6.0 Energy and Sustainability

6.1 Overall approach to sustainability

The environmental performance of a building is a key feature to ensuring sustainable development. The proposals for CRRDC have been designed to minimise the impact on its local and global environment. In line with the most efficient approach to reducing the energy consumption (and resulting carbon emissions) from a building, passive and active design measures have been considered before the use of Low and Zero Carbon (LZC) technologies for the project.

A significant carbon saving against the applicable Part L Building Regulations (2013) can be made and will result in an overall reduction in carbon emissions of 36.8%. Additionally, the building will also look to achieve a BREEAM 'Excellent' rating under the current 2014 BREEAM criteria.

The energy efficiency measures that form part of the CRRDC design proposals and contribute to the carbon emissions savings and BREEAM rating are summarised below.

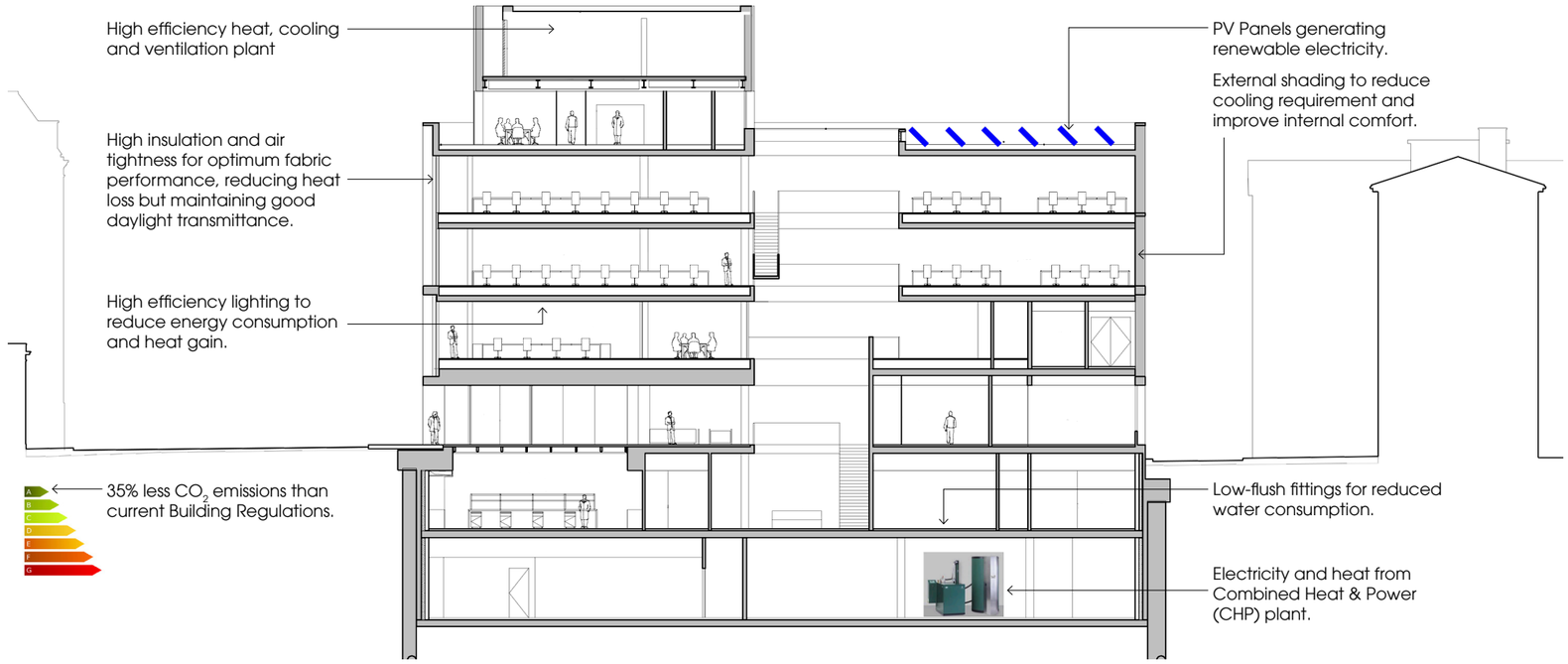
Further information can be found in the accompanying documents that support this planning submission:

— Energy and Sustainability Statement
— BREEAM Pre-Code Assessment
— Biodiversity / Ecology Report.

