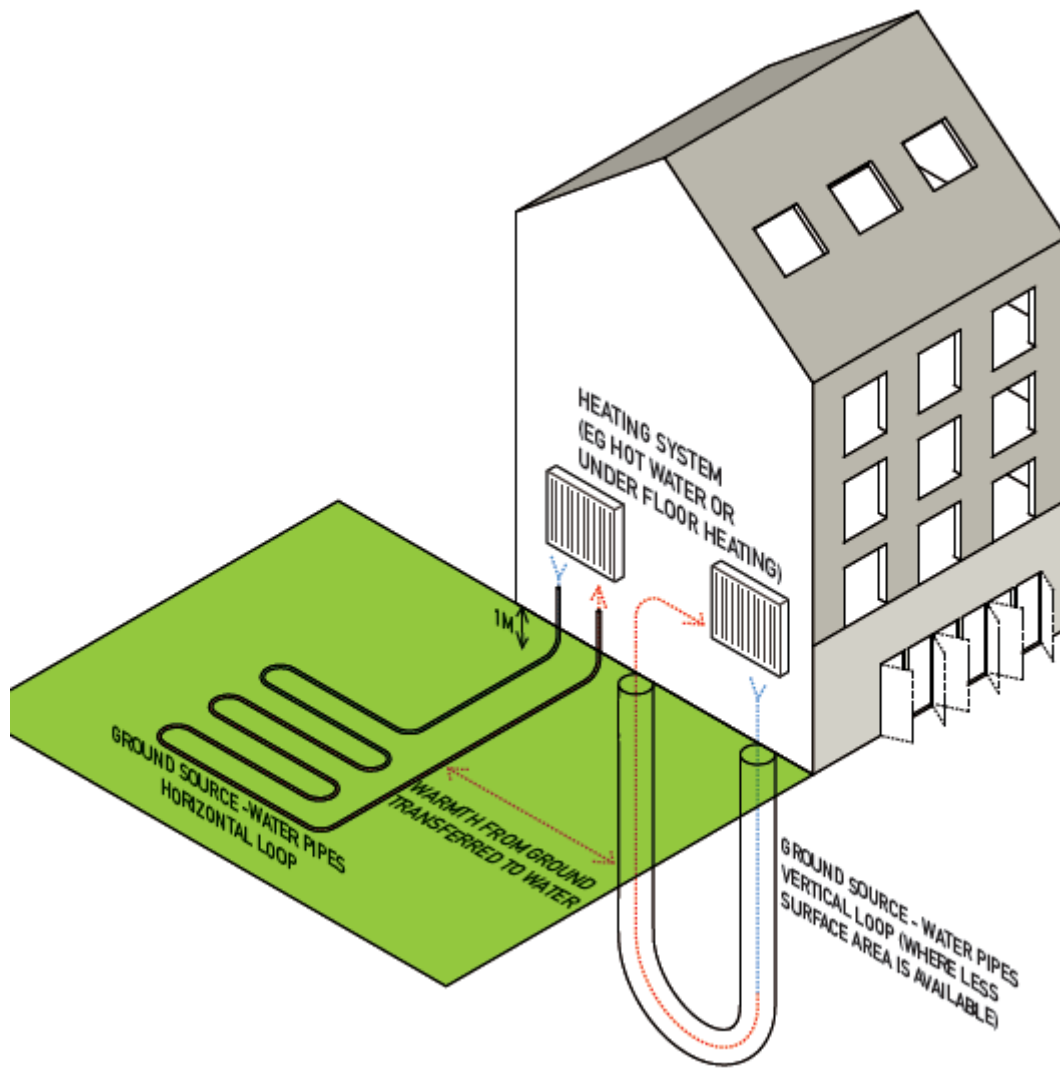
⁶ <http://livingroofs.org/pvs-and-green-roofs>

BUILDING MANAGEMENT SYSTEMS



2 Ground Source Heat Pumps

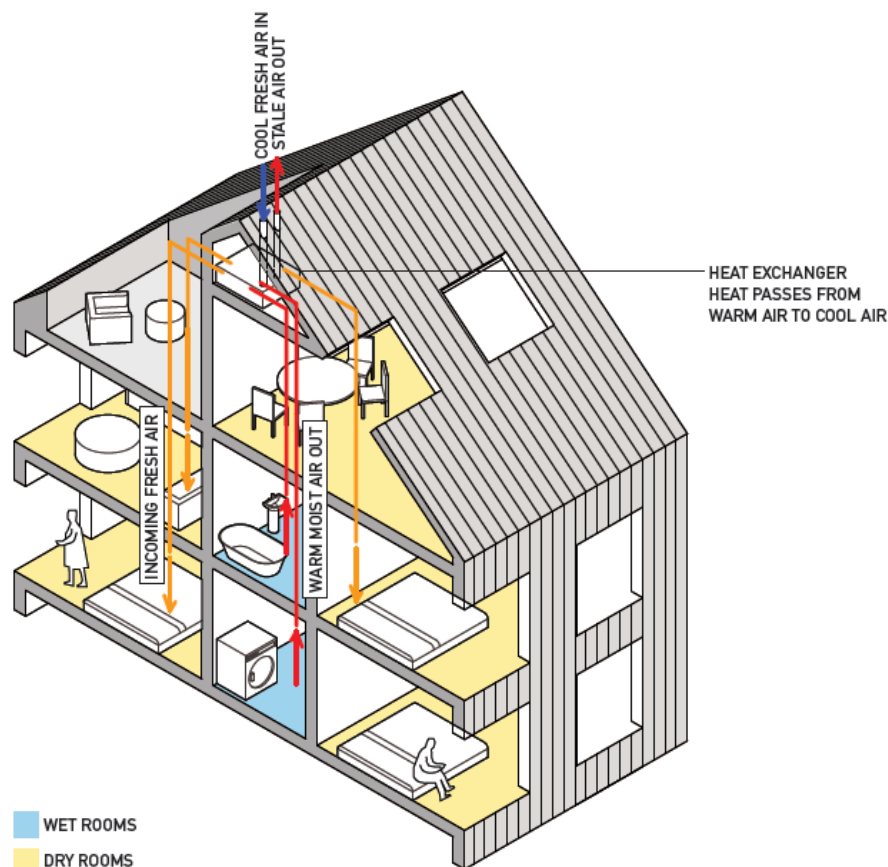
Ground Source Heat Pumps (“GSHP”) work by moving low temperature heat energy stored in the earth and transferring it through a heat pump into a house or building. Depending on the space that is available, there are two different systems: either a horizontal loop buried at around two metres depth, or a vertical loop. GSHP are ideal systems to use with underfloor heating in new build situation, and, although the installation cost can be significant, they can dramatically reduce heating bills, and therefore the carbon emissions of the building, when correctly specified and commissioned. Ensure that end users are provided training in the use of the system and a maintenance schedule is adhered to. Commissioning certificates are to be submitted to the Council before occupation.



3 Natural Ventilation and Mechanical Heat Recovery Ventilation

Ventilation is fundamental to the health of a building and its occupants. For example, good ventilation reduces the risk of some allergies and also prevents the growth of mould in humid areas of the building. A building can be ventilated in two ways. Firstly, natural or passive ventilation is the process whereby ventilation measures are designed into the building fabric and require little or no technological component or electricity. Passive systems can be as basic as being able to open windows on two sides of a building to allow a cross current of air through the building, or more complex, including the incorporation of a solar chimney.

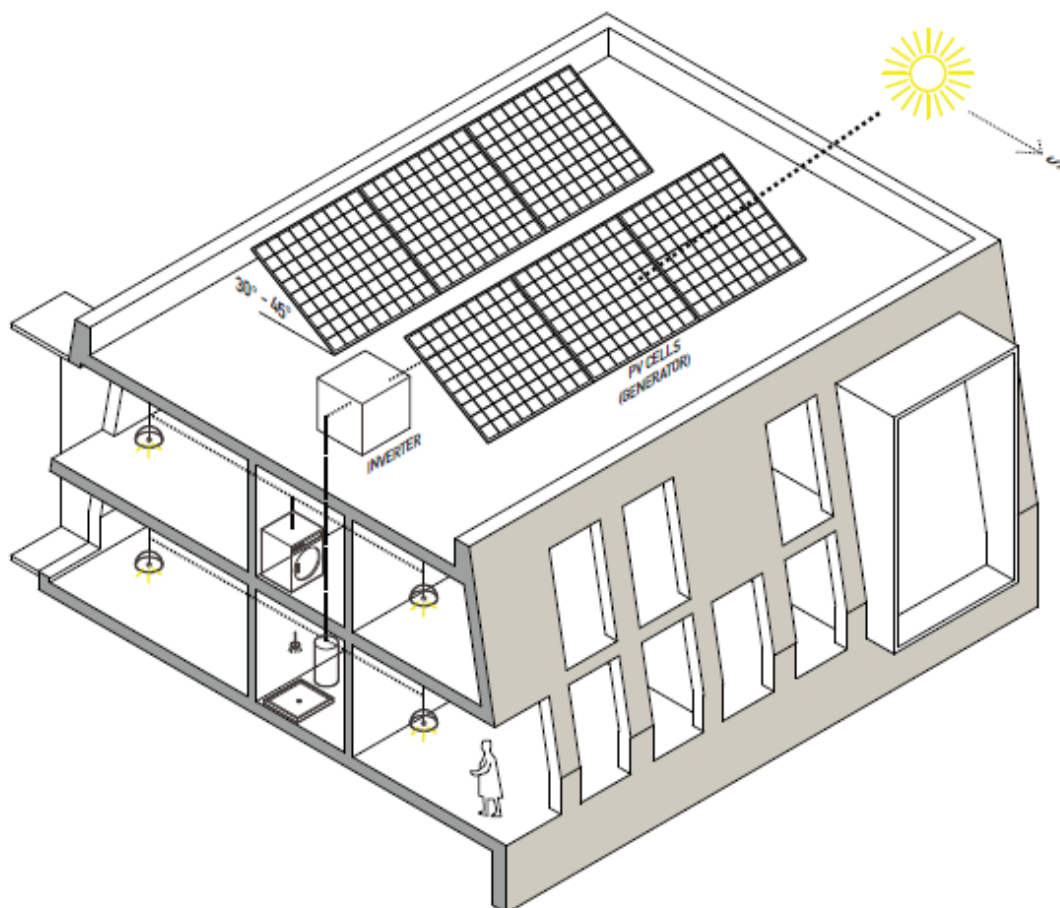
Secondly, mechanical systems, including mechanical heat recovery ventilation (“MHRV”), are more complex and require the installation of fans and ducting and control systems. As a result it can be expensive, and requires energy to run. The advantages are that it is controllable, and modern systems are able to pre-heat fresh air using heat energy recovered from the building. It is therefore possible to reduce heating bills and associated carbon emissions with this type of system. When specifying these systems ensure that occupiers are trained in their use and the maintenance schedule is adhered to.



4 Solar Thermal/Solar PV

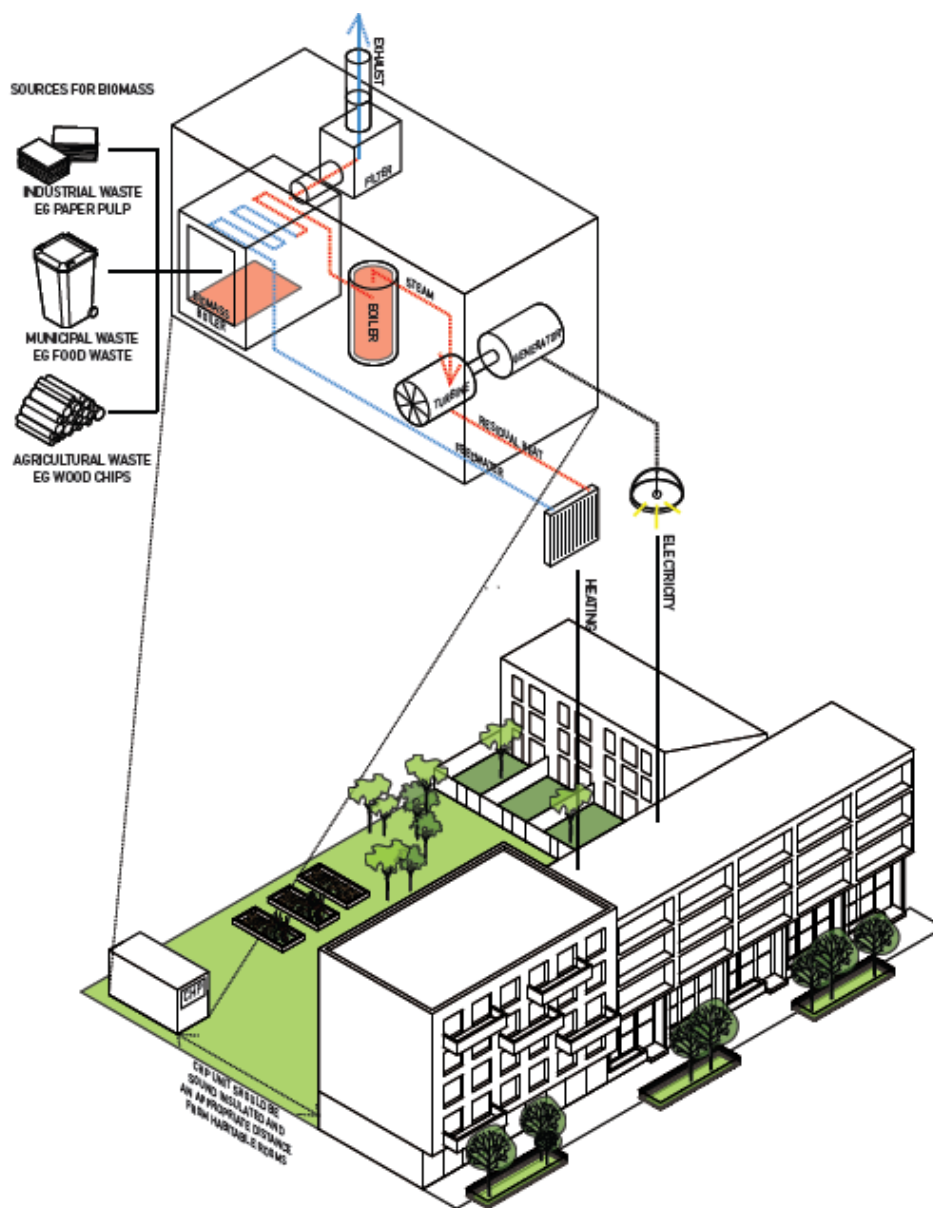
Solar energy can be harnessed to provide free energy in the home, either through the production of electricity using photovoltaic (“PV”) panels, or through the heating of water to provide hot water from solar thermal panels. There are a number of different types of panels available on the market, and advice should be sought from a qualified professional as to the most suitable to meet the occupier’s requirements. The panels should ideally face due south and be set at a pitch of between 30 and 45 degrees to maximise efficiencies. Systems should be correctly specified and not installed in areas where there could be over shading from other buildings or trees.

