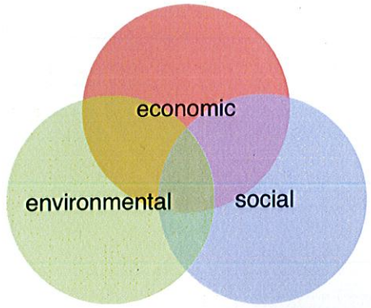


the three pillars of sustainability

environmental needs

economic needs

social needs

7.1. Introduction

The purpose of this design and access statement is to establish how Footstep Homes aim to deliver an exemplary sustainable community using high quality architecture and urban design to the heart of Basingstoke.

Footstep's strategy for achieving this is to apply a mix of uses that are complementary in terms of their **economic needs, ecological needs** and **energy needs**. This has led to the concept of **E CUBED** which allows these three aspects to act as a spine to the Gresley Triangle Road proposals, thereby connecting them visually and environmentally. The following statement describes how each of these needs are addressed in this proposal.

Key aspirations of Footstep are:

- Exemplary sustainable development
- Economic stability for the development through a mix of complementary uses
- **Zero carbon** footprint in use
- Minimal embodied carbon footprint
- BREEAM Excellent and Code for Sustainable Homes Code 6 throughout
- High quality architecture and urban design
- Integration into the Basingstoke economic and social structure

7.2. Economy

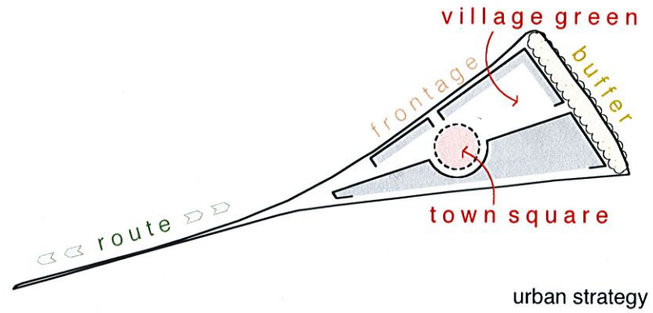
E CUBED seeks to combine a mix of uses which in combination produce an economically viable development now and into the future. To ensure long-term success any community needs to be both demographically and economically diverse. The proposed mix enables **E CUBED** to support the long-term economic growth and vitality of Basingstoke. The uses proposed have been carefully chosen to create a balance between social, economic and personal needs of inhabitants and is made up of:

- Residential flats
- Micro flats (see 0705_SKE_8039 - appendix 1)
- Elderly care home
- Close care apartments
- Live / work space
- Office / light industrial space
- Retail space, including a supermarket
- Hotel
- Community facilities (laundrette, children's centre, medical facilities, food shop, cafe)

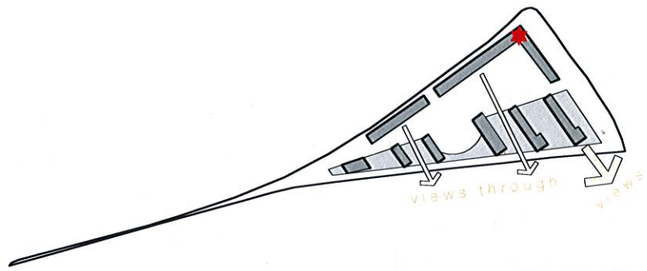
This development is integrated into the wider social and economic fabric of Basingstoke providing local, low energy facilities, which will promote interaction between residents and other users on site. The facilities are clustered around green highway - the high street & economic base (refer to appendix 1 for drawings and 2 for full schedule of accommodation).

E CUBED seeks to create a 'prosperous' development

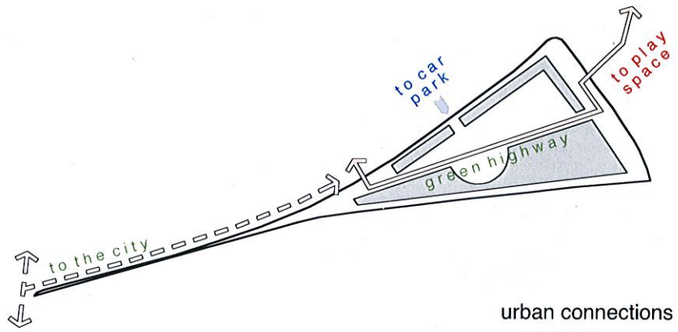
- **E CUBED** is to be a **zero carbon** development, the first of its kind in Hampshire. This gives it national importance
- Employment uses such as B1 Office space, Hotel, Retail stores are all located on site
- Space for start-up businesses with encouragement and support given to innovative or Eco-friendly businesses
- Residential units for key-workers are being provided in the town centre where they are required
- A crèche will be provided on site
- Occupants will benefit from lower energy bills as a result of the on-site production (proximity to the generator reduces inefficiencies in long distance energy networks, thereby reducing cost!)
- Numerous jobs to local works will be created during construction and for the ongoing maintenance
- Local suppliers will be preferred for building components to reduce the carbon footprint
- **E CUBED** also proposes to use site fill in its construction, reducing construction traffic and the burden on landfill sites



