

E01748 Supported Living Scheme
Phoebe Cusden House
Sustainability Statement

First Issue
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Location: Phoebe Cusden House, 31 Whitley Rise, Reading, RG2 0NN

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Introduction

The Supported Living Scheme, known as Phoebe Cusden House, seeks to address a local need for a supported living facility within the Borough of Reading. Supported living schemes are aimed at helping people who need some form of assistance with their day-to-day lives that may otherwise prevent them managing their own tenancy. Historically this local need had been provided outside of the borough.

The building provides a supported living facility for adults with various needs that require well designed ergonomic spaces ensuring an improved and more independent lifestyle.

Access into each individual flat was carefully considered to offer maximum space and natural light for ease of manoeuvre-ability. The design has been developed to omit awkward junctions, corridors which dog-leg etc. making the passage through the spaces as simple as possible.

The facilities include 11 single bed apartments, including parking spaces, cycle and bin storage, external social spaces and associated landscaping. The form and position of the building has been determined by the site constraints such as the drainage wayleave, embankment and trees, the road and the specific needs for particular design requirements of occupants regarding the arrangement of internal spaces. A recent Extra Care Facility development by Reading Borough Council adjacent to the site offer services to the Supported Living Scheme in terms of care assistance and heating links via the biomass boiler.

Although the Code for Sustainable Homes was used to assist in the design development accreditation was not sought for this scheme. However, the intention remained to design and build a scheme that achieves good thermal efficiency and to create a building that complies with the principles of sustainable design, construction and energy efficiency. The Code for Sustainable Homes Predictive Report in Appendix A and this Sustainability Statement details the specific measures to achieve an energy efficient development.

When developing the proposals, Reading Borough Council's Sustainable Design and Construction policy have been considered in order to use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care and to take account of the effects of climate change.

All new buildings are required to comply with current building regulations and also HCA Housing Indicators, which are driving greater levels of energy efficiency. The majority of current projects, carried out by Reading Borough Council/ Hampshire County Council Property Services have achieved building regulations compliance plus approximately a 9-10% improvement. This is frequently achieved without the requirement for sustainable technologies such as photovoltaic/ solar panels. Where appropriate low or zero carbon technologies will be reviewed such as ground source or air source heat pumps, solar thermal and solar photovoltaic panels. This is considered on a project by project basis and chosen carefully with a view to the long term maintenance, operational costs and budget.

With regard to the Supported Living Scheme project, the key points are listed below:

- The supported living service benefits people with:
 - o learning disabilities
 - o physical disabilities
- Access to flexible care and support services which respond to individual need – these may increase or decrease according to variations in a persons condition.
- Help in setting up and maintaining home or tenancy and developing domestic, social and life skills.
- A real community including mixed tenures and a balance of high, medium and some more active people, which will contribute to the wider community and benefit from the range of ancillary services provided such as the roof terrace lounge.
- An enabling and accessible environment including the use of assistive technology to make independent living possible for adults needing assistance of all ages and should:
 - o Enable people to remain in place
 - o Help people to self – care and promote independent living
 - o Be domestic in nature (not institutional residential care)
 - o Provide a level of support and care by staff.
- Commitment to low carbon design to reduce the energy requirements.
- Adopting the principles of the Code for Sustainable Homes and Lifetime Homes

- Standards. Use of day lighting to reduce artificial lighting/ electricity use.
- Use of bio mass boiler
- Natural ventilation to all key spaces.
- Sanitary fittings with low water usage where appropriate.
- Adoption of 'Soft Landings' approach to maximize building performance and reduce energy use via improved engagement with user/ training, seasonal commissioning of systems and fine tuning.
- Selection of energy efficient equipment/ fittings including lighting.
- Services shared between the two buildings including the sprinkler system.
- Future proofing for the installation of Photovoltaics by Reading Borough Council when economically viable.
- Improved biodiversity as part of the landscape proposals.

1.0 Energy

1.1 Reduction of emissions:

The design and implementation of the engineering services for the scheme focused on delivering low energy installations to minimize energy consumption.