The advantages of installing panels include reducing the occupiers’ energy bills, making the dwelling more self-sufficient and reducing the carbon footprint of the development. The generation of renewable electricity, which includes solar PV installations, is eligible for incentive payments from the government, known as Feed-In Tariffs. There is also a Renewable Heat Incentive scheme, which provides payments for solar thermal installations.



5 Combined Heat and Power (CHP)

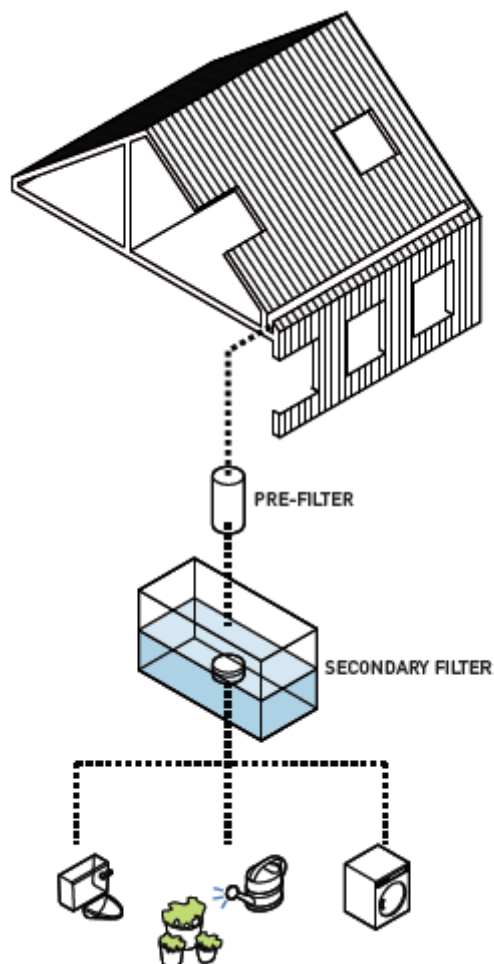
CHP reduces the need for additional fuel consumption for the generation of heat by recycling the waste heat generated by the production of electricity, and thus reduces carbon emissions. In general, CHP – also known as cogeneration - can be applied in all cases where electricity is produced by thermal combustion. CHP can achieve up to 40% higher efficiencies when compared to traditional sources of electricity. However, units have to be sized correctly for expected loads to maximise efficiencies. Attention should be paid to noise attenuation, either through insulation measures or siting at a suitable distance from residential areas, and systems should be specified to meet the emission standards to reduce any localised impacts on air quality required under the London Plan and Hackney policy.



6 Saving, Recycling and Harvesting Water

As a priority and wherever possible, rainwater should be used for irrigation and watering of soft landscaping, in order to reduce the demands on potable water. These systems are easy to install, have a low environmental impact and can be relatively cost effective.

Evidence now suggests that more complicated rainwater and 'grey' water harvesting systems for supplying water for flushing toilets and cleaning can, over the long term, have a higher environmental impact than using potable water⁷. This is due to the associated maintenance and purification costs and the embodied energy of the materials. For this reason Hackney does not encourage these types of systems unless their benefits can be clearly justified.



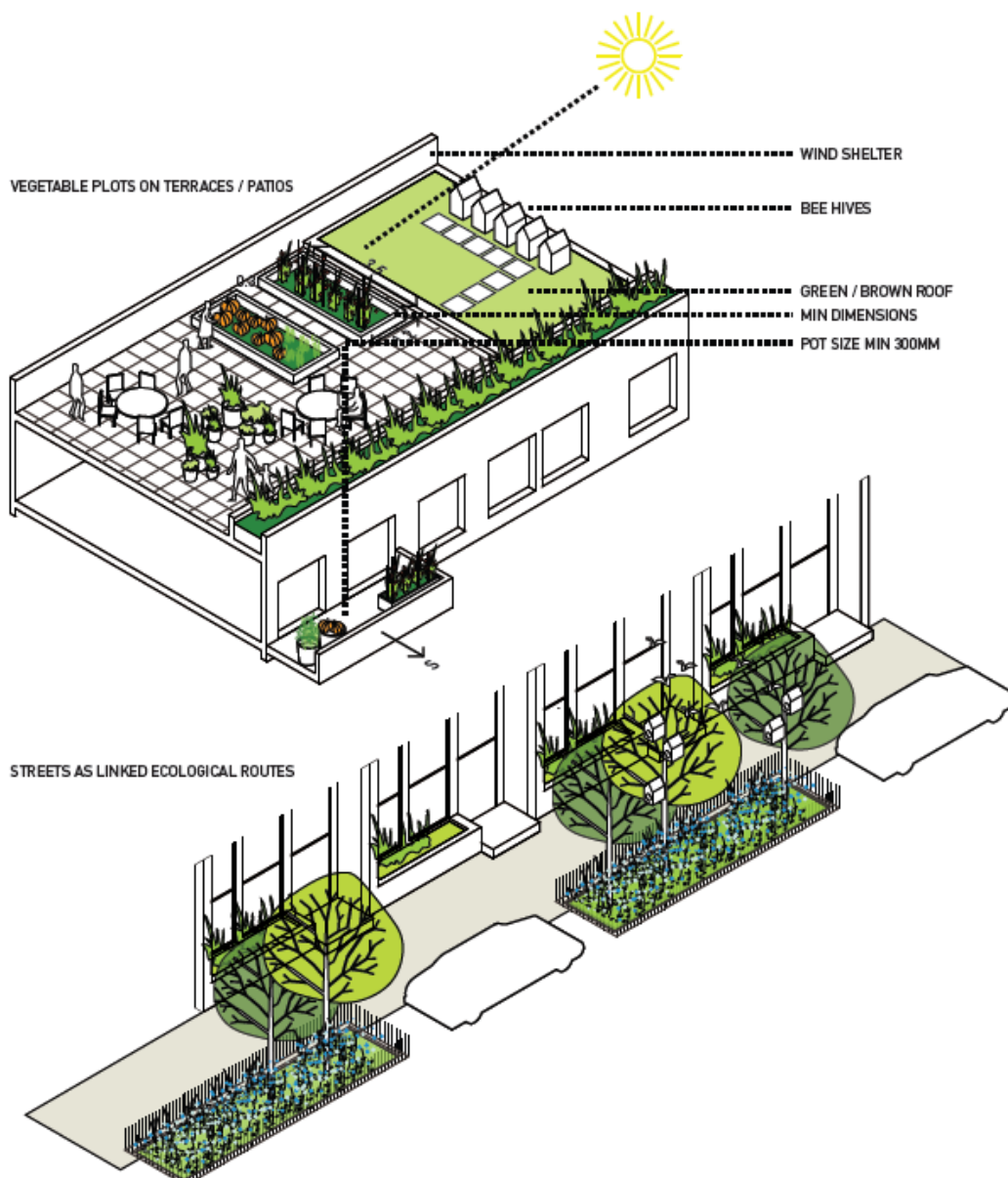
7

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291745/scho0610bsmq-e-e.pdf

7 Ecology + Biodiversity, Trees and Nest Boxes

Balconies, patios and roofs are all suitable for planting and vegetable growing. Plants growing in pots generally need a pot of at least 25 cm in diameter. Growing areas should have sufficient sun, and if possible be sheltered from the wind. A 3.0m x 1.2m vegetable plot should be sufficient to produce regular pickings at least through the summer.

Attention should be taken to ensure that planted areas for food production at street level are suitably separated from possible street level contaminants. Refer to Technical Appendix TA8- Biodiversity, Landscape and Urban Greening for further information.



Part 2

Sustainable Design and Construction Supplementary Planning Document

Technical Appendices

SPD Appendix TA-1

Technical Guidance Notes

Planning and Development Standards & Performance Requirements

Introduction

The following highlights the minimum requirements expected to be met at planning application stage, dependent on the scheme size. Although within the BREEAM models there are minimum requirements already categorised for specific ratings, the Council has set out requirements over and above these that have to be achieved. This Appendix also sets out the minimum documentation required with each planning application.

This Appendix will be updated once the Government has finalised and issued full details on the future requirements.

Sustainability Statements - Content Requirements

Discussions at pre-application phase with the Council Sustainability Officer are encouraged to ensure that the developer is fully aware of all the requirements.

Major Schemes - over 10 units or 1000m²

All major residential and non-residential schemes are expected to submit a Sustainability Statement. This should include the following information:

- BREEAM New Construction for non-residential developments. BREEAM Refurbishment for refurbishment projects. Expected achieved ratings are available in Table TA 1.4.
- Water Management Strategy- both internal and external.
- Details on the development's approach to materials (see requirements listed in Appendix TA-6) and sustainable drainage, biodiversity and adaptation to climate change.
- Strategy statements for the following:
 - Ventilation and thermal comfort
 - Airtightness targets and proposed testing schedule.
- Management Plan and full maintenance schedule for the following:
 - Living roofs/walls
 - Ventilation systems
 - Proposed renewable and innovation technologies.

All major developments are required to submit a completed Sustainability Monitoring Form at application and an updated version on completion of the development. Full details and a downloadable version of the form are available in Technical Appendix TA-10.

Major non domestic conversion or refurbishment schemes are required to submit information covering the same criteria as new builds, and carry out a BREEAM Refurbishment assessment targeting an 'Excellent' rating.

Minor Schemes- under 10 units or 1000m²

New Build

Residential Schemes are expected to submit a short sustainability statement covering the following aspects of the development:

- materials and sustainable drainage
- biodiversity
- adaptation to climate change
- water efficiency
- approach to reducing energy demand
- fabric energy efficiency
- sustainable transport

Non Residential Schemes building assessment requirements will be assessed on a case by case basis, but a statement covering the following will be required:

- approach to reducing energy demand
- fabric energy efficiency, materials and sustainable drainage, biodiversity and adaptation to climate change
- water efficiency

Conversion and Refurbishment

Building assessment requirements will be assessed on a case by case basis, but a statement covering the following will be required:

- approach to reducing energy demand
- fabric energy efficiency
- materials
- sustainable drainage
- biodiversity and adaptation to climate change
- water efficiency

Where an applicant is unable to achieve the standards as set out in this SPD, a full written justification is required in order for the Council to take a balanced judgement on the omission.

Energy Statement- Content Requirements

The Energy Statement should be set out in line with the requirements within chapter 5 of the London Plan. In conjunction with the London Plan requirements, Tables TA 1.1 to TA 1.4 should be used to provide the required information.

Non Residential Schemes over 1000m² gross floorspace across the whole development

All schemes over 1000m² are expected to submit a full Energy Statement. Information to be included:

- Energy calculation showing reduction in baseline energy consumption through Lean, Clean and Green design measures in line with the London Plan Energy Hierarchy, including calculations showing the Building Emission Rate (BER) and the Target Emission Rate (TER). Complete and submit a copy of Table TA1.1. Achieving a 35% reduction in regulated carbon emissions against Part L 2013.
- Supply full details of the expected fabric u-values. A completed copy of Table TA1.2 is sufficient.
- Justification for the particular choice of renewable technology proposed, and a Design Statement addressing issues such as orientation, shading etc.
- Capacity of Renewable technologies to be installed: type, size and expected performance and details to be completed in Table TA1.3.
- A Heating and Cooling Strategy giving details of the measures that have been taken to minimise the impact of climate change on the development. If CHP is specified, the details on size, performance and expected efficiency are required, as well as a statement indicating that the plant room will be oversized by 10% in order to allow the potential connection to a District Heat Network should one become available in the future.
- A full air quality modelling assessment will also be required with CHP application.

Non Residential Schemes less than 999 m² gross floorspace

All schemes under 999m² gross floorspace will be expected to provide the information required for Tables TA 1.2 and TA 1.3, along with details of the proposed heating system for the development delivering at least a 25% reduction in baseline carbon emissions.

Where it is not possible to achieve the required reductions in Carbon emissions, a payment will be required to Hackney's Carbon Offset Fund through a S106 agreement. The monies generated in this way will be ring fenced and invested in other carbon offsetting measures within the Borough.

Full details of this find and the mechanism for calculating the cost of Carbon are available within Technical Appendices TA-9.

	Energy Demand (kWh/m ²)	% Energy consumption savings	CO ² emissions (kg/m ²)	% CO ² emissions savings
Notional Building (Part L 2013 compliant)				
Proposed scheme with 'Lean' measures				
Proposed scheme with 'Clean' measures				
Proposed scheme with 'Green' measures				
Total savings against notional baseline				

Table TA1.1 Information required from the energy hierarchy calculations.

