

## SUSTAINABILITY STATEMENT

| Checklist  | Comments   |
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| Energy efficiency  |  |
| Have you maximised opportunities for<br>natural solar gain and natural<br>ventilation and minimised overheating<br>risk through passive design and<br>attention to building location,<br>orientation and form? | The orientation of the building is fixed by the nature<br>of the plot, with the street elevation being to the<br>south-west. A compact and efficiently optimized<br>design is proposed and to address officer concerns,<br>the principal glazed areas are predominantly to the<br>north-west facing façade. Limited secondary<br>openings are provided on the south-east and south-<br>west facing elevations. The main living space is<br>located to the first floor and benefits from south-<br>west and north-west facing glazing. Both bedrooms<br>benefit from south-east facing glazing. |
|  | To prevent overheating, unprotected glazed areas on the south facing façade are limited.   |
|  | Good levels of natural ventilation will be provided via<br>trickle ventilation to all habitable spaces, and via<br>opening lights to provide purge ventilation. Openings<br>on both the front and side elevations ensure good<br>levels of natural cross ventilation through the home.   |
|  | Mechanical ventilation with heat recovery can add to<br>the efficiency of the dwelling throughout the year<br>when opening windows is less desirable.  |
|  | The fabric of the building will fully comply with the<br>requirements of the up-dated Building Regulations<br>July 2022. The revised Building Regulations promote<br>a 'fabric led' approach to technical design and<br>detailing. The thermal efficiency of fabric elements is<br>greatly improved, as are improved requirements in<br>respect of thermal bridging and air leakage.   |
| Have you designed the fabric of the<br>building to be ultra-low in energy<br>demand, achieving KPIs for space<br>heating demand (kWh/m2/yr) and<br>energy use intensity (kWh/m2/yr)?                           | The energy a building uses throughout the year can<br>be assessed in relation to the space heating, water<br>heating and on site green energy production. This<br>can be measured by calculation as a design stage<br>SAP calculation generally produced as a part of a<br>detailed design for Building Regulations. This permits<br>development of proposals in relation to achieving<br>target values for a low energy house.  |

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| Low Carbon Heat  |  |
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| Will the building be fossil-fuel free<br>with low-carbon heat source<br>independent of the gas network?  | A combination of solar PV and an air source heat pump are proposed with the ASHP discretely located to the south-west elevation.   |
| Renewable Energy   |  |
| Has the design and shape of the roof<br>been optimised for maximum output<br>of a photovoltaic array?  | The proposed house has a flat roof and is orientated to face within 40deg. of south; it is therefore suitable for the siting of solar panels if desired.   |
| Does the building achieve a net zero-<br>operational carbon balance and<br>deliver 100% of its entire predicted<br>energy consumption using renewables<br>on-site?   | Although the building is to be highly energy efficient,<br>designed to limit heat loss and air leakage, and be<br>fitted with low energy lighting and fittings,<br>potentially incorporate technologies such as<br>mechanical ventilation with heat recovery and waste<br>water heat recovery; it is highly unlikely that it will<br>be possible to achieve net zero operational carbon<br>balance on this small, stand-alone property on a<br>compact town-centre site. |
| Water  |  |
| For dwellings: have water-efficiency measures been incorporated and will fixtures and fittings be specified to achieve water consumption of less than 105l/p/d?  | Yes. The house will be fitted with low water use<br>fittings and appliances, including taps, baths,<br>showers, and toilets. The washing machine and<br>dishwasher will be low water use.  |
| Transport & Travel   |  |
| Reduced travel:<br>Have you made provision for home<br>working in residential buildings?   | Yes. The house has been designed to exceed the<br>requirements of the Nationally Described Space<br>Standards which provide adequate room sizes within<br>dwellings. Each of the bedrooms exceeds the<br>minimum requirements and allows room for a desk<br>or table space.  |
| Is shared mobility encouraged within your transport plans for nondomestic buildings?   | N/A  |
| Active travel:<br>Have you enabled sustainable travel<br>choices with connections for cycling,<br>walking and public transport,<br>providing cycle parking and facilities<br>to levels that sufficiently meets the<br>needs of building occupants<br>irrespective of age or ability? | The site is situated in a highly sustainable location<br>with ease of access to a range of everyday services<br>and facilities as well as the town centre itself. These<br>are all readily accessible on foot or by cycle. A secure<br>cycle storage area is proposed.   |
| Low-carbon transport infrastructure:<br>Have you provided active charging<br>infrastructure for electric vehicles,<br>meeting standards and sufficient for<br>the needs of building occupants?   | A wall charging point will be installed to assist in the charging of electric vehicles, cycles, mopeds or other mobility aids without entering the building.   |