6.2 Passive Elements

The following passive measures are proposed for the building:

— Fabric performance targets will exceed those of national regulations by between 40-60% to minimise summer cooling loads and winter heating demand.
— A high building envelope performance will be achieved through the use of high levels of insulation and airtight construction methods that reflect best practice. Additionally, the effects of thermal bridging will be reduced through careful design and detailing.
— Facade design (glazing provision, external shading and glass specification) has been optimised through the use of an iterative thermal modelling exercise by the MEPH Engineers, Hoare Lea, to achieve good daylight levels, control solar gain and reduce overheating. This will optimise occupant comfort, also providing good daylight levels and views out.
— The solar gain through openings will be reduced further through the design of deep reveals which provide beneficial shading to limit unwanted summer time heat gain.
— A concrete frame and slabs will be used so that CRRDC has a high thermal mass.
— Ecological enhancements will be targeted in line with the Local Biodiversity Action Plan in order to significantly increase the ecological value of the site. This will include the planting to the ground floor outpatients terrace and the second floor staff terrace.
— A brown roof on the four storey block adjacent to Millman Street and Millman Mews will provide rainwater attenuation, as will the other planted areas.



6.3 Active Elements
The following active measures are proposed for the building:

— Numerous energy-reduction measures will be implemented on the building's fixed building services such as heat recovery and variable speed pumps/fans.
— Considered fume cupboard specification to ensure the best practice energy specification is achieved.
— The building will be specified with intelligent low energy lighting across all areas to reduce carbon emissions.
— The use of a BMS will enable automatic system control to ensure correct operation of the building. Monitoring of the building services systems will assist in maintaining optimum energy consumption through data interrogation and resolution of potential problems.
— The installation of roof mounted PV panels will provide approximately 12.8% of the building's yearly regulated electricity usage.
— Additionally, effective commissioning, seasonal commissioning and Post Occupancy Evaluation if properly managed will further reduce operational energy demand, when combined with a sufficiently detailed metering strategy and BMS system.
— Metering/sub-metering and BMS control strategy to support the Post Occupancy Evaluation process, and ensure the building system can achieve suitable levels of control without being too complicated to use.
— A further review of the building owner's equipment / small power procurement policy may also provide savings in unregulated energy consumption.

6.4 Low and Zero Carbon Technologies
The following Low and Zero Carbon (LZC) Technologies are proposed for the building:

— A Combined Heat and Power (CHP) unit to be located in the basement.
— A total area of 553m^2 Photovoltaic panels will be located on the lower roof on the southern side of the site. They will be located above the brown roof but will sit below the roof parapet and so will not have an impact on skyline views from lower levels.
— Rainwater collected from the roof will be used as a non-potable water source for WC flushing. Coupled with low-flush sanitary ware, this will reduce the building's water consumption.
— To ensure storm water flows are properly attenuated before discharge into public sewer an underground attenuation tank and rainwater harvesting tank will be installed.

6.5 Materials
The proposed building will use a palette of high quality materials within a robust durable construction, making the building inherently sustainable. Waste material during construction will be reduced through careful design and standardisation of façade and other elements such as glazing units.

— Metal
The metal elements, frames and panels will be durable and recyclable.
— Brick
The elevations will use a high quality textured brick which will provide good thermal performance. Brick is a sustainable and durable material with excellent life cycle performance, energy efficiency, high thermal mass and responsible manufacturing.
— Terracotta
Terracotta units are made from 100% natural raw materials and are extremely durable, low maintenance, weatherproof and completely recyclable making them a highly sustainable building material.
— Concrete
Concrete will provide the thermal mass and will use recycled content and secondary aggregate.