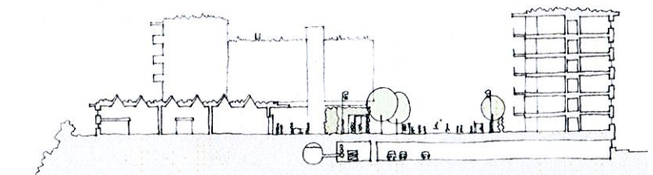
urban strategy



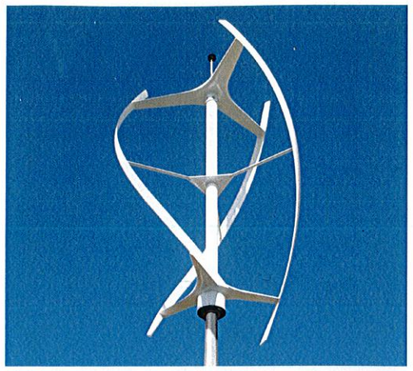
urban massing



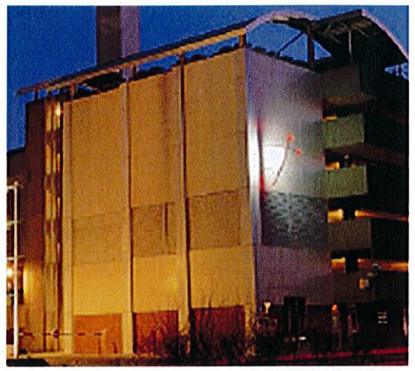
urban connections



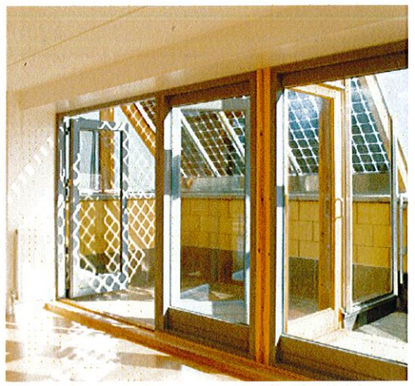
concept section



Quiet Revolution wind turbine, used as a landmark



Woking CHP made viable by a mix of uses



solar collectors at BowZed

Hemcrete, a zero carbon material

E CUBED seeks to create a 'safe' development

- By providing community facilities such as a crèche, laundrette and a medical centre, residents and workers will interact, fostering relationships and a sense of community
- The mix of uses results in activity on site throughout the day providing passive surveillance over the entire development
- Pedestrians and vehicles have been separated as much as possible, with the priority given to foot traffic at all times
- A Crime Reduction Officer will be fully consulted during the next design stages
- High quality, low energy lighting will not only create a safe environment, but also an attractive one

E CUBED seeks to create an 'inclusive', and 'learning' development

- All housing is to be developed to an equal standard, with no distinction between open market and affordable
- E CUBED proposes to provide for all members of society, with accommodation for first time buyers, workers, elderly people, visitors to the town and high fliers
- The innovative construction techniques will provide jobs and training for local workers during construction
- School visits will also be encouraged to bring the importance of sustainable design to the next generation

7.3. Energy

Together with the economic balance, the development also maintains an energy balance across the site (see appendix 3 for report by Gifford). A single Combined Heat and Power plant (CHP) serves the building uses and utilises the varying energy loads to create efficiency across the day. This is supplemented by between 1 and 3 wind turbines, which, together with the CHP act as landmarks for this ground breaking development.

The different building types are positioned and orientated on site to maximise solar gain whilst balancing this against internal heat gains throughout the day. In this way the sun augments heating requirements without creating overheating.

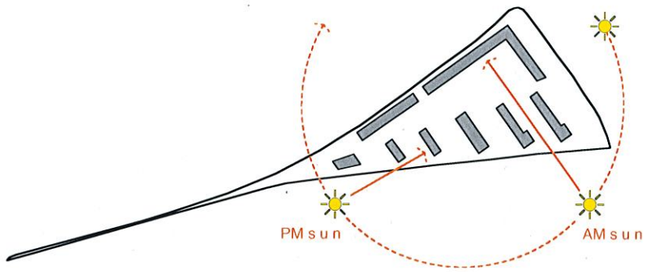
The residential units are generally south facing, utilising passive solar gain with high thermal mass.
Each residence has a wintergarden: an unheated space to act as a thermal buffer and increase natural light penetration, thus reducing reliance on artificial light. The buildings, which face north or east, contain work and retail spaces in order to avoid solar gain and reduce cooling loads.