Building Element	Minimum Good Practice (u-value W/m ² .K)		Proposed Building Fabric values	
Roof	0.13			
External Walls	0.20			
Floors	0.20			
Openings	1.4 Windows /1.4 Glazed Door/ 1.0 Solid Door			
	g- value: 0.5 maximum			
Air Permeability (m ³ h.m ² at 50 Pa)	With MHRV	No MHRV	MHRV?	Y/N
	3.0 or better	5.0 or better		
y-value	0.04			

Table TA 1.2 Proposed building fabric u-values compared to Hackney's minimum standards

Renewable Technology	Size (m ² /kWp etc)	Output (kWh)	% carbon saved (kg/yr)	Carbon conversion factor used

Table TA 1.3 Capacity and expected performance of renewable technologies installed on site-insert units as required.

Energy Performance and BREEAM Minimum Standards

The following table indicates the required standards that are to be met through building assessment and the improvement expected over the Building Emission Rate (BER).

Building Type	January 2015		October 2016		From 2019	
	Level	% over BER	Level	% over BER	Level	% over BER
Non Residential	BREEAM Excellent	35%	As Building Regs		As Building Regs	

Table TA 1.4 Energy Performance minimum standards

Policy Drivers for Building Assessment Models

	London Plan 2015	Hackney Council Guidance	
		Core Strategy	DMLP
Policy	5.2	CS 29	DM 37 DM 38 DM 39
			DM 40

SPD Appendix TA-2

Technical Guidance Notes

Building Assessment Models

Retail/Commercial and Residential

Major and Minor projects

Introduction

This guidance note will cover BREEAM. If other assessment models, such as PassivHaus, CEEQUAL, LEED or SKA Rating are used please contact the Sustainability Officer to discuss requirements and the integration of Hackney's specific standards.

In line with Hackney's definitions, a major development has a footprint of over 1000m² or 10 residential units and a minor development has a footprint of less than 999m² or under 9 residential units.

Within each assessment model there are minimum standards that have to be achieved with the rating. Nevertheless, care should be taken to ensure that Hackney's minimum standards are also achieved. Details of these minimum standards can be found at the end of this appendix.

Assessment Model: BREEAM New Construction

Major Developments

Under all circumstances all major units over 1000m² are required to meet BREEAM 'Excellent' or similar under an alternative scheme on the fit-out of the unit, whether the developer is carrying out the fit-out, or the client/tenant carries out the fit-out with their own supply chain.

Where units are not pre-let, the developer is to enter into a 'Green Lease' arrangement with the prospective tenant. A 'Green Lease' is a legally binding agreement between the developer and the future tenant of the commercial space to ensure that the fully fitted operational building can demonstrate performance against the proposed BREEAM assessment standard of Excellent.

All non-residential developments, both major and minor, are to achieve an 'Excellent' rating from January 2016.

Minor Developments

Hackney policy requires, where viable, that the design and construction of new retail/commercial units achieve the following:

- Where the applicant is completing the fit out of the development, an Excellent rating is required.
- Where the applicant is completing the development to shell and core only, the assessment should follow the guidelines set out in Appendix D of the BREEAM New Construction Manual⁸. In this situation, option four within the Criteria of Appendix D would not be acceptable.

Assessment model: BREEAM Refurbishment

All Non Residential Refurbishment Developments

BREEAM Refurbishment can be used for the following types of development:

- Alterations to existing dwellings and extensions
- Domestic conversions and change of use projects
- Mixture of refurbished and newly constructed dwellings

On all non-residential refurbishment proposals, where it is intended to upgrade the insulation of the building fabric, all applicants are to carry out and submit an interstitial condensation assessment/modelling (exceeding the Glaser Method) to ensure that the proposed insulation will not lead to condensation forming within the building fabric.

Minor developments (less than 10 units or 1000 m²) are expected to achieve a 'Very Good' rating as minimum; from 2016 this will increase to 'Excellent'.

Major developments (over 10 units or 1000m²) are expected to achieve an 'Excellent' rating as minimum.

On all projects, including domestic conversions/extensions and minor change of use schemes, the following should be prioritised:

- Improvements to the thermal performance of the building fabric
- Maintain accessibility after the works are carried out
- Ensure insulation is maximised before considering low carbon or renewable energies
- Ensure the 'Secured by Design' standards are reviewed post-refurbishment

⁸ http://www.breeam.org/BREEAM2011SchemeDocument/Content/14_appendices/appendixd.htm

- Maximise opportunities to increase biodiversity and urban greening through the installation of green roofs, nesting boxes and planting
- Ensure that internal and external sound insulation is improved as part of the refurbishment process

In addition to these, the opportunity to connect to an existing CHP system/network needs to be investigated.

Post Completion evidence

All developments that undertake a building assessment are expected to submit both the pre-assessment and post-completion assessment certificates for BREEAM to the Council before occupancy. If the post-assessment score deviates from the pre-assessment score then the following will need to be submitted:

- A report detailing the reasons for the disparity pre- and post-assessment.
- A calculation to indicate whether the disparity has led to a predicted increase in the expected carbon emissions of the building when compared to the emission rate calculated at planning stage.
- Details of remediation measures that will be undertaken to reduce the predicted carbon footprint of the building to pre-assessment levels. If remediation measures are not achievable to reduce the carbon emissions of the development to the level as set out in the original application, a payment will be required to Hackney's Carbon Offset fund through an S106 agreement. The monies generated in this way will be ring fenced and invested in other carbon offsetting measures within the borough. Full details of this fund and the mechanism for calculating the cost of Carbon are available within Technical Appendices TA-9 and TA-10.

Policy Drivers for Building Assessment Models

	London Plan 2015	Hackney Council Guidance	
		Core Strategy	DMLP
Policy	5.2	CS 29	DM 38 DM 39
			DM 40

SPD Appendix TA-3

Technical Guidance Notes

Energy Efficiency

Introduction

Hackney encourages a 'fabric first' approach, whereby the energy efficiency of the building fabric is prioritised before other technological solutions are considered. The energy efficiency measures listed within this Technical Appendix are not intended to be definitive and cover both new build developments as well as refurbishment projects, and are not considered to be dependent on the size of the project.

It is understood that the number of improvements that can be achieved in a refurbishment project can be limited and is dependent on the proposed scope of works. This is specifically the case with listed buildings. When works are scheduled on a listed building, it is imperative to discuss what can be achieved with the Council's Conservation team at the earliest opportunity. The measures in this Technical Appendix cover building design, fabric efficiency measures, and non-fabric efficiency measures. Applying a full package of these measures will achieve Hackney's desire to tackle fuel poverty, enhance the quality of life of the building user, and reduce the carbon impact of the property on the environment.

All major developments are expected to produce an Energy Statement detailing how the development will reduce energy consumption and consequently the production of carbon. Required within the Energy Statement is a calculation detailing the reduction in energy requirements in line with the London Plan's energy hierarchy:

- **Be Lean – Design/ Fabric Efficiency Measures**
- **Be Clean – Supply Energy Cleanly**
- **Be Green – Renewable Energy**

Full details on the information that is required within the Energy Statement is contained within Technical Appendix TA-1.

Design measures that can make a building more energy efficient

Designers should consider a range of design and siting considerations to make the building more energy efficient. Some of the points listed below when taken together are contradictory. The developer is to therefore choose the most appropriate measures according to the building and its intended use.

Building Orientation

- Maximise solar gain and daylight in those rooms that require it (living areas) and minimise solar gain in areas that don't (IT rooms); avoid deep plan/single aspect designs due to the restrictions these place on natural light access and passive ventilation.
- Usage to take into account demand for heating, cooling and lighting.
- Restrict/provide measures to reduce solar gain in summer, especially on eastern and western aspect rooms.

Fabric First approach to energy efficiency

- Choose materials and levels of insulation that will improve the energy efficiency of the building fabric before investigating the use of Low and Zero Carbon technologies.
- Design developments to ensure that thermal bridging is minimised using accredited construction details and make the supply chain and contractor aware of the requirements.

Measures to reduce heat loss

- Reducing the surface area to volume ratio decreases the external wall area through which heat can be lost.
- Reduce the surface area of windows, especially those facing north.

Passive cooling systems (cross ventilation, solar chimneys/thermal stacks, etc.) can significantly reduce the energy requirements of all building typologies. Figure TA 3.1 shows some of the measures that can be incorporated. It is expected that developers will target passive measures before specifying mechanical measures.

Design in thermal mass to allow buffering of diurnal temperature changes. However, ensure windows are operable (risks include security, noise, pollutants and insects) to allow night time cooling.

Once all of the above design considerations have been taken into account, if mechanical heating or cooling is still required, applicants should assess the cooling requirement following the guidelines in the GLA's 'Creating

Benchmarks for Cooling Demand in new Residential Development' which is available at the following link:

https://www.london.gov.uk/sites/default/files/gla_cooling_benchmarking_study_final2.pdf

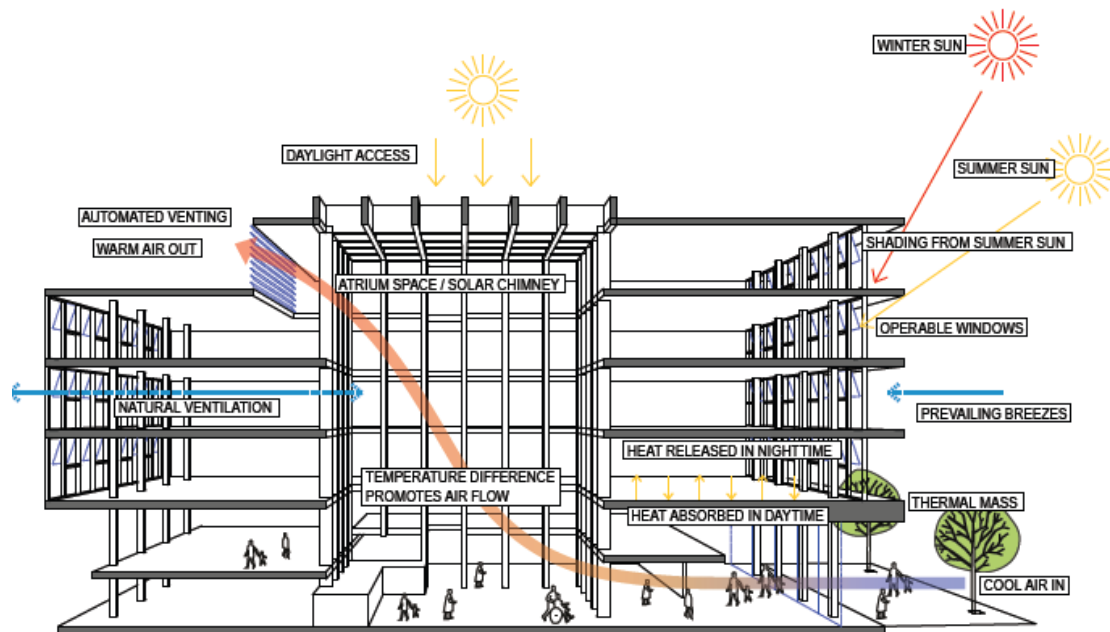


Figure TA 3.1 Examples of passive heating and cooling measures that can be incorporated into the building design.

Fabric Efficiency Measures

The materials used can make a major contribution to the thermal performance of buildings.

Insulation

- Solid and Cavity Wall
- Roof/loft
- Floor

New Glazing Units and Doors

Draught Proofing

Living Roofs

The Energy Saving Trust has carried out analysis on the improvements over current Part L Building Regulations required to meet Code for Sustainable

Homes Level 4. The improvements are listed in Table TA-3.1 and it is the expectation that in line with Hackney's 'Fabric First' approach new developments (residential and non-residential) will achieve these u-values as a minimum.

Building Element	Minimum Good Practice (u-value W/m ² .K)	
Roof	0.13	
External Walls	0.20	
Floors	0.20	
Openings	1.5 Windows /1.5 Glazed Door/ 1.0 Solid Door	
Air Permeability (m ³ h.m ² at 50 Pa)	With MHRV	No MHRV
	3.0 or better	5.0 or better
y-value	0.04	
g- value	0.08	

Table TA 3.1- Expected building fabric u- values.

In regards to airtightness, it is important that the targeted value is achieved and not exceeded. If the target is exceeded there is potential for the ventilation strategy to become insufficient, which will adversely affect the performance of the building.

The fabric efficiency targets for refurbishment projects are listed, along with other information, within the Retrofit and Microgeneration Appendix TA-5.

Non Fabric Efficiency Measures

- Hot water tank jacket and insulate all pipework
- Reduce hot water distribution pipe lengths and ensure pipework is fully insulated
- Thermostatic radiator valves
- Replacement condensing boilers
- Boiler controls - preferably climate modulating
- LED lighting units including P
passive infrared sensors (PIR) and daylight sensors
- Replacement energy efficient appliances (A-rated as minimum)
- Mechanical Heat Recovery Ventilation (MHRV)
- Smart meters

Funding for a number of the above measures is available through Government schemes. Further details are available within the Retrofit and Microgeneration Appendix TA-4. For full details and eligibility please refer to the Energy Saving Trust website www.energysavingtrust.org.uk

Policy Drivers for Energy Efficiency Measures

	London Plan 2015	Hackney Council Guidance	
		Core Strategy	DMLP
Policy	5.4	CS 29	DM 37, DM 38
	5.11	CS 30	DM 39
		CS 31	DM 40

SPD Appendix TA- 4 Technical Guidance Notes

Low and Zero Carbon Technologies

Introduction

In line with the London Plan and National Policy, Hackney is committed to tackling climate change and reducing fuel poverty. Hackney adopted its Climate Change Strategy in 2009⁹ with targets to cut carbon by 15.9% by 2019, 49.2% by 2035 and 80% by 2050, thus meeting the obligations under the 2008 Climate Change Act.