6.6 Biodiversity
An ecological assessment has been undertaken, which has established that the site is currently of negligible nature conservation interest. The proposals present an opportunity for significant ecological enhancement to benefit wildlife both within the site and the local area.

Brown Roof
The installation of a brown roof will enhance the local biodiversity and will be installed on top of the larger roof area on the south side of the site under the photovoltaic panels. It is proposed that approximately 293m^2 of brown roof will be installed, equating to 22.8% coverage of the total roof area of the scheme.

Bird and/or bat boxes will also be installed at roof level as advised by the project ecologist.

Overall these measures would represent a significant net gain for biodiversity within the site and the locality, in line with borough and London-wide priorities.

Further information can be found in the accompanying Biodiversity/Ecology report.

6.7 BREEAM
The Camden Planning Development Policy DP 22 identifies a minimum BREEAM rating of 'Excellent' is achieved. It also identifies a requirement for minimum standards to be achieved in Water, Energy and Materials sections. They are 60%, 60% and 40% respectively.

The proposed scheme requires a BREEAM Bespoke assessment due to the various usage types within the building. A BREEAM Pre-Assessment has been carried out, and a score of 74.32% has been achieved which does equate to an 'Excellent' rating. The aforementioned percentage requirements can also be met.

Further information can be found in the accompanying BREEAM Pre-Code Assessment document.

7.0 Accessibility

7.1 Introduction
This document sets out the process adopted to create an accessible and inclusive environment within the Centre for Research into Rare Disease in Children (CRRDC).

7.1.1 Context
Documents which relate to access and inclusivity which are developed under a document hierarchy as follows:

— Access Statement (this document)
A detailed document containing expanded descriptions explaining how the strategy has been implemented in the individual schemes.

— Building Regulations Access Statement
A document accompanying the building regulations application for each of the buildings/areas being applied for individually. This document will contain a further level of detailed description to accompany the increased level of detail of the Building Regulations submission.

7.1.2 Scope
This Access Statement contains an explanation of measures that will be incorporated within the proposals to facilitate access and use by all people including disabled people, and indicates how the design meets the required design standards, good practice guidance and Building Regulations access requirements.

The statement takes into account the needs of people with mobility impairments including wheelchair users and those with sensory and cognitive impairments. However, it is recognised that the issues considered in this report will affect the convenience of access for all occupants, not just disabled people.

This Access Statement is based on the strategies set out in CABE (at the Design Council) guidance and addresses the items set out below, including;

— Explanation of policy and approach to access;
— Sources of advice and guidance on accessibility;
— Details of consultations undertaken or planned;
— Details of access consultant involvement;
— Explanation of specific issues affecting accessibility and details of access solutions adopted; and
— Details of potential management polices and procedures to be adopted to enhance and maintain accessibility.

Areas where technical or other constraints have prevented or constrained the application of the principles set out in the above strategy are highlighted as appropriate.

The areas covered in the building include entrances, horizontal and vertical circulation, facilities and sanitary accommodation. At this stage, the statement does not cover operational aspects in detail, but it identifies and comments on areas where management procedures are likely to be required to ensure good accessibility.

Landscape considerations are discussed where relevant, including materials, routes, lighting, parking and street furniture.

This Access Statement is based on, and should be read in conjunction with, the submitted scheme drawings and information provided by Stanton Williams Architects.

7.1.3 Role of Access Consultant
The access consultant has been actively involved in the preparation of the submitted proposals. The role of the access consultant is to advise the design team and appraise elements of the design at the relevant stages of the design process to ensure that the best possible level of access is achieved and that the proposals meet relevant legislation, the S106 Agreement requirements and recognised good practice guidance. The consultant also provides recommendations about measures that can be incorporated within the scheme to facilitate access and use by disabled people.

The access consultancy services have ensured the integration of accessibility measures into the building whilst also maintaining the overall concept of the design.

