

## Buxton House Climate Change Checklist - V2

1. Introduction				Designers Review Statements	
1.01	The guidance is divided into short sections to provide advice on completing each section of the Climate Change Statement. The guidance highlights which measures are				
2. Reducing Energy Demand				Designers Review Statements	
Table A – Measures to reduce energy demand					
ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary
2.01	Developments should include own Combined Heat and Power (CHP) systems for master-planned sites or have the ability to connect to existing systems.	E	LP26/LP5	No	Limited opportunity due to site and location. The works are to an existing building which sits atop a car park deck owned by 3rd parties and there are limited areas externally or internally to incorporate a plant of this nature - see below notes however regard the use of the district heating system as part of the works
2.02	Installing 'smart' energy metering, including displays showing the amount and cost of energy consumed.	D	LP24/LP47	Yes	Agreed - to be included within RIBA Stage 3 design proposals
2.03	Ensuring that building service controls such as lighting and gas boiler controls, and management systems are user friendly, efficient, up to date, and complementary	D	LP24/LP47	Yes	Agreed - to be included within RIBA Stage 3 design proposals
2.04	Use energy efficient white goods (rating where possible) (e.g. fridges, washing machines).	D	LP24/LP47	Yes	Agreed - to be included within RIBA Stage 3 design proposals but note that this is residential, the occupiers largely supply their own appliances
2.05	Providing external space for drying washing naturally.	D	LP24/LP47	No	Limited opportunity due to site and location
2.06	'Welcome packs' to inform occupiers about the efficient use of their heating and lighting systems.	D	LP24/LP47	Yes	Agreed - to be included in the contractor Employer Requirements deliverables for collation upon completion of works.
2.07	Use of centralised heating system, with individual time and temperature controls to each part of a building or individual rooms	D	LP24/LP47	Yes	Agreed - current designs assume the use of the district heating system with localised heat and ventilation distribution systems/ apartment.
2.08	Providing for use of CHP systems for sites where applicable.	D	LP26	No	Limited opportunity due to site and location
3. Minimising carbon emissions and waste during construction				Designers Review Statements	
Table B -Measures to minimise carbon emissions and waste during construction					
ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary
3.01	Retaining and refurbishing existing buildings/features rather than demolishing and rebuilding unless the loss of 'embodied' carbon can be offset by resulting improvements in the energy efficiency of the building.	E	LP24	Yes	Yes, the core aim and intention is to retain as much of the original concrete structure and associated structure under the principles of decarbonisation (repurpose as is rather than demolish and rebuild). It is the teams intention to supply a SAP based assessment process of existing vs new coupled with a demonstration of carbon saving (retention of structure vs theoretical replacement)
3.02	Developers are expected to follow the waste management hierarchy and incorporate facilities to minimise waste as part of development proposals during demolition, site clearance, construction and when subsequently occupied.	E	LP43	Yes	Agreed - to be included within RIBA Stage 3 design proposals and employers requirements for construction including but not limited to waste segregation WEE separation and waste certification etc.
3.03	Designing the building footprint to avoid unnecessary use of materials.	D	LP24	No	Limited opportunity due to site and location
3.04	The design of developments should ensure that there is sufficient space for occupiers of completed schemes to store separated waste awaiting collection for recycling and disposal. Requirements for refuse and recycling should be designed as an integral part of new residential development	E	LP24	No	Limited opportunity due to site and location, client ownership of adjacent areas and waste disposal access limit the opportunity domestic waste segregation.
3.05	Using prefabricated off-site construction where feasible.	D	LP24	Yes	Yes, the core cladding material chosen the be largely offsite fabrication prior to installation.
3.06	Sourcing materials with a low U-value (a measure of the materials heat loss value).	D	LP24	Yes	Yes, this is a core aim with baseline SAP assessments being performed along with final SAP and declaration of performance against Building Regulations ACOP minimum target levels (core aim is to exceed these standards where practicable)
3.07	Sourcing materials locally to reduce the need for transport.	D	LP24	Yes	Yes, however the supply chain for high rise does limit options in this regard (fire compliant materials).
3.08	Selecting materials that have a long life and require little maintenance.	D	LP24	Yes	Yes, low maintenance is a core aim of the project which will include a full access and maintenance strategy to inform and assist the building operator after construction
3.09	Selecting materials that have low levels of embodied energy (energy used in manufacture).	D	LP24	No	Limited availability of market materials with the fire compliance required under the current Building Regulations and High Risk Building compliance (Building Safety Regulator) would make this an unfeasible deliverable
3.1	Considering the full life cycle of alternative materials i.e. the impacts of raw material extraction, processing, manufacture, transport, use and disposal	D	LP24	No	The design team have not been instructed to include whole life cycle material assessments as part of the works due to the specialist nature of the materials and limitations of compliant cladding products on the market
3.11	Considering the impact on biodiversity of the use of peat, weathered limestone and other materials from vulnerable habitats. This applies to landscaping materials as well as buildings	D	LP24/LP30	No	Little opportunity - the building lies solely within a high density city centre area with no external ground floor areas of biodiversity opportunities.
3.12	Maximising the use of timber from sustainable Forest Stewardship Council (FSC) sources. If other timber is used should be from a known source with a sustainable purchasing policy.	D	LP24	Yes	Agree in principle, however due to the nature of the works (and high rise/ high risk fire compliance requirements) it is unlikely that timber products will be utilised to any considerable extent. We note however that all internal timberwork/ doors etc shall require full FSA auditability as part of the employers requirements at tender of the work
3.13	Waste management should be considered at an early stage in planning development proposals to demonstrate how waste will be minimised during construction	E	LP43	Yes	Agreed - waste management plans will be required under the employers requirements at tender stage (as is now normal for all Tier 2 and above contractors)
3.14	Residential schemes with private gardens should also make provision for home composting units.	D	LP24	No	No opportunity due to site and location.
4. Renewable and low carbon energy				Designers Review Statements	
Table C -Technologies to consider for renewable and low carbon energy					
ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary

4.01	<b>Local area energy networks</b> Local plan policy LP26 states that proposals requiring a masterplan should explore the potential of developing a heat network, or connecting to an existing network. District Energy Networks generate and supply energy (potentially including electricity, heat, and cooling) on a local scale, such as within a town centre or large housing estate. By generating energy close to the point of use they can achieve a higher degree of efficiency in the supply power. The existence of a local area energy network means that individual developments can connect to it for their energy needs rather than provide their own on-site renewable energy or rely entirely on the national grid.	E	LP26	Yes	It is the core aim and strategic intention that the entire building shall rely on the district heating network currently under development for a number of Kirklees council buildings - initial meetings with the district heating lead have been held to ensure the proposed system has sufficient capacity.
4.02	<b>Solar Panels</b> In addition to the Essential Consideration (E) of building orientation to maximise passive solar design, so panels could also be utilised. These take two main forms: o Solar Photovoltaic (PV) panels convert energy in sunlight into electricity. o Solar thermal panels use heat from the sun to provide water heating. PV systems can be designed as wall cladding or roof tiles as well as roof-mounted arrays. For optimum results, PV arrays should face between south-east and south-west and should not be shaded. A visual display showing when hot water and electricity is being produced would also encourage householders to make use of the free energy in the home	D	LP24/LP26	Yes	It is a core aim to incorporate a PV system to a larger amount of the existing roof area with the intention to utilise a feed-back tariff approach, this would be mounted on a raised frame to ensure optimum orientation is achieved within the existing available roof footprint.
4.03	<b>Ground/Air/Water Source heat/cooling</b> Each of the categories of heat pumps draw heat from its respective element, usually through the circulation of fluid. An electric pump extracts heat using an exchanger and transfers it to a heating distribution system. The pumps can be designed to operate in reverse providing cooling.	D	LP26	No	Not applicable, entire heating system intended to be served by the district heating system.
4.04	<b>Wind turbines</b> Wind energy is extracted using either a vertical or horizontal axis rotor. Vertical axis turbines do not have to re-orientate with changing wind direction and are generally more efficient at low wind speeds. Wind turbines can be either mounted on a free-standing pole or (if small) fixed directly to a wall or roof. For wind turbines to be effective average wind speeds will need to exceed 4.5 metres per second, although small roof-mounted turbines (typically up to 1.5kW) can work at wind speeds as low as 3.5 metres per second	D	LP26	No	Not applicable, use of wind turbine is restricted due to the presence of a critical services transmission mast (emergency services resilience system).
4.05	<b>Biomass heating / power</b> Biomass fuel is carbon neutral and is a renewable source of energy if it comes from a local sustainable supply. Biomass fuels most commonly include fast-growing energy crops such as willow and miscanthus, poultry litter, wood chips and wood pellets. Biomass fuels tend to be bulky in relation to the amount of energy they provide transport costs (and carbon emissions resulting from transport) can be a significant factor which should be considered in assessing their suitability.	D	LP26	Yes	Related to commitment to utilise the district heating which we believe is based on scavenging heat from pre-existing waste processing plant.

