

Asperger Resource Base

Blessed Hugh Faringdon Catholic School

Sustainability Statement

First Issue

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Location: Blessed Hugh Faringdon Catholic School, Fawley Rd, Reading, RG30 3EP

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1.0 Context

The Asperger Resource Base, known as the Base, is a specialist unit for students identified with Autism Spectrum Disorder (ASD), at Blessed Hugh Faringdon Catholic School, Reading. The unit currently acts as a common room and teaching facility for 15 full time pupils from Years 7-11 with ASD. There are also 30 further students on the autistic spectrum in the school (diagnosed and undiagnosed) who have access to the Base facility during lunchtime. The Base is currently the only specialist unit for secondary school pupils with ASD within Reading and is operating at full capacity. Reading Borough Council (RBC) has identified a need to increase the capacity of the Base to 30 full time pupils to cater for additional ASD pupils coming through the primary education system into secondary. The proposal to achieve this brief comprises a new permanent facility, which will be a pre-fabricated modular construction, and associated play space.

It is proposed that BREEAM accreditation is not sought for this scheme however, the intention remains to design and build a scheme that achieves good thermal efficiency and to create a building that will comply with the principles of sustainable design, construction and energy efficiency. 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 has 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, 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 we will review low or zero carbon technologies 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 Asperger Resource Base project, the key points are listed below:

- Commitment to low carbon design to reduce the energy requirements.
- Adopting the principles of Building Research Establishment Environmental Assessment Method (BREEAM)
- Modular, off-site construction, minimises waste, reduces construction period and site disruption, and provides potential for future re-use/ recycling.
- Use of day lighting to reduce artificial lighting/ electricity use.
- Natural ventilation to all key spaces. Additional mechanical ventilation system with passive heat recovery to enable sufficient ventilation rates at any time of year.
- Energy efficient VRV/VRF heating and cooling system with heat recovery options to the main occupied spaces
- Improved biodiversity as part of the landscape proposals.
- 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.

Through the design process, and the incorporation of the above items, the building's energy load is such that providing alternative technologies such as Photovoltaics are not economically viable in this instance. Please refer to section 4.0 for further information.

2.0 Management

2.1 Sustainable procurement:

The procurement process utilises the Southern Modular Building Framework. The advantages of using this procurement strategy include:

- Simpler and quicker procurement with specialist contractors
- Efficient management
- Efficient use of resources
- Collaborative working
- Streamlined supply chain
- Economies of scale
- Increased purchasing power
- Reduced waste
- Sustainable product

Key representatives for the school have been identified and involved in the design development. The process of appointing a framework contractor to the project is currently underway and due to complete 21st October. When appointed, the Client, Design Team and Contractor will define and agree the roles and responsibilities for the design, construction and handover phases.

2.2 Responsible construction practices:

Once appointed, the contractor will be encouraged to register the project with the Considerate Contractors Scheme and will aim to achieve the compliance, a score of 32 or above, or equivalent score.

2.3 Construction site impacts:

The Main Contractor will be 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 strategy of using pre-fabricated modular bays, manufactured in a factory setting and transported to site, minimises waste and reduces the construction period and site disruption.

The Main Contractor will also operate an Environmental Management System (EMS) covering their main operations.

The Main Contractor shall ensure 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).

The proposals include only limited demolition works and therefore the recycling of materials is not applicable to this project.

2.4 Stakeholder participation:

Monthly client meetings have taken place with the client department, school and Diocese of Portsmouth since RIBA stage B to agree a brief, identify site constraints, understand school aspirations, highlight key objectives and develop the proposals. The school governing body has been informed throughout the process. The contractor is to be appointed at RIBA stage E to join the Project Team. Meetings will continue throughout the project to discuss the developing scheme. Key stages of the project have and will

be signed-off by the client and end users.

The project will adopt a 'Soft Landings' process which in addition to early consultation described above, 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 public exhibition took place on the 5th July 2016 to inform parents, pupils and the local community of the proposals. Feedback from stakeholders, specialist consultants and advisory groups has informed the development of the proposals.

Design, technical and gateway reviews have been undertaken by independent facilitators at key stages of the project and will continue throughout the project.

An access statement has been developed and reviewed by a Hampshire County Council Access Officer.

2.5 Commissioning:

A schedule of training for the building occupiers will be arranged at the appropriate stage. The Health & Safety file and Operational & Maintenance manual will be in the form of a Building Manual in accordance with the Building Regulations (Requirement L1(c) of Part L2A & B – Conservation of fuel and power in buildings other than dwellings).

A commissioning programme for the new development will be agreed, scheduled and implemented, including seasonal commissioning to cover the first 12 months. Aftercare will be responsibility of the contractor for the first 12 months before the Diocese of Portsmouth take over maintenance responsibilities, which will likely be carried out through RBC Property Services SLA.

The building design and procurement process will also adopt 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.