Although E CUBED cannot be zero carbon in construction, Footstep aim to keep its embodied energy as low as possible. This will be achieved by using the following strategy for specifying and sourcing materials:

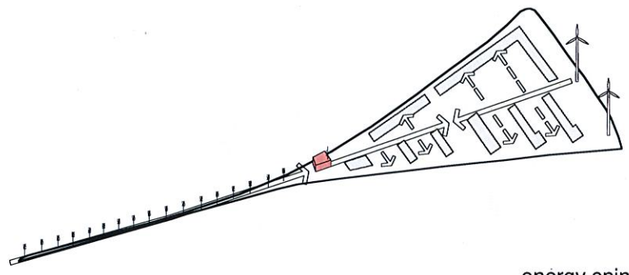
- Hemcrete over concrete & timber frame (a carbon negative material made from Hemp and Lime Mortar)
- Rammed earth blocks made from compacted site fill
- Balance of cut and fill utilised for landscape
- Use of MMC and SIPS to maximise off-site construction
- Pre-fabricated bathroom and kitchen 'pods' reduce construction time, increase quality and reduce site waste
- All timber from sustainably managed sources (eg FSC certified)
- Triple glazed windows used where appropriate (i.e. not in wintergardens)

E CUBED seeks to create a 'healthy' development

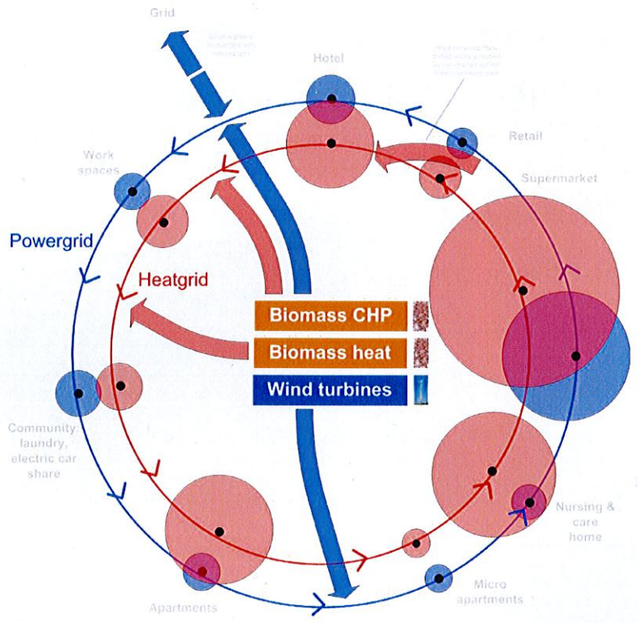
- Residents will be encouraged to take the short walk into the city centre by making improvements to the pedestrian link along Gresley Road
- Low levels of parking have been proposed, however this is augmented by good cycle parking, on site car club and a community bus taking residents and workers to the railway station and city centre
- Every residential unit is to have its own private outside space
- All the buildings are to be naturally ventilated with good day lighting – both important factors in the success of a work place or dwelling
- Construction techniques, such as the use of rammed earth have health benefits for residents by balancing humidity and providing a breathable building envelope
- The natural materials proposed are low in pollutants that will benefit both construction labour and also subsequent users



solar orientation



energy spine



energy flow diagram by GIFFORD

Biodiversity encourged

Green roof reduces water run-off

Pedestrians given priority over all spaces

Car club reduces parking requirement

7.4. Ecology

E CUBED has at its core the **green highway** – not a road network, but an ecological highway that unites the various elements of the development.

This green spine connects all the community facilities within the site and is a natural meeting place for residents. It connects the site to surrounding green routes and public footpaths, extending the green woodland to the east through the site and acting as a green billboard along the narrow extension to the west of the site, fronting the railway tracks.

The eastern woodland area is to be reinforced and acts as a visual and acoustic buffer to the Ringway, as well as having considerable amenity value. This will not only create a safe, healthy and green environment, but one that also has notable benefits for reducing carbon (each tree absorbs on average 730kg carbon over its lifetime).

The mix of species will be selected to affect an increase in biodiversity of flora and fauna. Where the buildings to the south of the site meet the green highway, brown and green roofs are proposed. Brown roofs encourage natural fertilisation and hence are excellent at attracting insects and birds. Both types of planted roofs play an important role in the reduction of rainwater run-off, thereby reducing the load on the existing network.