To achieve these targets, Hackney requires that all new developments carry out assessment studies into Low and Zero Carbon technologies. Renewable technologies should be considered, firstly, when the efficiencies available from upgrading the building fabric have been maximised, and secondly, when an assessment has been carried out to justify their suitability for the building and its location.

As part of the Energy Strategy/Statement applicants are required to establish how the development will achieve the required efficiencies by following the London Plan energy hierarchy:

- **Be Lean** Maximise Energy Efficiency
- **Be Clean** Supply Energy using Low Carbon Technologies
- **Be Green** Supply Energy with Renewable Technologies

Calculations should be carried out using baseline total regulated carbon emissions in line with Building Regulations Part L 2013. Full details on the requirements for the Energy Statement and hierarchy are contained within the Technical Appendix TA-1 and TA- 3.

Be Lean

These measures are covered within the Energy Efficiency Technical Appendix TA-2.

Be Clean

Hackney encourages, wherever possible, the use of communal heating and district heating systems and networks (DHN). As a first step, a feasibility statement for connection into an existing heating system/network should be included in the Energy Statement. To aid this, a GIS mapping system is available online at the Council's website that identifies CHP/DHN systems that

⁹ <http://www.teamhackney.org/climatechangestrategyappendix>

could be connected into, and also significant heat loads in and around the borough that could be supplied. For developments close to the borough boundary, the nearest available CHP/DHN network may be in an adjoining borough. The London Heat Map shows CHP/DHN opportunities in neighbouring boroughs and these should be investigated.

Hackney Heat Map report:

http://www.hackney.gov.uk/Assets/Documents/hackney_heat_mapping_report_july2010.pdf

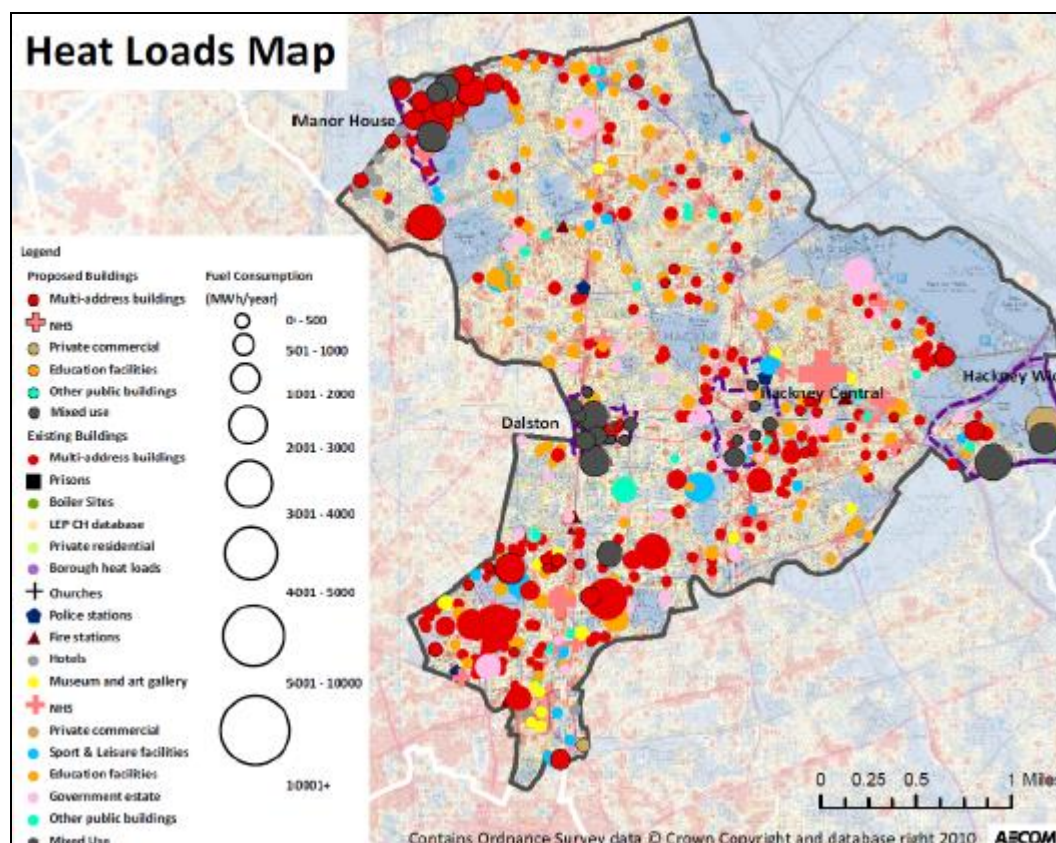


Figure TA 4.1: Hackney Heat Load map. (AECOM- Hackney Heat Mapping Study, 2010)

If connection to an existing DHN system is not possible and a communal system is specified, the following requirements need to be included within the proposal:

- 1) Footprint of plant rooms should be specified to allow a 10-15% increase in capacity. The aim of this is to future proof the system and allow expansion should a neighbouring development require a communal heating system, or to allow the connection into an expanded district heating network.

- 2) Where a development wide heating system is being installed, connection points need to be designed at suitable points on the periphery of the development site to facilitate expansion into future systems in the locale.
- 3) Within buildings, communal pipework is to be insulated, and if possible service ducts are to be ventilated. This will not only reduce heat losses through pipework and prevent overheating of the communal areas.

Table, TA 4.1 gives details of Low Carbon Technologies that may be suitable.

Technology	Suitability
Gas CHP and CCHP	Air quality issues, full feasibility study required to ensure that it is environmentally and financially the best solution
Ground Source Heat Pumps (GSHP)	Where ground conditions allow, most likely suitable for large schemes/hotels. Feasibility study is to be carried out to ensure that system is sized correctly and will run efficiently

Table TA 4.1- Low Carbon Technologies

Further details on the information that should be submitted within an Energy Statement, with specific reference to CHP systems is contained within the GLA's Sustainable Design and Construction SPG:

<https://www.london.gov.uk/what-we-do/planning/planning-applications-and-decisions/pre-planning-application-meeting-service-0>

Be Green

In order to achieve the reductions in baseline emissions as required under the London Plan and Hackney's policies, once the Lean and Clean scenarios have been taken into account, in all likelihood, a source of renewable energy will be required on site. This can be achieved using a number of technologies as outlined in Table TA 4.2. Please refer to the Retrofit and Microgeneration Technical Appendix (TA-5) on planning requirements for renewable technologies. Renewable technology installations are primarily standalone and periodic maintenance is required to ensure that the installation performs as specified. Details of the maintenance regime, who will undertake maintenance/cleaning and how it will be financed are to be submitted within the Energy Statement.

Technology	Suitability
Biomass	Air quality and fuel transport/supply issues, full feasibility study required to ensure that it is environmentally and financially the best solution
Solar Photovoltaic Panels (PV)	Suitable in most situations, however, ensure that panels are south facing, pitched correctly and will not suffer over shading
Solar Thermal	As above, increased maintenance requirements need

	to be taken onto account
Wind Turbines	Not suitable in the majority of urban situations
Air Source Heat Pumps (ASHP)	Concerns have been raised over the performance and their actual efficiency. Only suitable where no alternative is viable or gas connection is not feasible.

Table TA-4.2- Zero Carbon Technologies

New technologies are emerging all the time and the Council encourages their use, if evidence can be provided as to their efficacy. One example is the opportunity to use the Borough's waterways as a supply of heat and cooling. The GLA has carried out significant research on this and the Canal and Rivers Trust have issued guidance on the opportunity titled 'Sustainable Cooling Solution for Canal side Properties'.

Details that are required to be submitted within the Energy Statement are set out in the Technical Appendix TA-1.

Exemptions

It is understood that in some cases it will not be possible to meet the renewable energy target, and therefore the target reduction in baseline emissions, for example due to space restrictions.

Where the expected reduction in baseline emissions is not achievable onsite, a calculation of the expected shortfall is to be included within the Energy Statement. The Council will use this figure to calculate the cost of carbon produced and the Carbon Offset payment that will be required under the Section 106 agreement. This fund will be ring fenced and invested in energy efficiency measures within the borough; full details on the Carbon Offset Fund are available in Appendix TA- 9.

Policy Drivers for Low and Zero Carbon Technologies

	London Plan 2015	Hackney Council Guidance	
		Core Strategy	DMLP
Policy	5.2	CS 29	DM 37 DM 38
	5.7	CS 30	DM 39
			DM 40

Links:

Chapter 5 the London Plan 2015

<https://www.london.gov.uk/sites/default/files/London%20Plan%20March%202015%20%28FALP%29%20-%20Ch5%20London%27s%20Response%20to%20Climate%20Change.pdf>

SPD Appendix TA- 5

Technical Guidance Notes

Retrofit and Microgeneration, Refurbishment

Introduction

The aim of this Appendix is to give guidance on Hackney's aspirations to ensure that existing housing is improved environmentally when modernisation works are undertaken.

In 2008, changes were made to the General Permitted Development Order (GPDO) for dwellings in England, to add permitted development rights for microgeneration renewable energy technologies.

These new rights are contained within Part 40 of the GPDO¹⁰ and permit the installation of specified domestic microgeneration equipment, either attached to or within the curtilage of dwelling houses, provided they meet specified criteria. (For renewables, a dwelling includes a building which consists wholly of flats or which is used for the purposes of a dwelling. A curtilage is the enclosed area immediately surrounding the dwelling)

Specifically, these technologies include:

- Solar Photovoltaic
- Solar Thermal
- Ground Source Heat Pump
- Water Source Heat Pump
- Flues for Biomass heating systems, and
- Flues for CHP systems

It is imperative to understand which planning restraints apply to a property as this will affect the type of works allowed and also the process of applying for planning permission:

- Article 4 Direction – removes specific development rights from the property
- Listed Building Consent – required for most works to statutorily listed buildings

¹⁰ <http://www.legislation.gov.uk/uksi/2011/2056/made?view=plain>

- Planning permission – gives consent to prescribed activities as set out in the planning application.

Domestic Projects

In the instance of solar panels, you may be able to install these under the GPDO where they:

- Do not extend more than 200mm above the slope of the original roof
- Would not be higher than the ridge-line of the original roof
- Are located on a wall or roof and are not visible from a road

Non-Domestic Projects

In the instance of solar panels, you may be able to install these under the GPDO where they:

- Do not impact on the external appearance of the building and the amenity of the area
- Do not extend more than 200mm from the wall surface or slope of a pitched roof
- Are not more than one metre above the highest part of a flat roof (excluding the chimney)
- Are not within one metre of the external edge of the roof
- Are not within one metre of a junction of the wall on which they are mounted with another wall or with the roof of the building
- Are located on a wall or roof and are not visible from a road
- The panels must not be installed on a listed building or on a building that is within the grounds of a listed building.

Installation of solar panels on listed buildings is not permitted development. Planning permission and Listed Building Consent is required for most external changes to listed buildings.

Conservation Areas and Listed Buildings

Within Hackney there are currently 30 conservation areas and some 1300 listed buildings. A full list of the areas, further information on planning, and a locator map to identify whether your property is within a conservation area or listed is at the following address <http://www.hackney.gov.uk/ep-conservation-areas-511.htm#no.4>

Properties within these areas are subject to limits on the works that can be carried out. Properties which are in a conservation area, listed, or have an Article 4 Direction are not excluded from the installation of retrofit microgeneration or other works. However, the advice of the Council's Conservation Officer should be sought at the earliest opportunity and before any works are carried out.

Extensive information is available through the Historic England website on how listed buildings can be refurbished sympathetically.

<https://historicengland.org.uk/advice/your-home/saving-energy/>

When is planning permission required?

Any proposals to thermally upgrade the exterior of either a listed building or a building in a conservation area, or to introduce microgeneration equipment to the structure of the building, should be discussed at the earliest opportunity with conservation or planning officers. Please refer to Hackney's Planning website for details.

The following situations require planning permission in all cases:

- Any works carried out in the De Beauvoir and St Mark's Article 4 designated areas
- Any works that affect the special character or appearance of a listed building will require listed building consent

All works carried out on flats will require the freeholder's permission.

Requirements for planning permission on listed buildings and buildings in conservation areas will be judged on a case by case basis and the views of the Council's Planning and Conservation Officers should be sought at the earliest opportunity. If in doubt as to what is allowable under the permitted development rights, please contact the Council's Conservation Officer.

Table TA 5.1 below gives an indication of the relative differences in cost and disruption to households in retrofit situations for different retrofit technologies and an indication of their overall benefits.

Technology	CO2 benefit	Cost	Disruption on installation
Solar technologies (PV and solar hot water) on building	Low	Expensive	Some
Solar technologies (PV and solar hot water) free standing	Low	Expensive	Some
Air Source Heat Pumps	Low	Expensive	Some
Ground Source Heat pumps	Some	Very expensive	Extensive
Biomass	Some	Expensive	Some
Wind turbine	Low	Expensive	Some

Solid wall insulation internal	High	Very expensive	Extensive
Solid wall insulation external	Very high	Very expensive	Extensive
Double glazing	Low	Expensive	Some
MVHR	Medium	Expensive	Extensive
Loft Insulation	Very high	Low	Minimal
Cavity Wall Insulation	Very high	Medium	Some
Floor insulation	Very high	Medium	Extensive
Boiler	Medium	Expensive	Some

Table TA 5.1 - Indication of the cost, carbon dioxide benefit and potential for disturbance to householder of sustainable measures

Refurbishment Works

The following guidance should be taken into account when refurbishment and extension works are undertaken on domestic and non-domestic projects.