**5. Building design and layout for carbon reduction** **Designers Review Statements**

**Table D -Measures to maximise energy efficiency in building design**

ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary
5.01	Ensuring roof structures include a south facing slope to facilitate the installation of solar panels.	D	LP24	No	Existing Building with roof mounted emergency transmitter mast - no opportunity for roof orientation changes. We note however the project intends to include for south facing PV system on raised structural frame on the roof.
5.02	Where practicable, minimising resource use in the building by orientating buildings to utilise passive solar design. This can include:	D	LP24	No	N/A - existing building.
5.03	• Locating primary habitable rooms on the south side of the building.	D	LP24	No	N/A - existing building.
5.04	• Optimising glazing on the south side of buildings.	D	LP24	No	N/A - existing building.
5.05	• Minimising the area of north facing windows.	D	LP24	No	N/A - existing building.
5.06	• Managing heating and cooling. This includes consideration of incorporating vegetation and tree planting to assist heating and cooling. Also, using construction materials with a high thermal mass (such as stone, concrete and tile) which absorb heat during the day and release it slowly	D	LP24	Yes	Limited vegetation but high thermal mass consideration for external wall envelope shall be considered (noting limiting factor of existing concrete structure).
5.07	Using landscaping /design to provide shelter from winds.	D	LP24	No	N/A - existing building in exposed prominent position.
5.08	Supporting energy efficient design and encouraging initiatives to promote energy efficiency within homes. This can include:		LP24, LP47	Yes	
5.09	• Extra insulation of walls, roofs and floors.	D	LP24	Yes	Agreed - core aim to meet and where possible exceed current building regulations.
5.1	• Argon filled low emissivity double glazing or triple glazing.	D	LP24	Yes	Agreed - current design/ cost plan has allowed for low-e glass triple glazed systems with thermally broken frames.
5.11	• High efficiency heating boilers that respond to solar gain and have zone temperature control.	D	LP24	No	not applicable, see statements re utilisation of district heating system.
5.12	• Consideration of low energy/emissions build standards where appropriate (such as Passivhaus, BREAAAM or other 'zero carbon' standards) to ensure the development meets the required real- world performance expectations by building to a quality assured standard	D	LP24	No	Not under the designers commission due to limitations of the modelling and design tools (BREE=EAM/ Passivhaus etc) in accurately recording zero carbon standards in remodelling works. The team has proposed to use SAP baselining coupled with targeted comparative studies of major elements (eg retention vs replacements carbon impact)
5.13	• Low energy lights and lighting controls to automatically switch off when not needed.	D	LP24	Yes	Agreed, to be utilised throughout the proposals.
5.14	• Use of roof lights/openings to increase daylight in poorly lit areas.	D	LP24	No	existing building with no opportunities of this nature.

**Table E -Measures to improve energy efficiency through site layouts**

ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary
5.15	Siting buildings to minimise overshadowing.	D	LP24	No	N/A - existing building.
5.16	Orientating buildings so that they broadly run east-west and face south.	D	LP24	No	N/A - existing building.

5.17	Locating garages on the north side of homes to act as additional thermal buffers.	D	LP24	No	N/A - existing building - no garages
5.18	Ensuring that the roof structure includes south facing slopes to facilitate the installation of solar panels.	D	LP24	No	N/A - existing building with antenna/ roof restrictions.
5.19	Locating primary habitable rooms on the south side of the building.	D	LP24	No	N/A - existing building being repurposed - all faces of the building are habitable areas.
5.2	Optimising glazing on the south side of buildings while providing appropriate shading opportunities such as blinds	D	LP24	Yes	Blind shading and low-e glass is intended to act as a form of shading to minimise excessive solar gain. Note however that the restrictions of the existing building structure dictate the locations of the flats and therefore limit options in respect of solar orientation and massing of windows
5.21	Minimising the area of north-facing windows.	D	LP24	No	Limited opportunity as the window locations are fixed by the structure and the needs for natural light within the residences proposed.
5.22	Managing heating and cooling. This includes consideration of incorporating vegetation and tree planting to assist heating and cooling. Also, using construction materials with a high thermal mass (such as stone, concrete and tile which absorb heat during the day and release it slowly)	D	LP24	Yes	Yes but limited/ no opportunity for vegetation thermal attenuation. As stated elsewhere, whilst the available compliant construction materials for a high risk building are limited, thermal mass control shall be a key part of the scheme led primarily by the thermal baseline modelling performed for the pre construction SAP assessment