E CUBED seeks to create an 'environment that is good to live in'

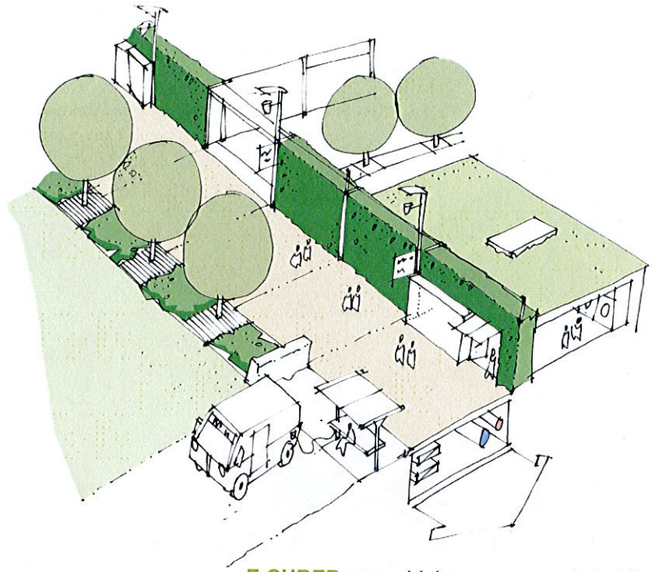
- By emphasising pedestrian routes over vehicular routes, the open space created in **E CUBED** can be beautifully landscaped
- Biodiversity will be encouraged through the use of green and brown roofs and areas of green wall
- By creating such a mix of uses on site, **E CUBED** will create activity throughout the day, thereby creating a safe and enjoyable environment
- Quality architecture will help lift the development and design techniques such as wintergardens to provide good daylighting and a comfortable internal environment
- Community led landscape maintenance and the personalisation of external private space will be encouraged which will foster ownership and skills to residents

7.5. Transport Access Statement

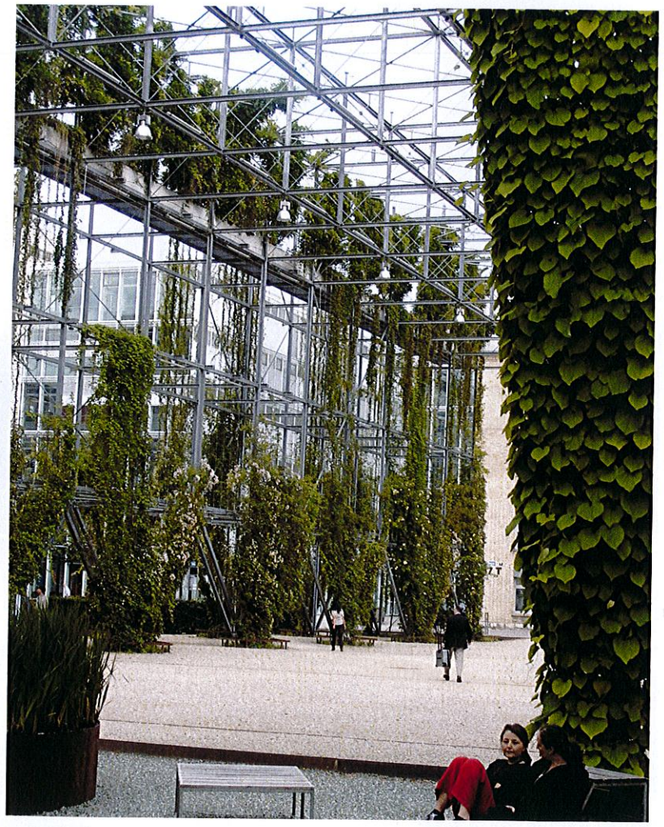
Access into **E CUBED** is gained via three entrances off Gresley Road. The main entrance is adjacent to the supermarket at lower ground level and provides access to the multi-storey car park to the south east of the site. It is anticipated that the majority of traffic will use this access point, as the car park will serve supermarket users, site residents, employees, hotel residents and visitors. The remaining access points are located at the western end of the site; one allows acees to the service road to the southern boundary; the other is primarily for pedestrian access. This also provides entry to the community bus, which is the only vehicle that can gain access to the Green Highway. Use of the community bus will be free to residents, employees and visitors to **E CUBED**. The service road allows access to the B1 units, hotel and nursing home for deliveries in addition to limited employees and visitors parking.

Footstep propose to significantly reduce the level of car parking at **E CUBED** from the normal Basingstoke and Deane parking standards in order that accessibility to the site by other modes of transport can be enhanced in a sustainable manner. To allow this to function effectively, a Green Travel Plan is to be compiled and submitted as part of a full planning application. This approach is encouraged by both local and national policy, including Hampshire County Councils Smart Choices Strategy and PPG13 and is an integral part of the sustainable agenda of **E CUBED**.