| Prevention of Flooding   |   |
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| Have you carried out a flood risk<br>assessment to ensure your<br>development avoids areas at high risk<br>of flooding?  | The application site is in Flood Zone 1 so there is no need for an FRA  |
| Have measures to reduce flood risk<br>been included in your proposals and<br>are these designed using nature-<br>based solutions and methods of<br>sustainable urban drainage?                       | All hard surfaced areas will be permeable and rainwater collected wherever possible.  |
| Ecology & Biodiversity   |   |
| Do you know what ecology and<br>biodiversity are on your site and<br>beyond it, and have you taken steps<br>to both preserve what is already there<br>and enhance ecological value in the<br>future? | The site has limited value in terms of ecology and<br>biodiversity. No protected species or habitats have<br>been identified within or immediately adjacent to the<br>site. There are no trees or significant planting within<br>the site. Shrubs and hedging is proposed to be<br>planted which will provide natural nesting<br>opportunities for birds, and general ecological<br>benefit.  |
| Embodied Carbon  |   |
| Have you minimised embodied carbon<br>in the design of the building and in<br>the selection of materials for its<br>construction?  | The proposed dwelling has been carefully configured<br>to provide a highly efficient built form with a small<br>footprint limiting impact on the site and therefore the<br>extent of concrete use in foundations.<br>Accommodation within the limited footprint is<br>provided over two floors similar to houses in the<br>vicinity, all to maximise the gifa / footprint ratio.<br>The majority of main structural and facing building<br>materials are to be either category 1 Timber, or 2<br>Masonry.<br>Masonry has a higher initial carbon input than |
|  | <ul> <li>timber, but has significant advantages in respect of<br/>a/ thermal mass – providing thermal stability and<br/>limiting sudden heat losses or gains within the<br/>structure.</li> <li>b/ structural stability.</li> <li>c/ adaptability – easily adaptable in future to suit<br/>occupants changing needs.</li> <li>d/ longevity – provides a building shell that will be<br/>long lasting and easily maintainable. e/ high quality<br/>ground floor construction.</li> </ul>   |
|  | Significant elements of the building will be timber,<br>including upper floors, partitions, roof structures,<br>stairs and finishes. All timber elements will be from<br>certified sources. Timber internal partitions allow a<br>degree of flexibility internally to suit changing needs<br>of occupants.  |
|  | Limited elements will be in steel including structural beams and lintels etc., and some external cladding.  |

|  | Clad elements are used for their strength and limited  |
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|  | weight where projecting or in over-build locations.  |
|  | A high quality aluminium window system is proposed<br>to limit heat loss, maximise glazed areas and light<br>ingress through low profile sections, and reduce<br>maintenance.  |
|  | For aesthetic and finishing reasons it is unlikely that internal surfaces will be self-finishing.  |
|  | The building is a bespoke structure and structural engineering will enable the design to be as efficient as possible.  |
|  | Materials chosen as above are readily recyclable at end of life cycle.   |
| Do your assessments of embodied<br>carbon meet LETI targets and take full<br>account of all construction elements<br>including substructure,<br>superstructure, mechanical, electrical<br>and plumbing, products and finishes? | This will be dealt with at the Building Regulations stage of this project.   |
| Waste  |  |
| Do you provide adequate space, both<br>inside and outside the building, for<br>waste recycling and storage?  | Yes. A dedicated area for refuse and recycling<br>storage is provided to the side of the dwelling as<br>indicated on submitted plans, all to accord with the<br>Local Authority's requirements and collection regime;<br>and, the requirements of the Building Regulations.<br>There is level access to allow waste containers to be<br>presented at the front of the property for collection. |
|  | Internally dedicated waste and recycling storage will be incorporated within the kitchen design.   |
| Have you incorporated targets and<br>site management processes to<br>minimise water consumption through<br>construction, and minimise and<br>recycle waste, reducing waste going<br>to landfill?                               | This is to be discussed with the contractor when they<br>have been appointed. The intention however is for<br>separate storage containers to be available on site to<br>aid the collection of recyclable and non-recyclable<br>items.  |