In order to maximize energy efficiency and thereby minimize CO2 emissions the building was designed to incorporate the following measures:

- Windows with sealed double glazed units with Argon filled cavities to reduce heat loss and waste energy.
- Construction detailing, leading to good levels of air tightness.
- The building is served by the same Biomass district heating system serving the Extra Care Facility development.
- Provide low energy light fittings and room occupancy sensors to reduce the consumption and wastage of energy.
- Provide a point of use water heaters to reduce the consumption and wastage of energy to heat hot water via long pipe runs.
- Mechanical ventilation with passive heat recovery to provide sufficient ventilation whilst maximizing occupiers' thermal comfort and reducing heating requirement.
- Natural ventilation is available in all key spaces.
- Lighting features user friendly controls with room occupancy detection and daylight linked dimming where appropriate.
- SAP 2009 calculations provided for all 11 flats.

1.2 Fabric Energy Efficiency:

The building presents a compact form with minimal circulation. This reduces the quantity of building envelope relative to the floor plan, which coupled with insulation, and low energy fittings reduces energy consumption. The building is designed to be energy efficient with building envelope materials achieving thermal insulation values compliant with current building regulations. SAP 2009 calculations and a post completion air tests are provided for all 11 flats.

1.3 Energy monitoring:

Each flat has installed an energy monitoring device to the electrical supply in the living room area where it is highly visible and indicates instantaneous and overall kWh electricity consumption. This will assist each occupant to monitor and take ownership of their own energy consumption. Each flat has its own individual supply authority electricity meter, located in the services cupboard.

The water supply serving the new facility will be provided with a local stand alone pulsed output water meter. Each flat also has a separate MID rated Water Meter to measure water usage. This is combined water usage for both hot and cold water use.

Both the Heat Meter and the Water Meter within each flat are of suitable accuracy for billing purposes.

The meter output signals from all Heat Meters and Water Meters have been consolidated and terminated within a junction box within the electrical intake room. This is to enable future remote connection of an energy monitoring system if required by the client.

Each heat interface unit has an integral Class 2 rated Heat Meter. The Heat Meter monitors the heat energy used for generating both heating and hot water usage within each flat and for the communal spaces.

The main electrical switch panel comprises of a split load type and incorporates a separate energy meters for the respective lighting and power panel sections. The meters are provided with pulsed outputs to allow connection to a future building energy management system or other dedicated metering logging system.

Lighting levels are designed in accordance with CIBSE lighting guidance for visual performance and comfort. Lighting is zoned with occupant controls suitable for their needs, with day lighting maximized. The electrical load is reduced with the specification of low energy fittings.

1.4 Drying Space:

Bathrooms are all provided with a walk in shower and the ability to be fully accessible. Therefore the provision of drying lines in these spaces would be problematic. The installation of a wall mounted drying line could prohibit access to the facilities by some users.

1.5 Eco-labelled Goods:

Energy efficient fridges to the staff office and garden lounge kitchenettes are specified to ensure optimum performance and energy savings in operation. Fridges supplied and installed by Reading Borough Council under the main contract are A+ rated. Tenants will provide their own white goods for the individual flats.

1.6 External lighting:

The provision of new external lighting is minimal. Lighting to communal corridors, roof terrace and bin stores comprises of energy efficient fittings typically high frequency fluorescent and/or LED source, wall mounted and under canopy luminaires to illuminate all final exits from the buildings and main entrance. All external lighting is controlled via a combined photo electric cell and time switch control with manual override facility for test purposes in accordance with the Building Regulations, ensuring low light pollution from the fittings.

1.7 Low and zero carbon technologies:

An energy statement has been produced that demonstrates that at least 20% of the development's energy requirements can be met from the Biomass district heating system at the Extra Care Facility. Through the design process the building's energy load is such that providing alternative technologies as part of this project was not economically viable in this instance.

1.8 Cycle Stores:

Cycle storage provision is as detailed in the Transport Assessment and agreed with RBC Highways Department.

A communal cycle store is shared with the Extra Care Facility which can provide a total of 5 spaces. The stands are securely fixed into concrete and allow both the frame and a wheel of a bike to be locked to it.

The cycle storage provision will encourage sustainable modes of travel to the site.

1.9 Car parking provision:

Parking provision is as detailed in the Transport Assessment and agreed with RBC Highways Department.