In total, 452 parking spaces are proposed in the multi-storey car park, which are intended to serve all uses on site as described above. If Hampshire County Council's Parking Provision for Accessible Locations is applied, 601 parking spaces are required (see Appendix 2 for breakdown). It is proposed that the Green Travel Plan will address this shortfall by adopting the following sustainable strategies:



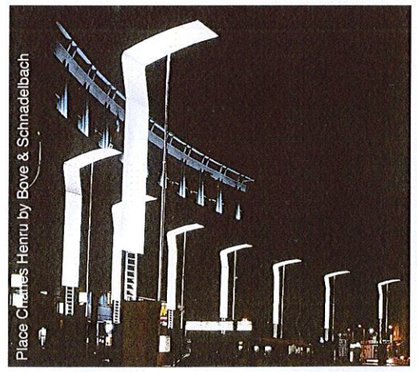
E CUBED green highway - concept sketch



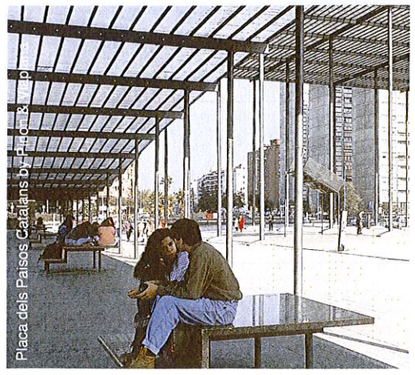
vertical green structures: ecology and enclosure bringing a sense of place

Active, quality spaces

Safe facilites for all



Designed for safety and quality throughout the day



A place for people

- Unallocated parking – parking for the different users on site will peak at different times during the day allowing the same spaces to be shared
- Community bus – available to take residents and workers to and from the town centre, bus and railway stations. The bus will be powered by electricity generated by the CHP and wind turbines
- Car Club – electric Smart cars (powered by renewable energy) will be available for all residents who will be able to book them out for private use, priority will however be given to Social Housing tenants.
- Cycle storage – safe, convenient and secure cycle storage will be maximised and provided for every residential and commercial unit. Every workspace will be equiped with shower facilities to encourage employees to cycle to work

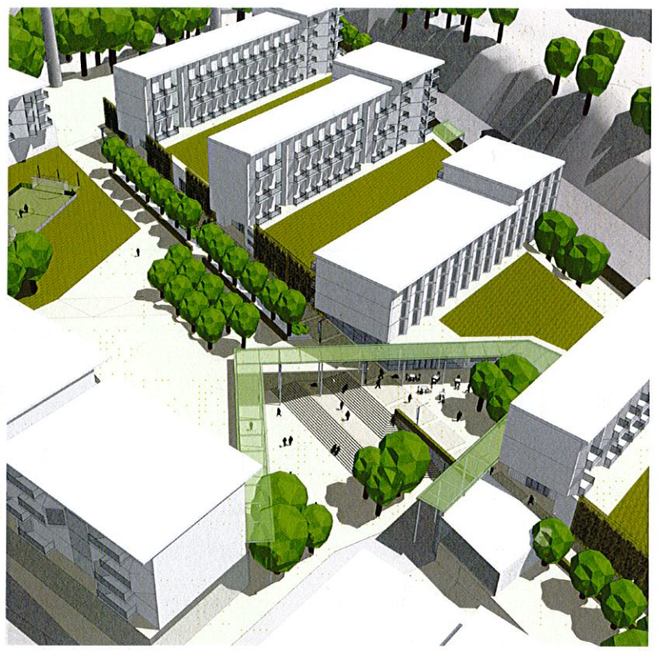
Within **E CUBED**, pedestrians and vehicles have been segregated; the only vehicle allowed access to the Green Highway is the community bus. The main pedestrian and cycle route into Basingstoke town centre is via the Garden Gateway adjacent to the CHP and then along Gresley Road, which will be enhanced with good pedestrian and cycle facilities. A series of smaller wind turbines continue the Green Highway and will form a visual and physical link to the Norn Hill junction, providing a marker for the scheme when viewed from Basing View and the town centre. The Green Highway is also linked to the existing footbridge at the east end of the site, which allows access to the Oakridge Road playing fields.

Gifford Transportation have provided high-level planning advice on the proposals for **E CUBED** (see appendix 4). The document sets out a general appraisal of the proposals and the assessment work carried out to date on upgrading the existing three-arm junction between Gresley Road and the off-slip from the A339 Ringway East. It also sets out a series of recommendations that need to be designed into the scheme should it become a full planning application.