7.1.4 Criteria for assessment and design guidance references
The following documents and guidance have informed the proposals and are referenced where appropriate:

— GLA, Accessible London: Achieving an Inclusive Environment, April 2004;
— Building Regulations Part K, Approved Document K, 2004 edition (incorporating the 2013 amendments);
— Building Regulations Part M, Approved Document M, 2004 edition (incorporating the 2010 and 2013 amendments);
— British Standard BS8300:2010A Design of buildings and their approaches to meet the needs of disabled people – Code of Practice;
— British Standard BS9999:2008 Code of practice for fire safety in the design, management and use of buildings;
— DETR, Parking for Disabled People, Traffic Advisory Leaflet 5/95, 1995;
— Other currently recognised good practice design guidance including Sign Design Guide, (SDS, 2000); Guidance on the use of Tactile Paving (UK, DETR), Inclusive Mobility (DoT); Designing for Accessibility (CAE, 2004), The Access Manual, (Blackwell, 2006) and Manual for Streets (DfT and DCLG 2007).

It is also necessary to observe reasonable functional and financial practicalities and to take into account the nature of this and its neighbouring buildings.

Wherever possible, the design team have gone beyond the minimum requirements of Part M (Building Regulations) and the guidance provided in the Approved Document M. This will assist the occupier(s) in meeting its/their duties under the Equality Act 2010.

7.1.5 Factors contributing to accessibility
This Access Statement considers accessibility at an early stage in the design. Detailed design issues such as fixtures, fittings, street furniture, play equipment, lighting, communication systems, management and other issues which contribute to the accessibility of the services and facilities provided will need to be considered in the future.

The individual needs of visitors cannot always be known in advance, thus it is acknowledged that further adjustments to estate management policy or procedure or to the physical features of the building and landscaping may become necessary. However, it is the intention of the design team to ensure that the need for further physical alterations and cost implication of this is reduced to a minimum.

Further details are provided in the full assessment of the proposals set out in Section 7.2.

7.2 Scheme Proposal

7. 2.1 Description
The proposed building consists of a variety of functions which are spread over the eight levels of the building. The public areas are located on the ground and first floors within the Outpatients areas of the building. The remaining research areas are private and accessible for Great Ormond Street Hospital (GOSH) and University College London (UCL) employees.

7.2.2 Parking
One accessible space for staff use and 6 accessible spaces for Outpatients will be provided as a part of the scheme.

7.2.3 Entrances and exits
The CRRDC is accessed via the main front entrance from Guilford Street, which will be level.

A secondary entrance exists via Millman Mews into Core 2 which has a change in level of approximately 1 metre.

Core 4 to the east of the building is also a secondary entrance/exit and has a change in level of approximately 370mm

Glazed doors and screens will have manifestation in line with guidance in Part M. All fire exits have level thresholds and openings in line with guidance in Part M.

7.2.4 Threshold Treatments
All external paving thresholds will be flush, with no more than a 5mm level change, and joints of no more than 10mm wide. Outside/inside thresholds will be no more than 15mm. Where possible, thresholds between materials will also have a visual contrast to assist people with visual disabilities.

7.2.5 Vertical Circulation, Cores – Lifts & Stairs
There are 4 main cores, servicing the building.

— **Core 1** to the east of the building contains two 13 person lifts and stairs which address the lower ground floors and one of the pair of lifts also accesses the roof plant area.
— **Core 2** contains one 13 person lifts and a staircase. The lift addresses the Ground, Lower Ground, Basement and First Floor and is predominantly a goods lift. The stairs also address first to basement and is predominantly an escape stair with some accommodation use by staff.
— **Core 3** contains a pair of 13 person passenger lifts which are for the movement of Outpatients between the Ground and the First Floor. The stairs associated with these lifts are internal accommodation stairs which are located to the north of the lifts in an open void area between floors.

— **Core 4** to the east of the building is predominantly an escape stair with some accommodation use by staff and connects all floors from Basement to 5th floor plant rooms.

There is a further flight of stairs in the central void area which addresses Ground to Lower Ground and Ground to 1st and 2nd. A further spiral stair offers an accommodation stair between second and third.

One lift will be fire fighting.

All lifts will meet or exceed the requirements of Part M of the Building regulations and BS/EN 81-70 2003.