**Table F -Measures for non-residential development**

ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary
5.23	Incorporating windows to maximise natural light.	D	LP24	Yes	Agreed, note however conflict with thermal gain under 5.22 (to be mitigated by low-e reflective glazing).
5.24	Natural ventilation to reduce need for air conditioning.	D	LP24	Yes	Agreed, all windows shall have relevant trickle ventilation but note that current designs propose the use of mechanical ventilation/ heat exchangers with circulatory heat scavenging on the ground and first floors to maintain relevant air change per hour whilst minimising heating requirements - these will work inversely to maintain a minimum ac/h in a hot weather period. Note all apartments shall also have openable windows and Juliette balcony/ door to reduce this cooling load requirement further. We note that it is the design team's intention to perform overheating risk calculations as the design develops which would be mitigated via solar control means
5.25	Design features such as louvre ventilation, external blinds and roof overhangs that provide shade in summer without reducing daylight	D	LP24	Yes	Agreed, the vertical architectural external features have been designed to assist in this screening regard - this shall be demonstrated via thermal modelling assessments at RIBA Stage 3 utilising the BIM Model (existing and propose
5.26	Reduce hard surface parking around office buildings which can raise air temperatures in hot weather and consider alternative surfaces like grass-paved parking and green roof.	D	LP24	No	not applicable, existing car park raised deck (concrete) out of client ownership/ control.

**6. Considering flooding and minimising its impacts**

**Designers Review Statements**

**Table G -Measures to reduce flood risk**

ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary
6.01	Flood risk sequential test and Exception Test (where required).	E	LP27	No	Not in flood risk zone sufficient to trigger this form of assessment
6.02	Site-specific Flood Risk Assessment (where required due to site size and flood zone).	E	LP27	No	Not in flood risk zone sufficient to trigger this form of assessment
6.03	On greenfield sites, typical greenfield run-off rates should not exceed previous rates; and for proposals on brownfield sites there should be a minimum 30% reduction in surface water run-off where previous positive surface water connections from the site can be proven. This can be achieved by	E	LP28	No	not applicable - not greenfield site (existing building in high density town centre location).
6.04	• Avoiding large areas of impermeable hard surfacing.	D	LP28	No	not applicable.
6.05	• Incorporating proposed open spaces and green infrastructure within sites to contribute to the sustainable drainage of the site, including consideration of tree planting	D	LP28	No	Not applicable - no external spaces available due to existing building and site constraint.
6.06	• Incorporating trees and vegetation into developments, including consideration of tree lined streets, to reduce surface water runoff through absorption, evaporation and transpiration. These can also provide valuable wildlife habitats to support biodiversity net gain	D	LP28, LP30	No	Not applicable - no external spaces available due to existing building and site constraint.
6.07	It must also be demonstrated that the surface water management solution is designed to meet requirements over the lifetime of the development including evidence that management and maintenance arrangements have been secure and that the longer term impact of climate change has been factored into any solution.	E	LP28	Yes	The building is existing and the proposals would reduce the existing burden placed on the sewer system (reduced apartment numbers). Note rainfall calcs shall be performed (to the latest building regs likelihood ratios to demonstrate continued safe discharge rate, the works will also involve the inspection and rectification of existing discharges as required.
6.08	Use sustainable drainage systems (backed by management and maintenance provisions) wherever practical, justifying the use of conventional systems if they are not chosen	E	LP28	No	Not applicable - no external spaces available due to existing building and site constraint.

**7. Minimising water usage**

**Designers Review Statements**

**Table H -Measures for Water Saving**

ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary
7.01	Consideration of water efficiency through water conservation techniques are encouraged by Policy LP34. This may include:	E	LP34	Yes	
7.02	• <b>Water-efficient toilets</b> - Low-flush toilets and dual- flush toilets reduce water usage.	D	LP34	Yes	Agreed - to be specified throughout.
7.03	• <b>Waterless urinals</b> - Most effective in buildings with high occupancy rates (schools, offices, public buildings).	D	LP34	No	N/a - no urinals proposed
7.04	• <b>Taps</b> - Spray and low-flow taps reduce the amount of water used. Self-closing and infrared controlled taps ensure that water cannot be left running.	D	LP34	Yes	Agreed - to be specified throughout.
7.05	• <b>Showers</b> - Showers (apart from power showers) generally use less water than baths. Low volume baths are also available including tapered shaped baths	D	LP34	Yes	Agreed - to be specified throughout.
7.06	• <b>Appliances</b> - Where supplied by the developer, low water use washing machines/dishwashers should be considered.	D	LP34	No	Residents shall be supplying own white goods - limited opportunity to influence this deliverable.
7.07	• <b>Water meters</b> - make the user more aware of the cost of water and can therefore reduce water wastage	D	LP34	Yes	Agreed - to be specified throughout.