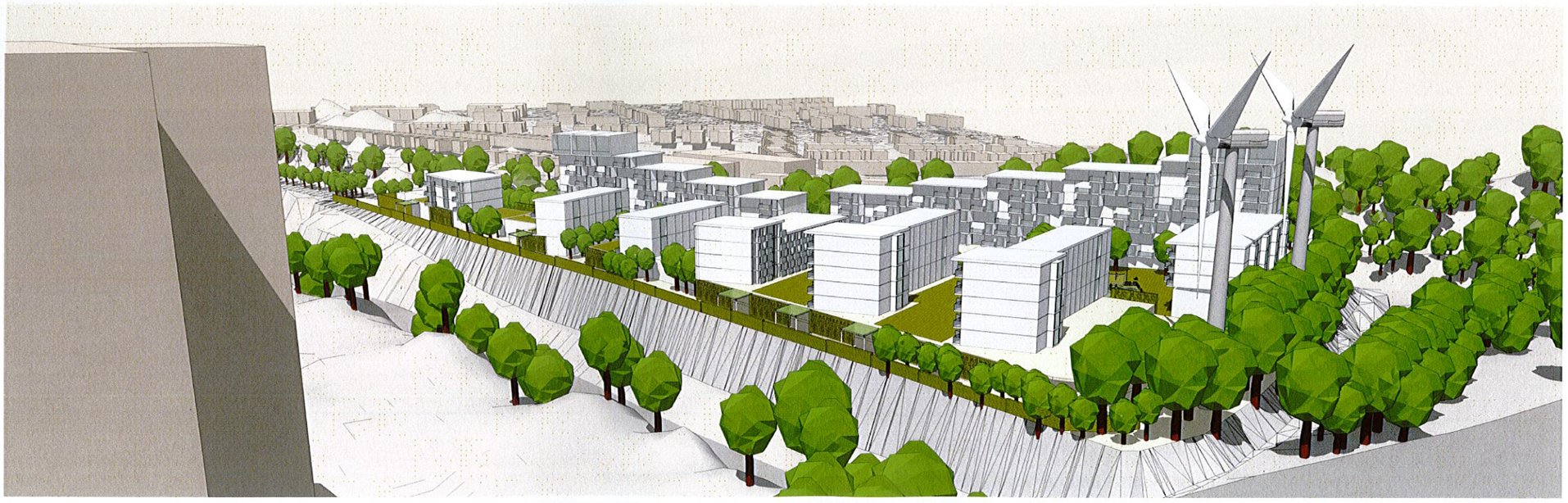
7.6. Conclusion

In summary, Footstep are proposing an exemplary zero-carbon development that seeks to fulfill Basingstoke and Deane's objectives for the site, and indeed go beyond. This is to be achieved through the use of proven low-technology design techniques, combined with innovative methods of construction, all underpinned by high quality architecture and a sense of place that this essential to the long-term success of **E CUBED** and Basingstoke.

The development of **E CUBED** is in line with the DCLG Housing Green Paper: Homes for the Future and seeks to set a foundation for the current Government objective of make all new housing Zero Carbon by 2016. Footstep wish to work with the Local Authority and its partners to develop a scheme that will be ground breaking in Hampshire and of national importance.



ECUBED town centre



view from Farnum House

1.0 introduction

Footstep Homes have pleasure in submitting their proposals for Phase 2D of the Merton Rise development in Basingstoke.

Within this document, the project team intend to show that the proposals fulfil the requirements set out by Hampshire County Council in document MRP2DM, with specific attention given to the following:

1. **Design proposals**
2. **Code for Sustainable Homes Level 5 compliance**
3. **Financial Offer**

To ensure that the proposals are produced as the result of a thorough design process, Footstep have employed a team of experts who have proven ability in urban, architectural and sustainable design. Footstep have set their design team the following challenge:

- To design homes that bring together architectural style with energy efficiency.
- To design houses that achieve a minimum of Code for Sustainable Homes Level 5, but push beyond this to provide good-sized family homes that offer a flexible and healthy living environment to their potential residents.
- To produce houses that are sustainable, not only in terms of their running costs, but also in their construction.
- Homes that are easy to run and enjoyable to live in, but that don't cost the earth.

Footstep Homes see a great potential in this site and intend to create a development that integrates successfully into the wider vision for Merton Rise, provides delight for those who experience it, and give a sense of pride for those who inhabit it.

What do you look for in a new house?

1.1 Brief

Phase 2D of the Merton Rise development is to be disposed of by way of a design offer process, combined with an initial Code for Sustainable Homes assessment.

Hampshire County Council will be assessing proposals based upon the best delivery of the Merton Rise vision, combined with the development team's proposed sustainable aspirations and financial offer as set out in document MRP2DM.