3.0 Health and Wellbeing

3.1 Visual comfort:

The design of the building, including the elevational treatment and the proportions of the main spaces, help to maximize day lighting. The building design will offer environmental benefits through a canopy providing shade to protect the main space from over heating during the summer whilst making use of low winter sun to assist background heating during winter months.

Day lighting and controls will be designed to CIBSE standards.

3.2 Indoor air quality:

Opening windows will provide natural ventilation to all main spaces. The open plan social/ dining space and classroom will take advantage of clerestorey glazing to enable cross ventilation. Mechanical ventilation with passive heat recovery through louvres will be utilised in key spaces such as the social/ dining space, classroom, office, meeting room to enable sufficient ventilation rates to be achieved without requiring the direct intake of cold fresh air to occupied spaces in winter. Toilets will be ventilated using occupancy controlled extract systems.

CO² monitors will be provided in the social/ dining space and classroom.

3.3 Thermal comfort:

An overheating assessment will be carried out to demonstrate that acceptable thermal comfort levels, with in current guidance, can be achieved.

The building will have local user adjustable controls.

3.4 Water quality:

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

Drinking water will be accessible within the proposed building for both pupils and staff.

3.5 Acoustic performance:

An acoustician has been appointed to carry out an environmental noise assessment of the site and advise on acoustic matters. The new development will be detailed to achieve performance standards required by Building Bulletin 93.

Pre-occupation acoustic testing will be carried out by a suitably qualified acoustician.

3.6 Safety and security:

The enlarged car park will ease the flow of vehicles. The pedestrian entrance to the Asperger Resource Base will be reconfigured slightly to segregate pedestrians and cyclists (as well as vehicles as existing), to improve safeguarding.

The project will also introduce a dedicated bin store area for waste collection.

The safety, wellbeing and security of the pupils is of paramount importance and the existing school building and site already has access control and crime prevention measures in place which will be extended as part of the project where appropriate.

The existing secure perimeter fencing and gates will be retained and a new pedestrian gate installed to match. The existing school intruder alarm system will be extended to include the new building. All new windows and external doors will be fitted with security locks and laminated glazing.

4.0 Energy

4.1 Reduction of emissions:

The design and implementation of the engineering services for the proposed works will focus on delivering low energy installations to minimize energy consumption.

In order to maximize energy efficiency and thereby minimize CO2 emissions the proposed new building has been designed to incorporate the following measures:

- Provide windows with sealed double glazed units with Argon filled cavities to reduce heat loss and waste energy.
- The manufacture of the modular bays in a controlled environment will maximize the quality and efficiency of the construction detailing, leading to good levels of air tightness.
- The heating and cooling system in key spaces is driven by an energy efficient VRV/VRF system with heat recovery and will be monitored by an automatic Building Management System (BMS). In smaller spaces, localised electrical heating will be provided with individual controls.
- 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 will be proposed to provide sufficient ventilation whilst maximizing occupiers' thermal comfort and reducing heating requirement.
- Natural ventilation is available in all key spaces.

New lighting will feature user friendly controls with room occupancy detection and daylight linked dimming where appropriate.

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.

Thermal Insulation. The building will be designed to be energy efficient with building envelope materials achieving thermal insulation values compliant with current building regulations.

4.2 Energy monitoring:

A Building Management System will be installed with remote alarm/monitoring facilities.

The water supply serving the new facility will be provided with a local stand alone pulsed output water meter.

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

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

4.3 External lighting:

External lighting will comprise low energy 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 will be controlled via a combined photo electric cell and time switch control with manual override facility for test purposes.

4.4 Energy efficient equipment:

Energy efficient equipment to kitchenette will be specified to ensure optimum performance and energy savings in operation. Equipment such as washing machines, fridges and kettles are to be A rated.

5.0 Transport

5.1 Public transport accessibility:

There are several bus routes within the local areas serving central Reading, including routes along Bath Road, to the North, and Southcote Lane, to the South. Bus stops are located approximately 400 metres away on Bath Road, and 200 metres away at the junction of Fawley road.

5.2 Proximity to amenities:

The school is approximately 400m away from the local newsagent and two blocks from other local shops including a pharmacy and post box.

5.3 Cyclist facilities:

The Asperger Base pupils are dropped off by vehicles alongside the Fawley Road pedestrian entrance. It is therefore not proposed to increase the existing cycle storage provision. The existing shelter will be displaced by the new building and relocated to the south part of the school site, which will help to segregate cyclists and pedestrians at the Fawley Road pedestrian entrance and increase safeguarding.

5.4 Car parking capacity:

Staff parking provision for the school will be increased by 5 spaces, as agreed with RBC Highways Department.

5.5 Travel Plan:

Due to the minor increase in pupil numbers associated with the project, RBC transport have confirmed it will not be necessary to update the school travel plan.

6.0 Water

6.1 Water consumption:

Water saving appliances and sanitary ware will be specified to minimize water consumption.