1.10 Public transport accessibility:

The site is well connected to the local bus network with bus stops within 60m to the south and north of the site along Basingstoke Road.

1.11 Proximity to amenities:

The site is in close proximity to amenities with local retail park including a large supermarket,

retail units, eateries and gym, located at the southern end of Basingstoke Road at its junction with Rose Kiln Lane.

2.0 Water

2.1 Water consumption:

Water saving appliances and sanitary ware were installed/fitted to minimize water consumption.

All water systems are designed and maintained to control the risk of Legionella.

A water meter with pulsed output is installed on the mains water supply to the new facility.

The calculated water usage for each flat is 92.71 l/p/day which is within the minimum requirements for Code 3 of the Sustainable Homes.

External landscape planting has been developed to require minimum irrigation and relaying on rainwater for limited watering rather than a dedicated irrigation system.

2.2 External water use:

A 120 litre water butt will encourage the recycling of rainwater for use in the communal garden.

3.0 Materials

3.1 Environmental impact of materials:

Where possible the project team worked with the contractor to achieve compliance with the green guide for roof, floor, internal walls, floor finishes and external landscape materials. Window and door systems generally are UPVc with the main sliding entrance door in aluminium so as to be durable and low maintenance.

The following building materials for the building were chosen for their robustness, long life and low maintenance requirements: Brickwork, insulated through colour render, UPVc glazing systems/ doors, durable choice of plasterboard specification, tiles, and durable paint finishes to reduce future maintenance issues. There is potential to recycle the materials used, such as bricks, concrete, aluminum, steelwork, timber and floor coverings.

The future maintenance of the building has been considered by specifying materials, equipment and finishes that are durable and have low maintenance characteristics. All equipment that requires regular maintenance is easily accessible to allow the task to be performed efficiently.

Timber used in the construction of the building is FSC certified and other building materials that have low levels of embodied energy are specified wherever possible to ensure a low environmental impact.

3.2 Responsible sourcing of materials

Refer to section 8.3.

4.0 Surface Run Off

4.1 Management of Surface water run-off:

A drainage consultant developed the drainage strategy. The development connects to the existing public sewers.

4.2 Flood risk:

Environment Agency flood maps indicate that the site is located within Flood Zone 1 where the lowest annual probability of flooding occurs, that being less than 1 in 1000 for any given year. The surface water is captured by the proposed drainage system. Therefore a Flood Risk Assessment is not deemed necessary due to the size of the site and the flood risk from surface water to the proposed site and adjacent area low. The design of the drainage systems will minimize the risk of flooding elsewhere.

5.0 Waste

5.1 Storage:

Each flat contains an integrated 13 litres bin within a kitchen cupboard. A dedicated communal external lockable bin store is provided with LA bins to allow the segregation of tenants refuse / recycling and staff business waste.

5.2 Construction waste management:

The contractor was encouraged to effectively manage and promote reduction of construction waste. The contractor also encouraged subcontractors to assist in meeting targets. A site waste report is supplied by the main contractor on an annual basis by the waste disposal subcontractor.

5.3 Composting:

No composting facilities were provided due to the communal nature of the scheme and the restricted nature of the site.

6.0 Pollution

6.1 Insulant GWP:

Where possible the project team worked with the contractor to achieve compliance with providing insulation with an ODP of 0 and a SWP of less than 5 for roof, floors, walls, foundations and pipework.

6.2 Nitrogen Oxide Emissions:

The Biomass district heating system does not meet the Sustainable Homes Code 3 NOx requirements.

Refrigerants were not used in any equipment specified for this development.

7.0 Health and Wellbeing

7.1 Daylighting:

The buildings elevational treatment and proportions of the main spaces help to maximize day lighting and make use of low winter sun to assist background heating during winter months. SAP 2009 calculations were provided.

Day lighting and controls are designed to CIBSE standards.

7.2 Acoustic performance:

An acoustician was appointed to carry out an environmental noise assessment of the site and advise on acoustic matters. The new development was detailed to achieve performance standards required by current building regulations part E.

In addition, the acoustician report establishes criteria for any external plant, to ensure that the proposed development does not unduly impact on the locality.