All works undertaken on a listed building would require listed building consent to be sought.

Domestic

In domestic refurbishments and extensions it is expected that, in line with guidance issued by the Energy Savings Trust, 10% of the project costs should be spent on measures to improve the environmental performance of the properties.

Non-Domestic

In non-domestic refurbishments, applicants will be required to carry out works to improve the building in line with Building Regulations Part L 2B. Each property and each project is different. There is not a 'one size fits all' approach, but improvements need to be tailored to the specific project.

The measures listed below range from light touch to more extensive and expensive interventions.

Metering

The installation of smart meters and water meters is required when works are carried out.

Draught Proofing

It is estimated that between 10% and 15% of the heat losses from a property is through draughts. This is an easily resolved issue with the use of draught strips around windows, doors, loft hatches, skirting boards and sealing openings in the fabric of the building from pipes and cables. It is important to

ensure that there is still adequate ventilation in rooms that require it; especially kitchens and bathrooms, to prevent the build-up of condensation and the growth of mould.

Windows

Windows are important for passive solar gain, and they are also a major source of heat loss. Heat loss can be avoided through draught proofing, the use of thermally lined curtains at night and secondary glazing or the installation of triple glazing. Technology is advancing and triple glazed windows are becoming more available and more financially accessible, therefore when applicants specify glazing this option should be considered.

For older buildings it is now possible to source slim-line double-glazed sliding sash units that will fit within existing timber window frames. However, on listed buildings this work will be viewed on a case by case basis and consultation with the Council's Conservation officer should be sought. It is also possible, rather than removing an existing period window completely, to refurbish and upgrade with similar impacts of thermal performance and in the majority of cases this would be the preferred option. PVC windows are not acceptable on listed buildings, within conservation areas, or on historic buildings.

Insulation

Lofts

The least intrusive insulation measure is to upgrade loft insulation. Current best practice requires a u-value for lofts of 0.15 W/m²K. The Council advises that 300mm of cross layered glass fibre insulation should be installed in lofts to meet this standard.

Cavity Walls

The majority of domestic buildings constructed post-1930 have cavity walls. It is possible to inject expanded foam insulation into this cavity which will dramatically reduce heat losses. Funding is often available in the right circumstances to carry out surveys to see if your building is suitable for this treatment. This process requires no internal intervention.

Floor Insulation

It is possible to treat floors for both draught proofing and also insulation under suspended timber floors. If no access is possible from below, installing floor insulation can be highly intrusive due to the requirement to lift floor boards, but the reduction in heat loss and improvements in airtightness can be significant.

Walls

Most buildings constructed before 1930 have solid walls. It is possible, depending on permission requirements, to install insulation either internally or externally. To be effective it is suggested that a minimum of 100mm of insulation is installed. Externally the insulation is attached to the wall followed by a weather proofing layer. External treatments may require planning permission, and in conservation areas or on listed buildings will be unacceptable. Contact the Council's Planning department to discuss

individual planning requirements. Internal insulation does not require planning permission but it will require the relocation of all the services that are attached to the wall.

The upgrading of the insulation can pose significant risk to the fabric of the building through the build-up of interstitial condensation. In order to avoid this, a qualified professional should carry out an interstitial condensation assessment and provide advice to specify the correct approach, and the opportunity to use traditional building materials. On listed buildings it is recommended to consult the Council's Conservation team.

Heating System

Old heating systems can be easily upgraded to modern efficient versions. Complete packages include replacing old boilers with new condensing versions; flushing to clean existing pipework and apply insulation; installing reflective panels behind modern efficient radiators that are on external walls; installing thermostatic radiator valves (TRVs); and climate modulating thermostatic boiler controls.

Lighting

As a minimum all lighting should use energy saving bulbs. If lighting units are being replaced wherever practicable LED units should be specified.

Future Proofing

Householders should be provided, by the installer, with clear and simple operating and maintenance instructions for all services within the dwelling to ensure that the dwelling is used as efficiently as possible.

If renewable technologies are not initially installed, proposals should take into account the ability to future proof the building/development to allow for its installation at a later date. This should include:

- Suitable fixing points for solar PV and thermal panels - install capped plumbing and electrical pipe runs from the roof to a convenient location in the building
- Space to allow a larger sized hot water tank
- Roof orientation to maximise solar exposure

In line with 2010 Buildings Regulations Part L 1B, the following standards should be met, and wherever possible exceeded, when works are undertaken on the specific retained building elements. Due to the reasons outlined above, care should be taken and advice sought to ensure that the building pathology is not adversely affected when works are carried out.

Building Element	Improved U-value- retained element (w/m ² .k)
Wall- cavity insulation	0.55
Wall- external/internal insulation	0.30
Floor	0.25
Pitched Roof- ceiling level insulation	0.16

Pitched Roof- rafter level insulation	0.18
Flat roof/roof with integrated insulation	0.18

Table TA-5.3- Building Regulation u-values for retrofitting

Funding

There are a number of opportunities available that can potentially provide funding to offset the cost of retrofitting energy saving measures. However, these funding streams regularly change and it is advisable to contact the Council for advice on what funding is currently available.

Policy Drivers for Retrofitting, Microgeneration and Refurbishment

	London Plan 2015	Hackney Borough Guidance Council	
		Core Strategy	DMLP
Policy	5.2	CS30	DM37
	5.4		DM38
	5.7		

Links:

UK Government Planning Portal Service- Permitted Development Rights:

<http://www.legislation.gov.uk/uksi/2012/748/made>

BREEAM Refurbishment Technical Guidance:

<http://www.breem.org/domrefurbmanual/>

Energy Savings Trust Funding Options:

<http://www.energysavingtrust.org.uk/Take-action/Find-a-grant>

SPD Appendix TA-6

Technical Guidance Notes

Materials and Waste and Contaminated Land

Introduction

The impact on the environment of the construction industry from resource use and disposal of waste is significant. The aim of this Technical Appendix is to highlight the risks and propose measures to minimise waste from construction activities, maximise the efficient use of materials, and aid developers in choosing materials with the lowest embodied energy and ecological impact, thus reducing the impacts of developments within Hackney.

The Council has a corporate commitment to reducing embodied energy and a focus on using the most sustainable materials for the development. Concrete, steel, timber and associated masonry products, when correctly specified, can produce low embodied energy buildings. The Council will expect developers to justify their choice of structural materials and will welcome innovative approaches to material specification and construction techniques.

There are successful examples of cross-laminated timber (CLT) buildings in Hackney, and the Council seeks to continue to build high quality, low carbon buildings using CLT or other sustainable materials. Despite this, the use of CLT and other sustainable materials does not negate the requirements to achieve the other sustainable design standards as set out in the Sustainable Design and Construction SPD, these Technical Appendices, and Hackney's other policy documents.

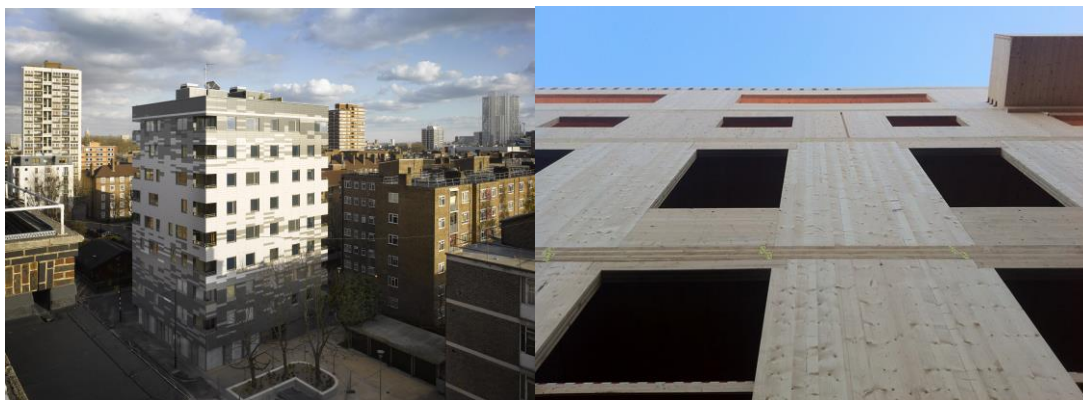


Figure TA 6.1: Examples of high quality, well designed, award winning developments in Hackney constructed from Cross Laminated Timber. Images of Stadhaus and Whitmore Road courtesy of Waugh Thistleton Architects (W. Pryce)

Construction Waste

In line with Policy 5.3 of the London Plan, applicants should demonstrate the efforts made to reduce waste arising from construction activities. The Council has set the following minimum target recycle rates:

- Residential, 85% target
- Non-Residential, 80% target

Hackney requires all developers to work with their construction teams to meet this target. A comprehensive Site Waste Management Plan (SWMP) is to be submitted with planning applications for projects with a value of over £300,000 and referenced within the Sustainability Statement.

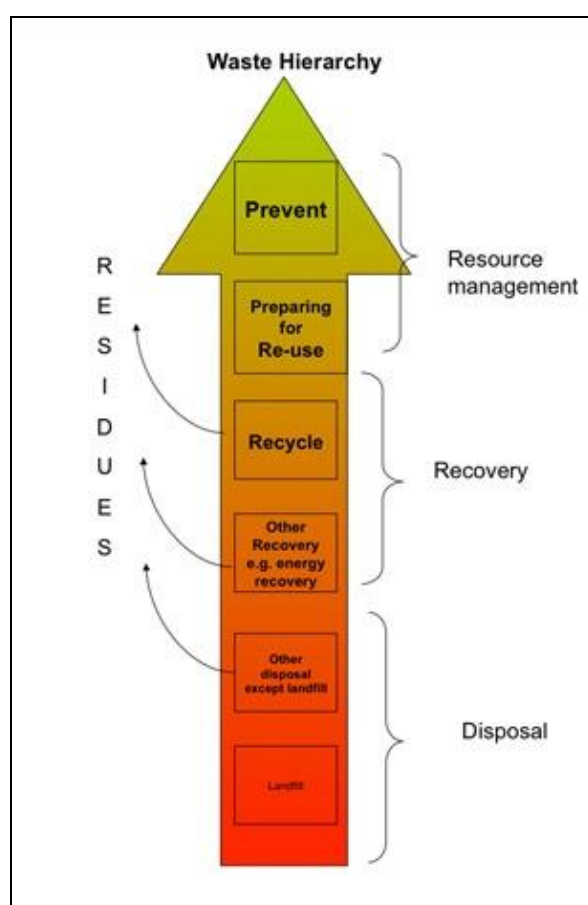


Figure TA 6.2: Construction waste recovery and disposal hierarchy

The waste hierarchy set out in Figure TA 6.2 is intended to classify the options for waste management in order of their impact on the environment. By following the principles of the waste hierarchy, from concept to completed project, construction waste will be minimised. This will generate construction cost savings as well as reduce the development's impact on the environment.

Guidance on completing SWMPs is available through the Waste and Resources Action Plan (WRAP) website.¹¹ It is expected that developers will

¹¹ <http://www.wrap.org.uk/>

work within the WRAP waste hierarchy to reduce waste to a minimum, and ideally achieve zero waste to landfill while increasing the recycling and reuse of materials directly on site. In line with the London Plan, Hackney will expect that 95% of construction wastes will be reused or recycled by 2020.

Reduce Material Use

Reducing material use could have a significant impact on reducing climate change through both decreasing high energy mining and manufacturing processes, and reducing the release of pollutants to the atmosphere by reusing materials. In order to achieve this goal Hackney will expect developers to address the following in the Sustainability Statement:

- Wherever possible, retain and refurbish existing structures
- Should demolition take place, recycle aggregates and prioritise reuse on site
- Use WRAP's designing out waste criteria to increase material efficiency by using the following strategies/actions:
 - Set, and work, towards targets within the Site Waste Management Plan
 - Prioritise material reuse on site
 - Design to standard material sizes
 - Maximise floor area to perimeter ratio
 - Design for offsite construction
 - Work with suppliers to reduce packaging and put in place take back agreements
 - Design for deconstruction and flexibility

Full details and design toolkits are available on the WRAP website:

<http://www.wrap.org.uk/>

Sustainable Materials

Choice of materials has a significant impact on the environment. Material choice needs to be integrated into the initial design of the building and the following needs to be considered:

- embodied energy - the amount of energy required to produce the material
- durability - its ability for a long life
- potential for material reuse if the building is taken down
- sourcing - materials available locally should be chosen over those imported over long distances

- renewable materials should be sought from sustainable sources wherever possible.

Material Requirements within the Sustainability Statement

Included within the Sustainability Statement should be a report on the efforts that will be taken to reduce the environmental impact of the specified materials. Reference should be made to the following:

- A nationally recognised assessment methodology providing guidance on the relative environmental impacts of material specifications
- As stated, wherever possible demolition and construction wastes should be reused on site and not taken off site for processing
- Specification of materials should take into account the carbon savings from sourcing materials locally to the site
- Materials with a high recycled content should be chosen over those without. For example, reuse aggregates for ballast/foundations, within concrete mixes and for hard landscaping
- Insulation materials and refrigerants are required to have a Low or Zero Global Warming Potential (GWP) and Zero Ozone Depleting Potential (ODP)
- All timber should be sourced as FSC or PEFC certified inline with the governments CPET requirements and no species to be specified that are prohibited under CITES
- All materials, finishes and adhesives are to be specified Low or Zero Volatile Organic Content (VOC)

Further details on sustainable materials, embodied energy and material choices can be found at the following links:

Inventory of Carbon and Energy (ICE):
<http://web.mit.edu/2.813/www/readings/ICE.pdf>

Office of Government Commerce - Strategy for Sustainable Construction:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/15370/strategy-for-sustainable-construction.pdf

In-Use Waste

Both internal and external waste storage and recycling requirements are set out within Hackney's Policies. Further information on all aspects, including full specifications and requirements for each development type, are set out within Hackney's Refuse and Recycling Storage Requirements document, available for download at the following link:

<http://www.hackney.gov.uk/Assets/Documents/Architects-Recycling-Guide.pdf>

All applicants are strongly advised to review the Council's guidance and if required seek further advice from the Waste and Recycling team at Hackney before submitting applications.