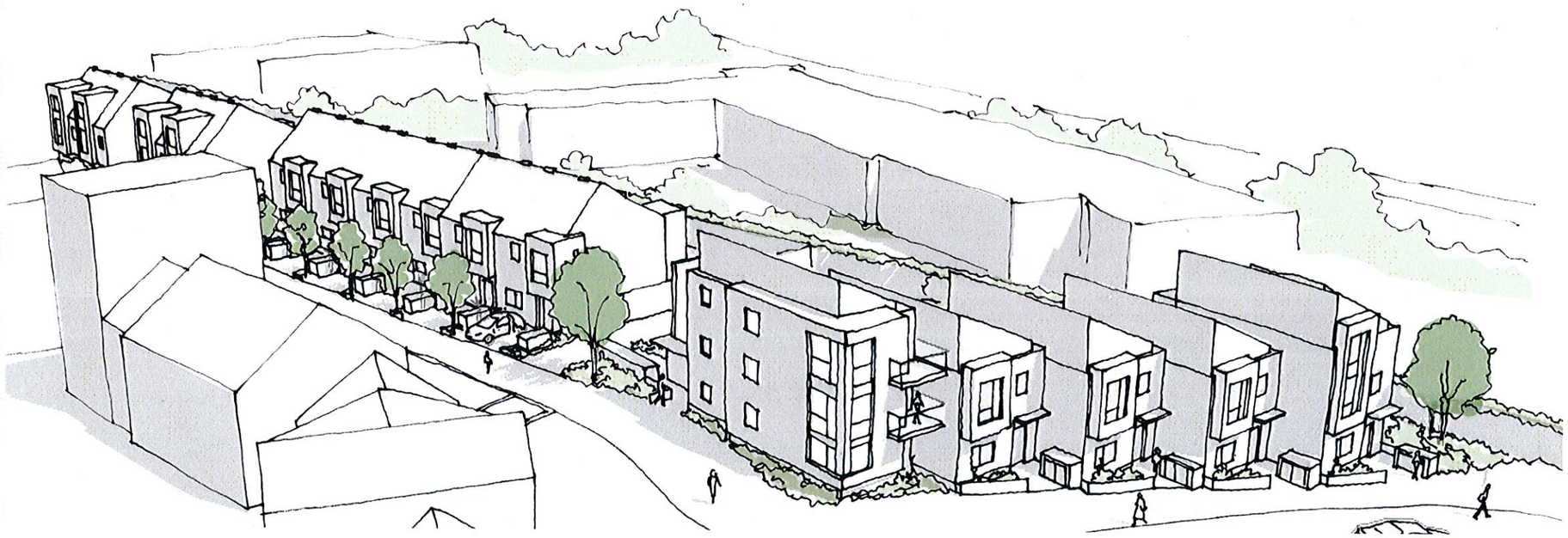
The outline planning application (approved in June 2004) allows up to 17 residential units to be developed on the site. Since the publication of document MPRP2DM, HCC have confirmed that up to 6 units may be one or two bed dwellings, but the maximum of 35% four bed (or large) units still applies.

There is no affordable housing provision, or requirement for public open space on this site.

HCC have set a minimum entry requirement of Code for Sustainable Homes Level 5 for bidding parties. Developers are however encouraged to push beyond this to create an exemplar project for environmental development.

Despite this, Phase 2D must still accord with the Merton Rise vision. Schemes must conform to the guidance set out by HCC regarding the location of building frontages and respond to key views.

The site is to be provided fully serviced, however applicants must show how the site wide SUDS strategy is to be complied with.



footstep

INTELLIGENT HOMES
THAT WON'T COST THE EARTH

4.3 Preferred servicing strategy

Air Source Heat Pump Led

Total peak heat loss is anticipated to be around 3kW for a three bed house, this is likely to be served by a wet heating system.

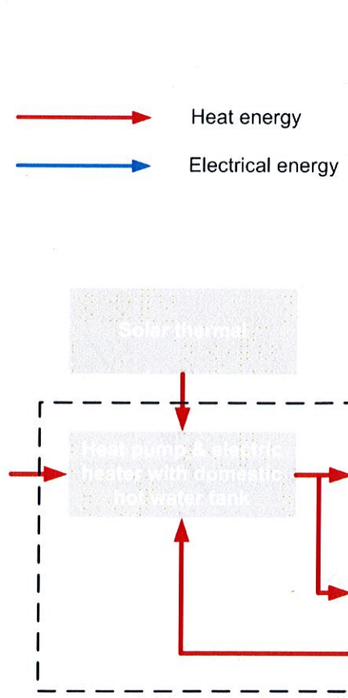
Low energy whole-house mechanical ventilation with heat recovery (Efficiency >85%). Air can be supplied via a ground coupled system and / or direct from the exterior via louvres or roof vents. The system must extract from kitchen + WCs. Low energy DC fans should be used to reduce running costs – specific fan power should be around 1W/l/s.