Post-occupation acoustic testing was carried out by a suitably qualified acoustician.

7.3 Indoor air quality:

A natural ventilation strategy is achieved via openable windows. Toilet areas are vented with localized mechanical extracts. Kitchen hob areas are vented with localized mechanical extract hoods.

7.4 Thermal comfort

A thermal model has been carried out to demonstrate the acceptable thermal comfort levels, within current guidance, can be achieved.

The building has thermal zoning to provide occupants with localized controls.

7.5 Private Space:

The development provides residents with a private fenced off garden area at ground floor level and a roof terrace with seating leading off of a resident's garden lounge on the third floor. A lift provides access to the third floor and all spaces are accessible to disabled people in line with the requirement of BS8300.

7.6 Lifetime Homes:

The design and implementation of the flats focuses on delivering the requirements of the Lifetime Homes Standards.

The proposed building has been constructed to the Lifetime Home Standards to incorporate the following criteria:

1. Car parking - The accessible spaces adjacent the main entrance attains the minimum 3300mm width.
2. Approaches from parking - The accessible spaces have a gradient of 1:20 to the front entrance.
3. Approaches to entrances - The gradients by the main entrance are 1:20 and the ground floor garden patio is 1:20.
4. Entrances - The threshold is level, has a canopy and has lights in the soffit.
5. Communal Stairs and Lift - Accessible lift is provided with an internal dimension of 1100mm x 1400mm or greater. The lift landings are 1500 x 1500mm. The stairs meet ambulant accessible standards with risers not more than 170mm, going not less than 250mm and handrails 900mm high.
6. Internal doorways and hallways – layout has been designed to maximise clear opening door widths and generous circulations space. Fire doors within lobbies are on hold open devices linked to the main fire alarm system.
7. Circulation Space – flat layouts have been designed to accommodate turning space for a wheelchair. Bathrooms & Kitchens are designed for future adaptations for wheelchair accessibility with 4 of the 11 flats already having fully accessible Bathrooms & Kitchens. Disable refuge points are provide within the protected staircase with intercom facility.
8. Entrance level living space – All accommodation within the flats are on one level.
9. Entrance level bed-space – All accommodation within the flats are on one level.
10. Entrance level WC and shower– All accommodation within the flats are on one level.
11. WC and Bathroom walls – have been designed to take additional grab rails etc.
12. Stair lift - Not applicable flat are on one level with a communal lift to serve each floor.
13. Potential fitting of hoist route - The flat layouts allow for the future provision of a hoist to provide a route between the bedroom and bathroom.
14. Bathroom layout – 4no. Flats have been fitted out to be fully accessible with the remaining 7 having the potential to be fully accessible with simple adaptations.
Windows
15. Glazing and window handle heights - Cill level allows view out when seated. Transom at 800mm. Handles no higher than 1200mm. Bay windows can be fitted with proprietary Teleflex system if required.
16. Location of service controls - Switched, sockets etc. are between 450 and 1200mm from the floor

8.0 Management

8.1 Stakeholders:

Key representatives from the client body have been identified and involved in the design development.

Roles and responsibilities for the Client, Design and Contractor Teams, for the design, construction and handover phases of the project have been agreed and documented. A communications strategy and consultation plan, including timescales, was in place.

Monthly client meetings have taken place with the client to agree a brief, identify site constraints, understand aspirations, highlight key objectives and develop the proposals. Feed back from all stakeholders has informed the development of the proposals.

Design, technical and gateway reviews have been undertaken by independent facilitators at key stages of the project An access statement has been developed and reviewed by Hampshire County Council Access Officer.

8.2 Home User Guide:

The building design and procurement process also adopts the principles of Hampshire Soft Landings, an

initiative to maximize building performance after handover and has been shown to significantly reduce in use carbon emissions against design estimates. The process includes provision of an easy to read building user guide and maintenance schedules, seasonal commissioning of building services. Early consultation with the client will encourage further engagement with building users and the facilities management team. This is to ensure that users have a full understanding of how to operate the new building after handover and that the performance of the building and its services can be optimized.

A quick reference building guide was supplied for use by staff & residents. Some residents however require additional support supplied by their care provider.