Contaminated Land

The contamination of land normally arises as a result of industrial processes and waste management practices. Other more dispersed sources of contamination have also resulted from the transport network, successive phases of redevelopment and bombing during the Second World War. As a result contamination is likely to be found on industrial and commercial sites, but may also be present in any part of the Borough. There are a wide range of potential contaminants that, if not properly dealt with, may result in harm to people and the environment or the pollution of controlled water.

There are three key routes to address contaminated land including:

Part 2A of the Environmental Protection Act 1990: This legislation addresses land that maybe/is resulting in harm to people, property or the environment, or the pollution of controlled waters, where the event that caused the contamination or pollution took place before 1st March 2009.

The Environmental Damage (Prevention and Remediation) Regulations 2009: This legislation covers environmental damage, which refers to adverse effects on specified protected areas of land, habitats or species, deterioration of surface water or groundwater and the contamination of land resulting in a significant risk of adverse effects on human health; where the damage occurred on or after 1st March 2009.

Town & Country Planning Acts and the National Planning Policy Framework: The National Planning Policy Framework requires contaminated land to be addressed during the planning process so that land is not capable of being determined as contaminate land under Part 2A of the Environmental Protection Act 1990. Contaminated land should also be dealt with through the Building Control regime.

Addressing contaminated land will require the provision of information during the application stage and once planning permission has been granted. This should typically be in line with Table TA 6.1.

Table TA 6.1: Information required at each phase of a development

Development	Known area of potential contamination	Application stage	Once permission is granted	Comments
Smaller residential extensions	Yes	n/a	RAP, Ver	Action required to report any observed contamination and protect existing/new development
	No	n/a	n/a	
Refurbishment/conversion of residential property for residential use - ground floor	Yes	DS, Prop. SI	SI, RAP, Ver	Generally simpler requirements unless associated with a more significant industry
	No	n/a	SI, RAP, Ver	RAP and Ver only required if contamination found above background concentrations.
Refurbishment/conversion of residential property for residential use - first floor and above	Yes	DS	n/a	Action only necessary if DS identifies a potential risk to future occupants
	No	n/a	n/a	
New residential, school, community building, open space or other sensitive use	Yes	DS, Prop. SI	SI, RAP, Ver	
	No	DS, Prop. SI	SI, RAP, Ver	
Commercial/industrial including extensions	Yes	DS, Prop. SI	SI, RAP, Ver	DS and SI may not be required for smaller extensions
	No	See comments	See comments	Consider on site by site basis. Need to obtain baseline information and ensure development won't result in contamination.
Note: DS=Desk Study; Prop. SI = Site Investigation Proposal; SI = Site Investigation; RAP = Remedial Action Plan; Verification.				

There is a wide range of guidance available which identifies how desk study, site investigation, risk assessment, remediation and verification work should be undertaken. This includes documents such as the British Standard BS10175, the Environment Agency's Model Procedures Document (CLR11)

and the Council's own guidance for planning and contaminated land. Further information and guidance on contaminated land and planning is available from the following link on the Hackney website:

<http://www.hackney.gov.uk/ee-pollution-contaminated-land-418.htm>

Other key guidance that must be referred to when undertaking desk study, investigation, remediation and verification work includes that produced by the:

- DEFRA – <http://www.defra.gov.uk/>
- Environment Agency – <http://www.environment-agency.gov.uk/>
- Specific guidance is available from the Environment Agency at the following links:

GPLC 1-3 - <https://www.gov.uk/government/publications/managing-and-reducing-land-contamination>

CRL11 - <https://www.gov.uk/government/publications/managing-land-contamination>

- British Standards Institute – <http://www.bsigroup.com/>
- Building Research Establishment – <http://www.bre.co.uk/>
- CIRIA guidance – <http://www.ciria.org/>
- Other reputable national and international organisations

Reference must also be made to the current version of the Council's contaminated land strategy as it may contain specific policies relating to development on contaminated land. The Council's contaminated land strategy is available from

<http://www.hackney.gov.uk/ee-pollution-contaminated-land-418.htm>

The Council's guidance for planning and contaminated land identifies the level of information that is expected at each stage of development works. The following development specific advice and standard templates for providing information are to be produced and must be used where available. Other guidance may also be developed in the future.

Guidance

- Introductory guidance
- New build sensitive end uses
- Changes in use to a sensitive end use
- Conversions of a sensitive use to another sensitive use
- Large areas of landscaping, public open space or playing fields
- Developments with extensive basements
- New build commercial development
- Changes of use to a commercial development
- Extensions and excavating basements

Templates

- Written and signed statement and checklist for developer and ground workers
- Investigation report for small residential new builds and conversions not situated on a site of potential concern
- Remediation action plan for small residential new builds, conversions and extensions
- Verification report for small residential new builds, conversions and extensions

Developers will be expected to incorporate readily available information from the Council in to relevant reporting including information from the Pollution Control Team (<http://www.hackney.gov.uk/environmental-searches-and-information.htm>) and <http://www.map.hackney.gov.uk/LBHackneymap/>) and from the Hackney Archives (<http://www.hackney.gov.uk/ca-archives.htm>).

Air Quality

The London Borough of Hackney is designated an air quality management area for nitrogen dioxide and particulate matter. Both nitrogen dioxide and PM10 are associated with significant health effects. It is estimated that air pollution contributes to the earlier death of about 96 people in Hackney every year. It is therefore essential that new development doesn't add to air pollution in the Borough and that, wherever possible, development positively enhance air quality to achieve air quality objectives.

The most recent apportionment study for the Borough (2013) predicts that the key contributions to air pollution within the Borough in 2015 will be:

- nitrogen dioxide - main roads (52%), minor roads (3%) and residential and commercial gas boiler emissions (39%)
- particulate matter - main roads (55%), minor roads (5%) and industry (10%), domestic and commercial gas (5%)

The National Planning Policy Framework (NPPF) requires Planning Authorities in England to address air quality during development to protect peoples' health and sustain compliance with EU legislation. In particular the planning process offers opportunities to:

- Monitor and control development activity to minimise impacts on air quality
- Reduce the longer term contribution of development on air quality
- Protect those using developments from poor air quality in the vicinity of a development

Considering the main sources of air pollution within the borough the key local factors to consider during the development process are the:

- Management and reduction of traffic on the Borough's roads and particularly main roads
- Mitigation of significant air pollution resulting from roads
- Reduction of nitrogen dioxide emissions from gas fired boilers and combined heat and power systems through the use of more efficient systems
- Reduction of nitrogen dioxide emissions by increased use of alternative sources of energy and greater energy efficiency

Demolition and building works have local and - depending on the scale of development - wider impacts on air quality. It is therefore also important to consider the following issues on a site by site basis:

- Emissions of dust and smoke during demolition and development work
- Traffic associated with a development site.

Waste Management Facilities

Waste management facilities can contribute to poor air quality particularly dust and particulate pollution. Although traditional dust abatement measures do make a positive contribution to reducing dust and particulate pollution, the preferred option which is most cost effective and environmentally sustainable in the long-term is full enclosure i.e. waste storage and treatment activities carried out inside a covered building enclosed on all sides with access and egress points covered by fast acting doors which default closed. Large open-fronted buildings should be avoided as this provides a low pressure pathway for dust and particulates to escape the control of the operator. The GLA's London Plan Sustainable Design and Construction SPG along with The Control of Dust and Emissions From Construction and Demolition SPG, provide detailed guidance on the best practice for designing waste facilities in an urban environment and should be referred to in the early stage of the design process.

Links:

<https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/sustainable-design-and>

<https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/control-dust-and>

Table A identifies the types of impacts that may be expected from different development types. Planning air quality guidance covering the above issues, monitoring data and other information is available from the following link:

<http://www.hackney.gov.uk/ee-pollution-air-413.htm>

Development type	Description	Development types not included	Impacts
Major building works	Includes all new build, changes of use and refurbishments for residential, commercial/industrial and public buildings. Major works are classed as development comprising 10 or more properties, or that are 100 square metres or larger.	None excluded.	<ul style="list-style-type: none"> • Dust and smoke • Travel and transport to and from site • Site machinery and energy use • Energy use/boilers emissions from final development • Transport of end user
Minor building works	Includes new build, changes of use and refurbishments for residential, commercial/ industrial and public buildings. Minor works are classed as development comprising less than 10 properties, or smaller than 100 square metres.	<ul style="list-style-type: none"> • Small extensions and additions typical of householder applications • Auxiliary structures to house telecommunications or other similar equipment • Developments that present opportunities to improve energy efficiency or boiler emissions 	
Major amenity work	Development of amenity not associated with construction of significant buildings. Including the development of public amenity, landscaping, gardens, allotments or other similar developments. In such cases major works would include areas 5000 square meters or larger.	None excluded.	<ul style="list-style-type: none"> • Dust and smoke • Travel and transport to and from site during development • Site machinery and energy use
Transport – major	Any significant development of the transport network including roads, rail and cycle networks.	None excluded.	<ul style="list-style-type: none"> • Dust and smoke • Travel and transport to and from site during development • Mode of transport • Traffic flows
Transport – minor	The less significant development of the transport network including roads, rail and cycle networks.	Development that will not result in any change to existing traffic flows or rates.	
Traffic hubs	Any use that may result in vehicles collecting around a specific hub including taxi offices, taxi ranks, bus stops, etc.	Development that will not result in any change to existing traffic flows or rates. For example changes to an existing taxi office that will not affect the existing capacity of the office.	<ul style="list-style-type: none"> • Increased concentration of traffic in local areas

Table TA 6.2: Development types and key impacts

Table B identifies minimum BREEAM criteria that must be met for different development types. BREEAM guidance will be kept under review and any updates to Table 1.3 will be produced on the Pollution Control Team's webpage.

Table TA 6.3: BREEAM criteria for different development types

Issue ID	Issue Title	Minimum credits		Typical standard to be achieved*
		BREEAM UK 2008 versions	New non-domestic buildings UK 2011	
Hea 8 (2)	Indoor Air Quality	1 (wherever feasible)	1 - items 1-4 (wherever feasible)	<ul style="list-style-type: none"> Air conditioned/mixed mode buildings – air intakes 20m from external sources of pollution Naturally ventilated buildings – openable windows/ ventilators are over 10m from sources of external pollution
Ene 1	Reduction of CO2 emissions	10 (ideally exemplar credit 1 or 2 should be achieved)	10	<ul style="list-style-type: none"> EPC rating for new build of ≤25 EPC rating for refurbishment of ≤31
Ene 5 (4)	Low or zero carbon technology (LZC)	2 (wherever feasible)	2 (wherever feasible)	<ul style="list-style-type: none"> Feasibility study by energy specialist considering identified technologies A LZC has been specified for the development
Tra 3	Cyclist facilities	2	Maximum credits	Specified measures for development type
Tra 5	Travel plan	1	1	Specified measures for development type
Pol 4 (2)	NOx emissions from heating source	3	3 (or 1 for industrial buildings)	<ul style="list-style-type: none"> Space heating & cooling ≤40mg/kwh Water heating ≤100mg/kwh (at 0% excess O2) Industrial buildings space heating and cooling ≤70mg/kwh

Note: * = Reference must be made to the current appropriate BREEAM documentation for the type of development as standards may be revised over time. () = reference Non-domestic 2011 guidance where different from earlier guidance.

Tables TA 6.4 to TA 6.8 set out “Air Quality Neutral”¹² requirements which must be met by all major developments. The requirements consist of ‘benchmarks’ for the total emissions from a building and associated development and explicit emissions limits for some types of plant; where applicable both sets of requirements must be met. As with the BREEAM standards Air Quality Neutral sets out minimum standards that should be improved upon wherever possible. Any updates to the Air Quality Neutral standards will be produced on the Pollution Control Team’s webpage.

Table TA 6.4: Air Quality Neutral benchmarks for building emissions associated with different development types

Land Use Class	NOx (g/m ² /annum)	PM10 (g/m ² /annum)
Class A1	22.6	1.29
Class A3 - A5	75.2	4.32
Class A2 and Class B1	30.8	1.77
Class B2 - B7	36.6	2.95
Class B8	23.6	1.90
Class C1	70.9	4.07
Class C21	68.5	5.97
Class C31	26.2	2.28
D1 (a)	43.0	2.47
D1 (b)	75.0	4.30
Class D1 (c -h)	31.0	1.78
Class D2 (a-d)	90.3	5.18
Class D2 (e)	284	16.3

Note: Gross Floor Area (GFA) is used to define the area.