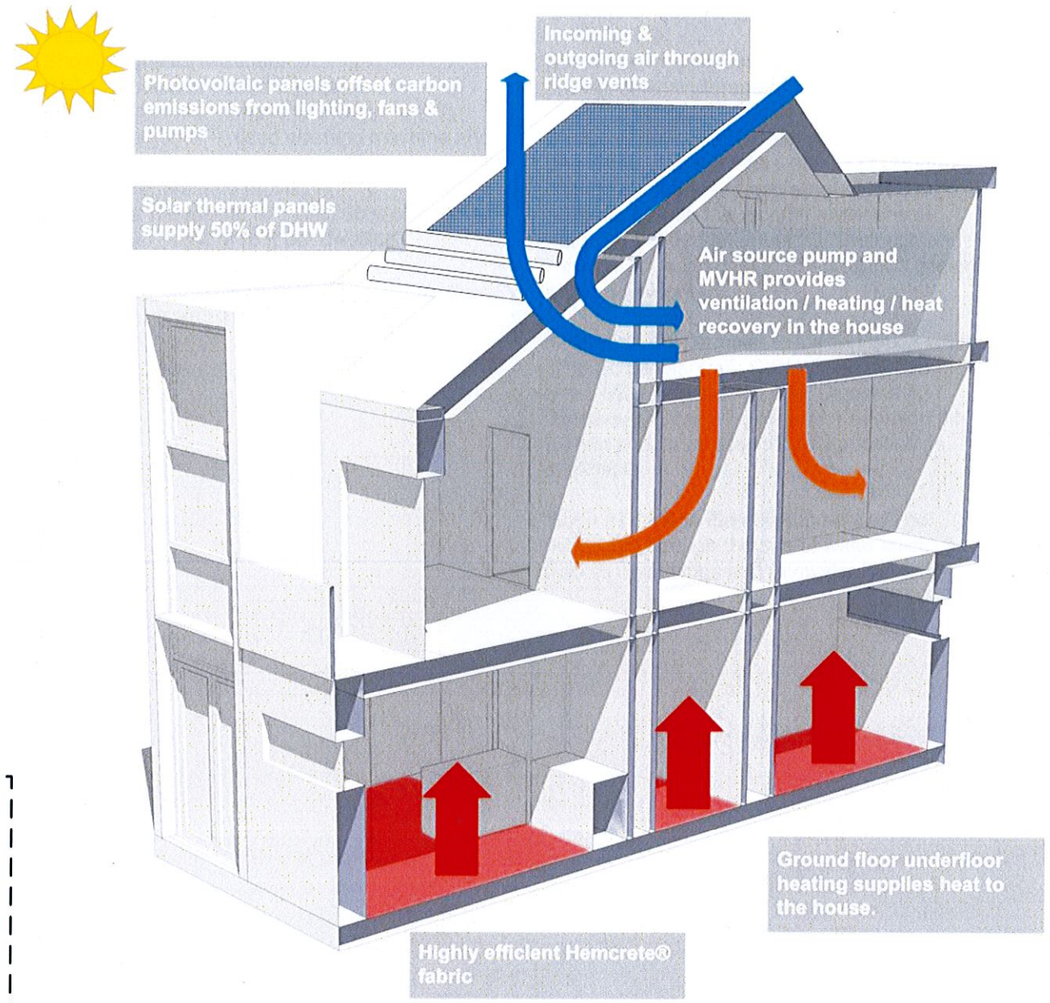
Space heating and hot water system should be minimum possible size, highly efficient. This can be an air source heat pump, and ground-sourced heat will also be considered. Ideally <6kW, with 2 room thermostats and a programmable control panel. This should be linked to a low-heat loss hot water tank, with 160mm of factory-fitted insulation, to meet heat loss requirements from Table 2 of SAP 2006.

These systems can be integrated into a single unit or 'energy tower' such as those supplied by Nibe or an external air source heat pump. These provide a suitably small boiler which can work close to optimum efficiency. With an air source heat pump, no gas supply is required.

Solar thermal hot water panel sized to deliver 50% of annual requirement, approximately 5m2 of flat plate, or 2.5m2 of vacuum tube. Pump to be mains powered. Solar systems can be linked into the air source heat pump energy tower. The energy tower provides the remaining DHW, space heating, mechanical ventilation system with heat recovery and a hot water cylinder. These systems will link into wet under floor delivery. The Nibe air source heat pump has a lower carbon footprint than the equivalent gas boiler, reducing the size of the PV panels required to offset emissions.

To off-set the power used by these systems and the internal lighting loads, up to 3.0kW peak of the most appropriate photovoltaic panels are required.





5.9 Street scene

Collector Street looking west

5.9 Street scene

Collector Street / Supermarket Access Road junction looking east