A schedule of training for the building occupiers was arranged at the appropriate stage. The Health & Safety file and Operational & Maintenance manual in the form of a Building Manual were in accordance with the Building Regulations.

A commissioning programme for the new development was agreed, scheduled and implemented, including seasonal commissioning to cover the first 12 months. Regularly aftercare meetings are being held to feedback any issues or concerns from the building users.

An open day for potential residents was arranged at the appropriate stage.

8.3 Responsible construction practices:

The contractor registered the project with the Considerate Contractors Scheme and achieved the compliance, a score of 32 or above, or equivalent score. An actual score of 35 was achieved.

8.4 Construction site impacts:

The Main Contractor was responsible for monitoring, recording and reporting energy, water and transport consumption data resulting from all the construction processes during the Construction Phase, including the transport of construction materials and waste.

The Main Contractor ensured that all timber used on site for the project is FSC certified (legally harvested and legally traded timber) in accordance with the UK Government's Timber Procurement Policy and implement best practice pollution prevention policies and procedures on site (for noise, air & water).

There was no demolition works within the development and therefore the recycling of materials is not applicable to this project.

8.5 Security:

As part of the Secure by Design process consultation was undertaken with Berkshires West Crime Prevention Design Adviser. The design followed principles of Secure by Design to achieve a safe and secure site.

The safety, wellbeing and security of the residents is of paramount importance and the adjacent building and site already has access control and crime prevention measures in place which was extended as part of the project.

In accordance with DCLG Planning Circular 1/2006, Crime Prevention Measures have been considered in the design of this proposal. The site is secured with perimeter fencing and gates and an intruder alarm system to the ground floor staff office. All new windows and external doors are fitted with security locks and laminated glazing.

The key aspects included in the scheme are as follows:

- Safe secure perimeter fencing. The entrance garden court is also very visible, being overlooked by residents and from the street through the hit and miss fencing. Other locked gates are around the building at ground floor level. The gardens are overlooked by the ground floor flats and external lighting is provided around the ground floor.
- The roof terraces with high parapets provide safe, secure private amenity space for the residents.
- Future provision for CCTV to the main entrance and the escape stair doors if required.

- Doors and windows are to SBD standards.
- There is a front entrance access control - linking the intercom at the front door to the residents call point.
- External lights by the ground floor flats patio doors
- The 'Tunstall' warden control system is fitted in the individual flats and the communal areas.
- The use of laminate glass to the outer pane of windows and doors.
- Facility is managed with an office at ground floor and staff always in attendance.
- There is a dedicated area for deliveries, drop-off and waste collection

9.0 Land Use and Ecology

9.1 Ecological value of the site:

The site was previously a special school and was identify for housing in order to address the failing local need for supported living accommodation. The development site is composed of a mix of hard standing, with some grass, and a tree belt on a bank to two sides.

A ground investigation was carried out for the development site and confirmed contamination from soils was considered low risk.

An asbestos survey was not required prior to commencement of constructions as any redundant buildings had been demolished and the site cleared in readiness for the development.

An Ecology Assessment was carried out for the site by a qualified ecologist and confirmed the site to be of medium ecological value. No further surveys were considered to be required at the time.

9.2 Enhancing site ecology:

Planting was proposed within the external resident's garden and to the front of house of the proposed block. The landscape proposals have been developed with Reading Borough Council and the external planting will be maintained by Reading. The roof terrace has a circulation and community space, 2 raised planters, and a small propagation area to encourage residents to grow their own plants.

9.3 Protection of ecological features:

The existing tree belt was protected using Heras fencing throughout the works. Some clearance of pernicious weeds and brambles was undertaken within the tree belt, to encourage native understory, and bring light to the ground. Small scale tree works were undertaken to open the canopy.

9.4 Change in ecological features:

As part of the scheme some planting, and some grass were added to enhance the site. The extent of permeable space, lawn and shrubs is now greater than at the outset of the project. Species used are a mix of deciduous and evergreen, with periwinkle and lavender to appeal to residents.

9.5 Building footprint:

The apartment block is 3.5 storey's high which promotes the efficient use of the land with a compact building footprint on a very restricted site. The building achieves the minimum 3:1 ratio requirements outline in Code for the Sustainable Homes.