Project: Victoria House - Manchester

Document: Material selection – Energy and carbon reduction

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1.0 Overview of paper/Strategy

With the focus of MCC and Local Members very much on our Climate Change Emergency we have detailed below the choices of materials and their impact in terms of the energy requirements of the building and embodied carbon within our proposed development including material sourcing and transportation aligned to Circular Economy Principles (Core Strategy EN4). Including a Statement / Strategy giving an overview of the approach to these factors both in terms of what has been embedded in the design and how this will inform future stages of design development and ultimately the build contract.

The purpose of this is not to provide technical details on the power/energy requirements for the development as this is detailed within the Energy Statement submitted within the planning application, so all of the items stated below align with the already specified 20% reduction on Part L required to comply with the core strategy on energy.

The strategy of the project is to embrace making this development an environmental and sustainable building, which has been developed with the following in mind and using the philosophy of Wrap material change for a better environment;

- Use of the site and design considerations;
- What materials are to be used on the project;

We have detailed below, for each of the elements the approach we have taken;

2.0 Use of the site and design considerations

The design proposals are for a modern Residential building with associated ground floor commercial space development providing a level of local employment on development completion and good quality living accommodation, the site itself is on a Brownfield location within a development area.

The most effective design option for the site area was for a building with one residential floor plate and has been influenced by the most efficient construction methodology to endeavour to minimise the impact on the environment we have broken this down below and this has given opportunity to look at mixed environmental control systems such as;

Ventilation systems – Natural ventilation with energy efficient MVHR units have been specified and no air conditioning with the additional plant and space requirements .

Heating – All electric heating utilising the new SAP 10 electrical efficiency figures is being used, this has a major benefit to the SAP calculations and the lifecycle of the mechanical installations, i.e no gas. Therefore, the building energy is not reliant on using fossil fuels.

Drainage

Sustainable drainage solutions have been used for the scheme such as attenuation tanks and are in the process of the design being concluded to

3.0 Material Useage/Waste and Environmental Impact

The table below provides details of some of the key environmental benefits in the materials being used;

Element of works	Item	Benefit
Demolition of existing buildings	Materials demolished and foundations grubbed up re-use selected material from demolition for backfill on site	Reduction of backfill material brought in from other sites reducing transport and recycling from existing materials
Concrete frame	Use of exposed concrete to columns and soffits of elements of the lower floor areas	The thermal mass of the structure is used for a small level of assistance in the cooling of the building.
Concrete frame	Use of exposed concrete to columns and soffits of floor slabs	Materials such as additional lining, plasterboard and ceiling materials are avoided, this not only avoids having the materials in the first place, but also the huge wastage on these elements that can occur,
Fabric first approach to energy usage and efficiency	Façade build up and specification engineered to support an energy usage strategy which betters the requirements of Part L, such as U-Value specifications, G-Values for glass, Air permeability better than regs.	Less energy load required for heating and cooling and less loss of energy through the building fabric.
Use of local resource	A major source of waste is the transport of materials and labour from areas either within the UK or Europe	The majority of our supply chain is based in and around Greater Manchester and we will use best endeavours to use locally sourced materials where possible.
Low energy strategy for air con to amenity areas	Use of Air source heat pumps for limited areas of Air conditioning.	Lower energy usage and omissions.
Water usage and discharge	Sanitaryware to UU waterflow reduction commitments, lower than Building Regs.	Less water usage and discharge into the water network.
Energy usage on lighting	LED light fittings specified in all areas and sensor controls on all common areas at Ground and first floor levels.	Lower energy usage throughout the building and light fittings having to be changed less frequently than traditional fittings.
Waste Management Strategy	Minimise waste on site by means of a detailed waste management strategy, which is to be completed once detailed design is undertaken.	By the use of off-site materials and a detailed Waste Management plan we can target waste reduction as an area of betterment a potential target of 2% carbon reduction saving for the whole building may be able to be targeted.