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

External landscape planting will be developed to require minimum irrigation and if possible relaying on rainwater with limited watering rather than a dedicated irrigation system.

7.0 Materials

7.1 Life cycle impacts:

Where possible the project team will work with the contractor to achieve compliance with the green guide for roof, floor, internal walls, floor finishes and external landscape materials. Following feedback from RBC's property services team, window and door systems are to be aluminum to be durable and low maintenance. Unfortunately this will not comply with the Green Guide.

The brick slips which will clad the external walls of the modular bays shall be selected to match the bricks used on the existing building and hence retain local character.

Materials for the proposed building have been chosen for their long life and low maintenance requirements. Due to the modular construction method, the building has the potential for future transportation and reuse, or the potential to recycle the materials used, such as bricks, concrete, aluminium, steelwork, timber and floor coverings.

Areas of timber cladding, other timber and engineered boards, such as plywood, used in the construction of the new building shall be FSC certified and other building materials that have low levels of embodied energy will be specified wherever possible to ensure a low environmental impact.

7.2 Responsible sourcing of materials:

The Contractor will be encouraged to specify responsibly sourced materials for key building elements.

7.3 Design for robustness:

The following building materials have been chosen for robustness and low maintenance: Brick slip cladding, natural timber cladding, aluminum glazing systems/ doors, durable choice of plasterboard specification, corner guards where appropriate, tiles, and durable paint finishes to reduce future maintenance issues.

Building Maintenance:

The future maintenance of the proposed 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 to be easily accessible to allow the task to be performed efficiently.

8.0 Waste

8.1 Construction waste management:

The contractor will be encouraged to effectively manage and promote reduction of construction waste. The manufacturing of the building's modular bays in a factory setting will reduce the amount of waste produced. The contractor will also encourage subcontractors to assist in meeting targets.

8.1 Operational waste:

The school currently has a dedicated area for bin store to allow the segregation of refuse and recycling. The scheme improves access arrangements for refuse collection by providing a designated bin store.

9.0 Land Use and Ecology

9.1 Site selection:

As previously noted, Reading has a rising demand for ASD secondary school places and is proposing to increase the capacity of the existing Asperger Resource Base from 15 full time pupils to 30 full time pupils, building on the specialist knowledge and experience the school have developed.

Consultation locally has been undertaken and the principle and detail of the development agreed with the school, local community and other stakeholders, as outlined in section 2.4.

A ground investigation has been carried out for the development site and confirms contamination from soils is considered low risk.

An asbestos survey will be carried out to the existing Health & Social Care bungalow and asbestos removal in areas affected by the scope of refurbishment will be arranged prior to commencing works.

9.2 Ecological value of the site:

An Ecology Assessment has been carried out for the site by an approved ecologist and has confirmed the site is considered to be low ecological value and no further surveys are considered to be required..

9.3 Enhancing site ecology:

Planting is proposed within the proposed external play area (in a mixture of low level and raised beds) and along the west site boundary down to the corner of Fawley Road and Aldworth Close. The landscape proposals have been developed with the school and the external play area planting will be maintained as part of the Asperger Resource Base pupils' educational activities, allowing the children to engage more fully with the environment around them. This will provide an opportunity to improve biodiversity with regard to the choice of tree and shrub species.

10.0 Pollution

10.1 Surface water run-off:

The current surface water drainage system is relying on a conventional pipe system. The preliminary soil investigation has been undertaken and as part of the investigation two falling head tests were undertaken which show that there is potential for infiltration, therefore the surface water system will be discharged into ground via cellular soakaways at this stage subject to full BRE 365 tests.

The infiltration will help to reduce the overall surface water discharge rate from the school site which discharge into public surface water system in the area. As part of the proposal water butts will be considered to be used for garden watering which will also promote natural water cycling. Other sustainable urban drainage systems (SUDS) will also be considered where possible to reduce the demands on the surface water system.

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 will be captured by the proposed drainage system, therefore the flood risk from surface water to the proposed site and adjacent area will be eliminated.

Refrigerants and Nitrogen Oxide Emissions:

The proposed VRV/VRF system for the new facility will utilise R-410A as the refrigerant. R-410A has zero ozone depletion potential and does not contain chlorine.

It is not currently intended to utilise a gas boiler to serve the new facility and therefore Nitrogen Oxide emissions from associated boiler plant is not applicable.

10.2 Noise attenuation:

An environmental noise assessment has been carried out by an acoustician to assess the level of background noise. This survey indicates opening windows will be sufficient to achieve the natural ventilation strategy.

10.3 Light Pollution:

The provision of new external lighting will be minimal, above the main entrance and external doors. Light fittings will be controlled by photocell and time clock using energy efficient lamps/sources in accordance with the Building Regulations, ensuring low light pollution from the fittings i.e. reflectors and controllers within the fittings to control light output and glare.