Table TA 6.5: Air Quality Neutral benchmarks for transport emissions associated with different development types

Land use	Central Zone	Activity	Inner London	Outer London
NOx (g/m²/annum)				
Retail (A1)	169		219	249
Office (B1)	1.27		11.4	68.5
NOx (g/dwelling/annum)				
Residential (C3)	234		558	1553
PM10 (g/m²/annum)				
Retail (A1)	29.3		39.3	42.9
Office (B1)	0.22		2.05	11.8
PM10 (g/dwelling/annum)				
Residential (C3,C4)	40.7		100	267

¹² The full details of Air Quality Neutral are set out in the Greater London Authority guidance “Sustainable Design and Construction SPG”
<https://www.london.gov.uk/priorities/planning/consultations/draft-sustainable-design-and-construction>

Table TA 6.6: Banding for emissions limits on Solid Biomass Boilers and CHP Plant

Band	Applicable Range	
	Baseline Annual Mean NO ₂ and PM ₁₀	Baseline 24-Hour Mean PM ₁₀
Band A	> 5% below national objective	> 1-day less than national objective
Band B	Between 5% below or above national objective	1 day below or above national objective

Table TA 6.7: Emission Standards for Solid Biomass Boilers and CHP Plant in the Thermal Input Range 50kWth to less than 20MWth for development in Band A

Combustion Appliance	Pollutant/ Parameter	Emission Standard at Reference O ₂ (mg Nm ⁻³)	Equivalent Concentration at 0% O ₂ (mg Nm ⁻³)	Likely Technique Required to Meet Emission Standard
Spark ignition engine (natural gas/biogas)	NO _x	250	329	Advanced lean burn operation (lean burn engines) NSCR (rich burn engines)
Compression ignition engine (diesel/bio-diesel)	NO _x	400	526	SCR
Gas turbine	NO _x	50	177	None above standard technology for modern turbines
Solid biomass boiler (including those involved in CHP applications)	NO _x	275	386	Modern boiler with staged combustion and automatic control
	PM	25	35	Modern boiler with staged combustion and automatic control including cyclone/multicyclone
All (stack heat release less than 1MW)	Stack discharge velocity	10 ms ⁻¹	N/A	Appropriate design of stack discharge diameter to achieve required velocity
All (stack heat release greater than or equal to 1MW)	Stack discharge velocity	15 ms ⁻¹	N/A	Appropriate design of stack discharge diameter to achieve required velocity

Table TA 6.8: Emission Standards for Solid Biomass Boilers and CHP Plant in Thermal Input Range 50kWth to less than 20MWth for development in Band B

Combustion Appliance	Pollutant/Parameter	Emission Standard at Reference O ₂ (mg Nm ⁻³)	Equivalent Concentration at 0% O ₂ (mg Nm ⁻³)	Likely Technique Required to Meet Emission Standard
Spark ignition engine (natural gas/biogas)	NO _x	95	125	SCR (lean burn engines) NSCR (rich burn engines)
Compression ignition engine (diesel/bio-diesel)	NO _x	400	526	SCR
Gas turbine	NO _x	20	71	Latest generation DLN burners and / or SCR
Solid biomass boiler < 1MWth input (including those involved in CHP applications)	NO _x	180	252	Modern boiler with staged combustion, automatic control and/ or SNCR
	PM	5	7	Fabric/ceramic filter
Solid biomass boiler ≥ 1MWth input (including those involved in CHP applications)	NO _x	125	175	Modern boiler with staged combustion, automatic control and/ or SNCR Fabric/ceramic filter
	PM	5	7	
All (stack heat release less than 1MW)	Stack discharge velocity	10 ms ⁻¹	N/A	Appropriate design of stack discharge diameter to achieve required velocity
All (stack heat release greater than or equal to 1MW)	Stack discharge velocity	15 ms ⁻¹	N/A	Appropriate design of stack discharge diameter to achieve required velocity

Table 6.9 identifies information that must be submitted to the Planning Authority at the planning application stage for the development types identified within Table TA 6.2. All information must be prepared in line with best practice guidance and any guidance provided by the Council. Planning air quality guidance is available from the following link:

<http://www.hackney.gov.uk/ee-pollution-air-413.htm>

Table TA 6.9: Pre-planning application decision matrix for Air Quality

Development reference	Air quality assessment	Recommendations for programme of air quality monitoring	Assessment of BREEAM criteria (see Table 1.3)	Boilers and CHP schemes*	Alternative technologies assessment*	Green walls and roofs assessment
Major	Yes	Yes	Yes	Yes	Yes	Yes – within 50m of main road only
Minor	No	No	Yes	Yes	Yes	Yes – within 50m of main road only
Major amenity	Yes	Yes	N/A	N/A	N/A	N/A
Transport	Yes	Yes	N/A	N/A	N/A	No
Transport hubs	Yes	N/A	N/A	N/A	Yes	N/A

Conditions will typically be attached to the decision notices of planning applications in line with Table TA 6.10. For many applications conditions will only be attached if development is taking place within an area that is known or predicted to fail National Air Quality Objectives. This information will be made available at the following link:

<http://www.map.hackney.gov.uk/LBHackneymap/>

Table TA 6.10: Decision matrix for attaching air quality conditions

Development reference	Description	Air quality assessment	Air quality monitoring	Energy efficiency potential of buildings	Gas fired boilers to be used?	Combined heat and power to be used?	Alternative technologies	Green walls and roofs	Electric charging points?	Dust suppression	Air Quality Neutral
Major	General	Yes	Yes*	Yes*	Yes	Yes	Yes*	Yes*	Yes*	Yes	Yes
Minor	General	Yes*	-	Yes*	Yes	Yes	Yes*	Yes*	Yes*	Yes*	
Amenity areas	Major	Yes	Yes*	-	-	-	-	-	-	Yes*	
Transport	Major	Yes	Yes	-	-	-	-	-	-	Yes*	Yes
	Minor	Yes	Yes	-	-	-	-	-	-	-	
	Transport hubs	Yes	-	-	-	-	-	-	-	-	Yes

Note: a) A *major development* includes: 10 or more properties, or larger than 100 square metres. b) a *minor development* includes less than 10 properties, or smaller than 100 square metres. c) * = typically conditions will be applied only in areas of the borough that exceed or are predicted to exceed National Air Quality Objectives.

<http://www.hackney.gov.uk/what-is-contamination-and-contaminated-land.htm>

Policy Drivers for Sustainable Materials and Construction Wastes

	London Plan 2015	Hackney Council Guidance	
		Core Strategy	DMLP
Policy	5.3	CS 29	DM41
	5.16	CS 32	DM42

SPD Appendix TA- 7

Technical Guidance Notes

Water and Drainage

Introduction

The Council's intention is to reduce the pressure on infrastructure and the environment through the reduction of water usage within developments. This will be achieved through conservation measures while reducing the impact the development has on surface water runoff and mitigating the potential for flooding events. The Environment Agency has carried out significant flood mapping work in Hackney and it is the expectation that proposals take account of the guidance released by the Environment Agency.

In-use Water Consumption

Non-Residential Developments

The requirements are as follows:

- New construction projects are required to achieve BREEAM 'Excellent' standard or equivalent under an alternative assessment model.
- Refurbishment projects are required to meet BREEAM 'Very Good' standard or equivalent under an alternative assessment model.

Wherever possible, proposals for measures to reduce the use of potable water (low flush WCs, aerated taps, flow restrictors) should be included within the Sustainability Statement of the planning application.

In the case of all other developments - minor, conversion, domestic and extensions – an optional target is in place to reduce water consumption to a maximum of 105 litres per person per day as set out in the Mayor's Housing Standards Transitional Statement and information on how this will be achieved is to be included in the Sustainability Statement to be submitted with the planning application.

Landscaping and Irrigation

If soft landscaping is provided, a management statement and water storage plans will be required to provide evidence that rainwater or recycled water will be used for irrigation. Hackney will reject proposals that rely solely on the use of potable water for irrigation. Planting for soft landscaping should be specified

to include species that are able to survive drought or conditions where water is limited.

External Water Attenuation

Full details of the Council's requirements in regards to Flooding and Flood Risk Assessments are included in Policy DM 44 within the draft Development Management Plan.

Major sites of over 10 units or 5000m² floor area are to submit full details in line with national standards. Applicants should contact the Senior Flooding Officer in the Council's Streetscene team for full details.

Figure TA 7.1 gives an indication of the measures that can be incorporated by developers to reduce surface water runoff. In all cases the following hierarchy needs to be followed:

- 1) Discharge into the ground
- 2) Discharge to a surface water body
- 3) Discharge to a surface water sewer
- 4) Discharge to a combined sewer

Minor sites of under 10 units are to submit evidence of the following:

- Living roofs
- Permeable landscaping
- Betterment over existing conditions

New national guidelines are currently being written by DEFRA; on release, the above information may be updated.

Within Hackney, nine Critical Drainage Areas have been identified, and within these areas Local Flood Risk Zones identify the actual spatial extent of predicted flooding, with Hackney Wick identified as being particularly at risk¹³. Developments within these areas may be required to complete a site specific Flood Risk Assessment in line with Hackney's Policy that takes into account a Fluvial Flood Risk assessment. In November 2015 the Environment Agency published revised climate change allowances. Flood risk assessments carried out by applicants will need to incorporate these allowances into their assessments in line with the published guidance. This information is now available at the following link:

<https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>

Hackney's main requirements in regards to water attenuation are as follows:

¹³ http://www.hackney.gov.uk/Assets/Documents/Hackney_SWMP_Draft.pdf

- All developments, where work is carried out on hard landscaping, or where there is a net increase in the area of hard landscaping, are to ensure all new landscaping is fully permeable.
- The Council will expect developments to propose methods to reduce the impact of surface water runoff. Full details and specifications can be obtained from the Council's Interim SuDS Guidance Policy.
- Developments that include the construction or refurbishment of flat roofs, or roofs of a pitch of less than 20 degrees or more than 20 m², are to install an extensive living roof. This is to have a minimum substrate depth of 80mm, not including the depth of the chosen vegetative mat. Full details of the requirements for these types of roofs are contained within the Hackney Biodiversity Action Plan and the London Plan Technical Policy Report: Living Roofs and Walls.
- There is a potential impact from the effluent of living roofs being high in nutrients. Where living roofs are specified near water courses in the Borough it should be ensured that runoff from the installed living roof are not able to enter the adjacent waterway.

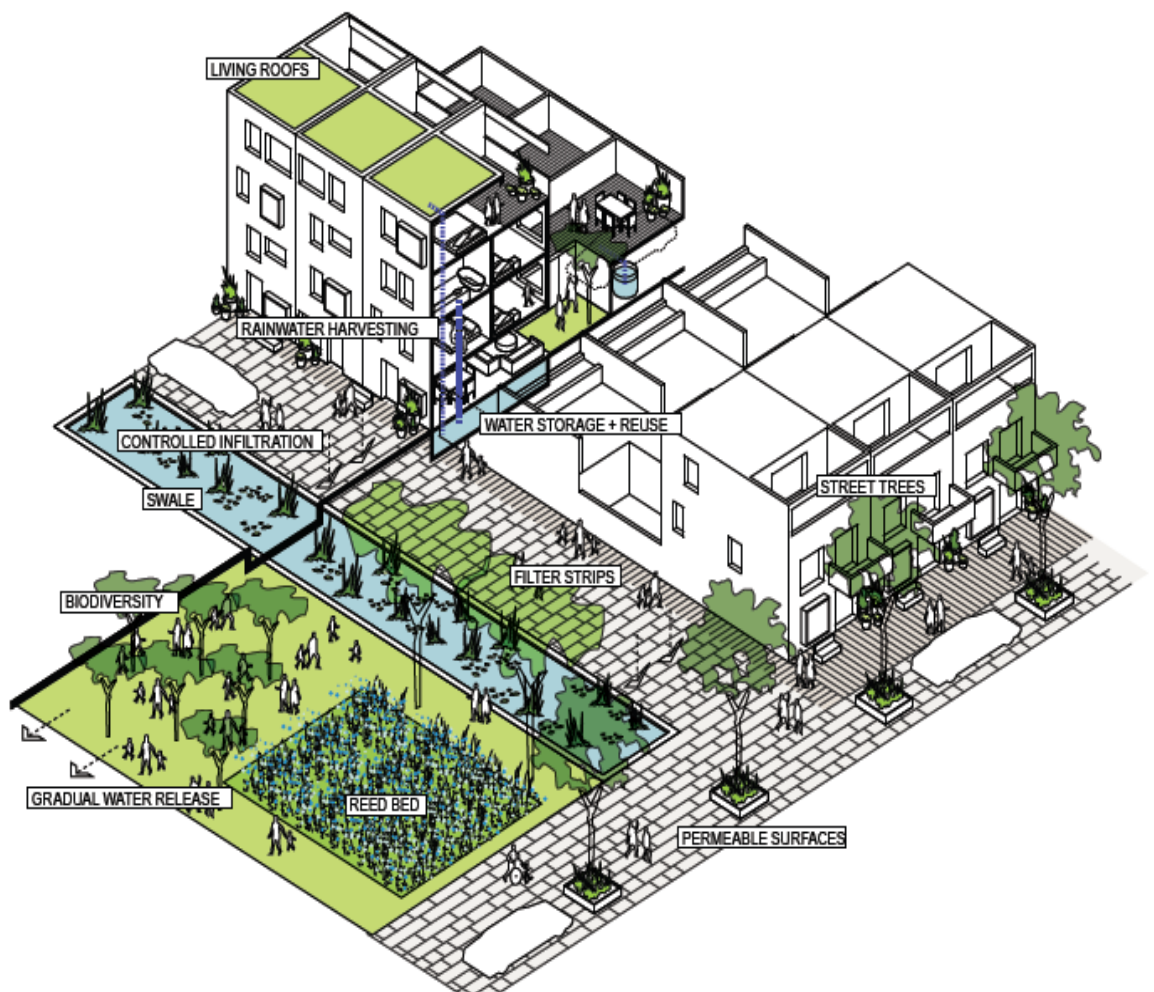


Figure TA 7.1 External water attenuation

Policy Drivers for Water- Internal Consumption and External Attenuation

	London Plan 2015	Hackney Council Guidance	
		Core Strategy	DMLP
Policy	5.3	CS31	DM42
	5.12		DM43
	5.13		
	5.14		
	5.15		

Links:

London Plan Technical Policy Report: Living Roofs and Walls
<http://www.london.gov.uk/sites/default/files/living-roofs.pdf>

Hackney Council Interim SuDS Guidance Policy TBC

Hackney Biodiversity Action Plan 2012-17
<http://www.hackney.gov.uk/Assets/Documents/BAP-2012-2017.pdf>

Code for Sustainable Homes Technical Guidance
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/5976/code_for_sustainable_homes_techguide.pdf

BREEAM Technical Guidance
<http://www.breem.org/BREEAM2011SchemeDocument/>

SPD Appendix TA-8

Technical Guidance Notes

Biodiversity, Landscape and Urban Greening

Introduction

The Council has a statutory requirement to ensure that development results in the protection, creation and enhancement of existing biodiversity and optimises the distinctive character of the existing landscape. All major developments will be expected to submit a biodiversity study. Minor development requirements will be reviewed on a case by case basis. These biodiversity studies are required to identify the existing habitats and species present on site and those in the vicinity of the site which may be impacted by the proposed development.