**Table I - Measures for water retention**

**Designers Review Statements**

ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary
7.08	<b>Rainwater harvesting</b> - This involves collecting rainwater from a roof and storing it in a tank, often underground. Such water, once filtered, can be used in toilet flushing and cleaning. If used within the building it should be additional to the standard mains supply which is needed to provide drinking water and a backup. <u>used outside, it can take the form of a simple water butt.</u>	D	LP34	No	No, due to site constraints and the requirement to incorporate other significant fire, heating and electrical upgrades there is no space available to incorporate a system of this nature. Note also loading restrictions of the existing concrete frame.
7.09	<b>Water recycling</b> - 'Grey water' (water that has already been used in hand basins, baths and showers) can be stored, filtered and disinfected, and then reused for toilet flushing, garden watering or car washing. It is also possible to recycle 'black water' (water used for toilet flushing and washing up) although this is more resource intensive. Such systems require regular maintenance to ensure their ongoing quality and effectiveness. A separate standard mains supply will always be needed in addition to provide drinking water.	D	LP34	No	N/A -as 7.08
7.1	<b>Groundwater</b> - In some locations it may be feasible to source water from a borehole or river (subject to Environment Agency permission)	D	LP34	No	N/A -as 7.08

## 8. Landscaping and biodiversity

## Designers Review Statements

### Table J -Measures for Landscaping and biodiversity

ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary
8.01	Provide net biodiversity gains through including enhancements and habitat creation where opportunities exist and seeking to enhance the Kirklees Wildlife Habitat Network.	E	LP30	No	no habitat opportunities are feasible due to building location.
8.02	Consideration whether open spaces and green infrastructure on sites can contribute to the sustainable drainage of the site. Use of trees and other green infrastructure can support climate resilience through reducing surface water run-off by slowing precipitation and binding soil to prevent erosion.	E	LP27, LP28	No	N/A - no external areas available in or near the site for utilising with the scheme.
8.03	Use of drought resistant plants (ideally native species)	D	LP34	No	as 8.02
8.04	Using water retaining mulches and using ground-cover plants can also help to retain moisture in the ground.	D	LP34	No	as 8.02
8.05	Setting out plants and lawns as early in spring as possible as less watering is required.	D	LP34	No	as 8.02

## 9. Air pollution

## Designers Review Statements

### Table K -Measures for reducing air pollution

ID	Policy measure	Essential (E) or Desirable (D)	Relevant Local Plan Policy	Applicable?	Designers Commentary
9.01	Locally source materials to reduce transport emissions.	D	LP51	Yes	Where reasonably practicable to do so, this will be a deliverable incumbent on the designing contractor to provide but note the limitation of available products and materials fit for use (and certified) on a high risk building of this nature.
9.02	Installation of mechanical ventilation systems.	D	LP51	Yes	Agreed - intended to be utilised throughout at each apartment on ground and first floor levels (MVHR's). We note at this stage due to very tight floor to ceiling limitations of the building structure that the MVHR system will need to be validated in design further (competing ceiling space for MVHR, electrical and sprinkler pipework). We note that due to the buildings height and location, air quality is not deemed to be an issue excepting a risk at the ground and 1st floors - this is mitigated however by the fact that the vehicular route of Albion St has a very low traffic index. It is noted that the current proposals for the ground and first floors include MVHR's with relevant particulate filtering to ensure relevant air quality requirements are met. This will be first baselined with a planned Air Quality Assessment and testing regime which is ongoing.
9.03	Submission of a travel plan where appropriate to encourage active travel for employees to reduce reliance on private car. This is normally required for all major planning applications but the requirement for this is considered on a case by case basis for minor applications.	E	LP20, LP51	No	Discussed with early planning consultation, not required, by its very nature the opportunity for vehicular ownership by residents is severely restricted and transport links available are obvious. Note tenant consultation also indicated this was the case.
9.04	Policy LP63 relates to new open space within development sites. Where such open spaces are required, a range of types of open space should be considered which may include planting trees which may help to mitigate effects of air pollution within the site.	D	LP51, LP63	No	not applicable, site restrictions. No opportunity for additional open spaces.
9.05	Installation of Electric Vehicle charging points.	E	LP5, LP15, LP17, LP18, LP24, LP51	Yes	Partly yes, the scheme however is not intended in any way to address or encourage car use. We note however that it is the intention to supply a sizable cycle and buggy store at the ground floor entrance area with electrical charging capability.