Hackney's Waterways

Waterways provide particular types of water-related habitats and provide ecological corridors for birds, bats, mammals and aquatic wildlife. River corridors make an important contribution to green infrastructure and urban greening so development of sites that are in close proximity to waterways should aim to preserve, enhance or create green corridors along the waterways and maximise the habitat value with native planting and minimise lighting impacts. There are multiple benefits associated with this such as reducing flood risk, allowing access for maintenance, improving water quality and climate change adaptation. New development along the Lee Navigation, River Lea and Hackney Cut should ensure that measures are incorporated to protect and enhance biodiversity. Further details are available in Hackney's Biodiversity Action, and the London Plan Policy 7.28 *Restoration of the Blue Ribbon Network*.

Particular attention should be given to the following aspects of development near waterways:

- Living Roofs: the runoff from Living Roofs may be high in nutrients and should be prevented from entering adjacent waterways. This can cause algal blooms.
- Applications should consider the impact and minimise the risk of over shading of the waterways.
- The impact of lighting from new development can adversely affect wildlife, including bats - lighting 'spill' should be reduced wherever possible and 'bat friendly' lighting should be specified.
- Applicants should ensure provision of bird and bat boxes where applicable, and seek to incorporate measures to enhance biodiversity.

Multi-functional Landscaping and Biodiversity

Landscaping comprises hard and soft materials. As well as being a visual amenity and foil to buildings, and contributing to the particular character of the locality, it should contribute to delivery of a range of other functions. These include: physical and sensual amenity; defining space; use and ownership; sustainable urban drainage systems (SuDS); improving microclimate; and creating or enhancing biodiversity. Developers should consider how the landscaping:

- Accommodates and uses surface water: 'source control' and SuDS
- Does not place demands on potable water
- Improves microclimate (wind, water, air quality, temperature, sun/shade, humidity) and reduces the urban heat island effect
- Benefits the landscape/townscape/streetscape beyond the site boundaries
- Maintenance is affordable/realistic/sustainable and if the landscaping is sufficiently robust to survive the likely pressures on it
- Uses sustainably sourced materials
- Integrates into the design of surrounding buildings- for example deciduous trees can provide solar shading to prevent overheating in summer.

Developers are required to ensure that construction activities are planned to take into account trees on site – not just overhanging branches, but also the root protection zone – and ensure that adequate protective barriers are in place before works commence. If work on trees is unavoidable, ensure that it takes place outside the growing and nesting season.

Biodiversity can be enhanced through a number of measures, including diverse planting, bird/bat boxes, insect stacks and bee hotels. Full details of the biodiversity measures that Hackney expects to be incorporated into new development and regeneration projects, and addressed within applications, are available within the Hackney Advice Note: *Biodiversity and the Built Environment*¹⁴.

Urban Greening

The GLA has a target to increase urban greening by at least 5% by 2030 and a further 5% by 2050. To enable this, development proposals should integrate green infrastructure at the initial design stage. Opportunities should be identified where urban greening can make an impact on mitigating the effects of climate change and the urban heat island effect.

¹⁴ <http://www.hackney.gov.uk/Assets/Documents/Hackney-Advice-Note-Biodiversity-and-the-Built-Environment.pdf>

As a minimum, all developments that include the construction or refurbishment of a flat roof, or a roof with a pitch of less than 20 degrees, are to install an extensive living or biodiverse roof. If roof mounted renewable energy installations are proposed, these should be integrated into living roofs.

Research has shown that both systems benefit when integrated.

- The living roof is expected to be specified with a minimum of 80mm substrate depth, and where possible a varied substrate depth of up to 150mm made up of recycled crushed aggregates, soil and waste compost. If a sedum mat is specified, the thickness of the mat cannot count towards the substrate depth.
- A full living roof management plan is expected to be submitted, including the following details:
 - Management process: expected interventions throughout the year and timings
 - Access plan
 - Details of the person/organisation who has responsibility to carry out the maintenance/management

Full details, design principles and recommended species for living roofs are available within the Biodiversity Action Plan Document, available to download from the Hackney Website.

Further information on Green Infrastructure and its incorporation into planning can be found at the following two links:

<https://www.gov.uk/government/publications/planning-guidance-and-green-infrastructure>

<http://www.tcpa.org.uk/pages/planning-for-a-healthy-environment-good-practice-for-green-infrastructure-and-biodiversity.html>

Landscape Enhancements

Developers should take the opportunity to enhance the landscape of a development and its surrounding areas to ensure that it makes a positive contribution in terms of design, form and location, even in situations of retrofitting. For example trees can be of a species capable of growth to exceed building height and thus provide summer time shading, and should be managed to do so. Mature trees should be maintained and succession planting planned to allow for new trees to be established before old trees die off.

Green Grid

Hackney falls within two zones of the 'All London Green Grid'¹⁵, zone 1 and zone 2. Hackney's network of open spaces should be regarded as integral infrastructure which will contribute to the 'All London Green Grid', and the quality of the overall environment as advocated in the All London Green Grid (ALGG) SPD and London Foundations (March 2012). The network forms part of Hackney's character and has a vital role in the well-being of communities. In order to facilitate the linking of the borough's open spaces into the All London Green Grid, the Council encourages all development providing new or replacement open space to submit a feasibility study to connect to the existing green grid.

Policy Drivers for Biodiversity and Landscaping

	London Plan 2015	Hackney Council Guidance	
		Core Strategy	DMLP
Policy	5.7	CS26	DM1
	5.10	CS27	DM2
	5.11		DM31
	5.13		

Links:

Hackney Biodiversity Action Plan 2012-17:

<http://www.hackney.gov.uk/Assets/Documents/BAP-2012-2017.pdf>

Hackney Advice Note: Biodiversity and the Built Environment:

<http://www.hackney.gov.uk/Assets/Documents/Hackney-Advice-Note-Biodiversity-and-the-Built-Environment.pdf>

London Plan Technical Policy Report: Living Roofs and Walls:

<http://www.london.gov.uk/sites/default/files/living-roofs.pdf>

All London Green Grid:

<http://www.london.gov.uk/priorities/environment/greening-london/improving-londons-parks-green-spaces/all-london-green-grid>

¹⁵ <https://www.london.gov.uk/priorities/environment/greening-london/improving-londons-parks-green-spaces/all-london-green-grid>

Technical Appendix TA- 9

Technical Guidance Notes

Carbon Offsetting

Introduction

Financial viability is an important part of the decision making process for which sustainability measures will be incorporated into a development. In planning terms this is not a first consideration, but Hackney accepts that developments are associated with a finite financial investment. Hackney is supportive of opportunities for innovation in this regard, but in line with local and regional policy will always require that applicants demonstrate how carbon emissions have been minimised in the scheme as a first principle.

A Carbon Offsetting requirement arises when a development is unable to meet the required reduction in baseline regulated carbon emissions through Lean, Clean and Green measures on site. Any shortfall should be met either by the developer offsite, or through a cash in lieu contribution to the Council.

There are two situations which will trigger a requirement for carbon offsetting:

- Firstly, there will be some developments where, due to spatial constraints, it is impossible to incorporate all the measures required to meet the carbon emission targets set out in planning policy
- Secondly, if it becomes apparent on completion that the as-built development differs significantly from the development approved at the time of planning, then the developer will be required to submit a second Energy and Sustainability Statement with all associated energy calculations. If the new statement shows that the as-built development's carbon emissions exceed the original proposal, a carbon offsetting requirement will be triggered

The Council can agree with the developer for the developer to directly offset any shortfall in carbon dioxide reductions by undertaking a carbon saving project/s within the vicinity of the proposed site. However, if this is not feasible or the developer chooses not to, the developer can make a one off payment into the Council's Carbon Offset Fund, including a management fee of 5%.

Outline details of the mechanism of the Carbon Offset Fund are contained within the Council's S106 Supplementary Planning Document. Full details of how payments will be calculated and managed are set out below.

The Council will negotiate a charge (commuted sum) through the S106 process to be paid into the Council's Carbon Offset Fund. This will be

negotiated in all situations where the applicant is unable to meet the required reduction in carbon emissions on site.

The Cost of Carbon - The cost per tonne of carbon is set at the nationally recognised price for Carbon Dioxide, as set by the Zero Carbon Hub, of £60 per tonne. Following London Plan guidance the overall contribution is calculated over a 30 year period. Therefore the total cost per tonne of Carbon is £60 x 30 years = £1,800 per tonne of carbon to be offset. This price will be reviewed at the beginning of each financial year and set in accordance with the Zero Carbon Hub.

The Carbon Offset Fund - The funds generated will be ring fenced and managed directly by the Council and invested in the following types of projects;

- Community owned renewable projects on social housing and schools
- Behavioural change projects (where the reduction in carbon can be quantified)
- Delivery of low carbon DHN infrastructure within the borough, provision of CHP units where connection to an existing DHN will take place
- Retrofit of insulation to the existing social housing stock.

It is important that both the Council and developers are able to account for the reduction in carbon dioxide emissions through offsetting projects. Therefore the savings will be measured and apportioned in proportion to the capital funding provided by each party for each project.

The Council will ensure that the offsetting measure will provide added value- that is the project/measure would be unlikely to be funded through another means.

The price set for carbon dioxide does not fully reflect the costs of the delivery of carbon offsetting projects. Following guidelines, it is therefore not necessary that the ratio of carbon saving to the offsetting price is 1:1. That is the cost of the measures to save one tonne of carbon dioxide does not have to be equal to the off set price per one tonne of carbon. This is because the offset price does not fully cover the actual price to save carbon, in order to ensure that the price is viable for development to proceed.

Policy Drivers for Carbon Offsetting:

	Hackney Council Guidance	
		DMLP
Policy		DM39

SPD Appendix TA-10

Technical Guidance Notes

Monitoring and Post Completion Information

Introduction

The Council has a commitment to monitor the sustainable performance of developments that are built in Hackney. In order to achieve this, developers are required to supply the information and certificates as outlined within this Technical Appendix as evidence that developments have been built as proposed and will meet the targets that have been set.

Monitoring data required to be submitted to Council

Airtightness

On completion of work, a full airtightness test is expected to be carried out confirming that the development achieves the air-permeability standard as set out in the original application and the resulting certificates submitted to the Council.

Post Construction Assessment Certificates and Maintenance Strategies

Within three months of completion Post Construction Assessment certificates, for the building assessment that was carried out, are to be delivered to the Council along with a post-completion Sustainability Monitoring form which is available at the end of this appendix.

Applicants are to submit maintenance strategies for the following:

- Ventilation Systems
- Low carbon and renewable technologies
- Living roof and other planted areas

The strategies should clearly identify who is responsible for maintenance and cleaning of the above systems and when it will be carried. This is to ensure that the systems continue to perform as specified over the long-term.

Sustainability Monitoring Form

A Sustainability Monitoring form is to be completed/updated at each of the following stages: Application; Pre-Construction; and a final updated copy to be issued within three months of Post-Construction. Each updated version is to be sent to Hackney's Sustainability Officer.

If any of the above information supplied deviates from the information that was supplied at application stage a new Energy Statement will be required indicating whether the as-built development will achieve the required reduction in baseline energy performance.

If a building's as-built energy performance does not meet the required standard set out in the initial planning application there are two options available to remedy the energy shortfall:

- The developer is to carry out remediation works to bring the building up to the specified standard, and a follow up test/assessment is to be carried out to corroborate that the standards specified within the application have been met;

or

- If the performance is below that expected then the Council will expect a payment into the Carbon Offset fund through the Section 106 structure to ensure that the extra carbon produced by the development is offset through the installation of other efficiency measures within Hackney.

London Borough of Hackney

Sustainability Monitoring Form

Project Name	Submittal Date	Address	Application no.	Stage (delete as appropriate)
				Application/Pre or Post Construction

Development Details

Type	Number Units	Total Size (m ²)	Assessment Method
Residential			
Commercial			
Office			
Industrial			
Hotel			
School			
Other			

Assessment Method

Building Assessment Method	Assessment Stage	Expected Score	Level Achieved

Energy Hierarchy- Expected CO² savings

Hierarchy	Be Lean (tCO ₂ /yr)	Be Clean (tCO ₂ /yr)	Be Green (tCO ₂ /yr)	Air Permeability (m ³ /hr.m ² @50Pa)
Planning App				
Design Stage				
Post Completion				

Sustainable Measures- add rows as applicable

	Y / N	Management Plan Submitted	Type	Fuel	Size m ² /m ³	Output	Future connection possible	10 % extra capacity
Communal Heating		y/n	CHP/Gas		n/a	kWt kWe	y/n	y/n
Solar PV		y/n		n/a		kWp	n/a	
Solar Thermal		y/n				kWth		
Rainwater harvesting		y/n				n/a		
Green Roof		y/n				n/a		
MHVR		y/n						