All staircases will fully meet all aspects of Part M of the Building Regulations and BS8300:2010A guidelines for use by people with ambulant and visual disabilities. The stairs are clearly articulated within the building cores and within immediate proximity to the lifts.

7.2.6 Doors
All main accessible entrance doors will provide a minimum clear opening width of 800mm (1000mm for external entrances) and will be provided with visual manifestations where glazed, and/or vision panels where solid and on an access route.

Air pressure differentials can sometimes make the doors difficult to open. In this eventuality, automated entrance doors will be utilised.

7.2.7 Floor Finishes
Floor finishes in public areas will provide a slip resistance equal to or greater than R10 (to meet DIN51130:2004

7.2.8 Hearing Assistance

— Reception
The reception areas will be fitted with induction loop facilities.

— Seminar room
Seminar room on the ground floor of the research facilities and any meeting rooms will be fitted with an induction loop facility.

Interview and other outpatient facilities will be provided with a portable induction loop system so that individual needs can be accommodated.

7.2.9 Sanitary Accommodation
Accessible toilet accommodation, including specific cubicles for people with ambulant disabilities, has been provided throughout the core of the building on every floor.

More specifically;
— The Basement floor's only WC will be accessible
— The Lower Ground floor will have an accessible WC in the south east and south west corners to allow for a maximum travel distance of 40 metres.
— The Ground floor will have an accessible WC in Core 1, a Changing places WC in the Outpatient's department and an accessible WC/Shower next to Core 1.
— The first floor will have an accessible WC for research staff, and a changing places WC and accessible WC in the Outpatient's area.
— The second and third floors will have two accessible WCs
— The fourth floor will have an accessible WC in the western Core 1 location. While this will result in a travel distance of over 40 metres from the clean corridor – the clean rooms do not form part of a permanent workspace location. There are two labs at the eastern end of the building which are approximately 50 metres from the accessible WC but there are very few doors on this route and therefore this is felt to be acceptable.

These WCs, when there are two on a floor, will generally be handed to provide one left and one right handed per floor.

7.2.10 Escape Arrangements
Areas of refuge to, BS9999:2008 Code of practice for fire safety in the design, management and use of buildings to accommodate disabled people have been provided at all levels within the core designs.

Management procedures will be put in place by the operator to ensure that refuges are checked in the event of an emergency and/or for staff to respond to a disabled person in the refuge.

Staff will be suitably trained to assist disabled people and to assist with use of evacuation chairs where provided.

Policy, procedures and practices will be developed together with a means of escape strategy for disabled people, whether staff or visitors. Personal Emergency Egress Plans (PEEP) for individual disabled users will be developed as required.

Visual fire alarms will be included in accessible WCs and where other WCs are cubiclised they will have individual visual fire alarm beacons in accordance with Part M requirements.

7.2.11 General Details
Details of the following areas and how they will be made accessible shall be addressed as the scheme develops and form part of any Building Regulations Submission:

- decoration
- lighting
- service counters
- sanitaryware selection and layouts
- fire alarm details
- lift details
- toilet layout details
- signage
- furniture selection
- kitchen layout

In addition, section 7.3 of this statement sets out the management issues which estate staff should be aware of to ensure access is achieved and maintained.

7.3 Management issues
The following management issues will be brought to the attention of relevant parties to ensure that access is achieved and maintained:

— external routes – keep in good repair and free of obstructions and leaves, ice, snow and surface water;
— doors – adjustment of door closers; ironmongery to be kept in good working order;
— horizontal circulation – keep routes free from obstructions and furniture layouts/ seating arrangements accessible;
— vertical circulation – regular checking of lifts to ensure floor of car aligns with finished floor level;
— WCs – checks to ensure that manoeuvring space in accessible compartments is not obstructed by bins, sanitary disposal equipment etc; replenishment of toilet paper and paper towels in accessible WCs as well as other WCs;
— communication – new signs to integrate with existing sign system, no ad hoc homemade signs; all information to be kept up-to-date; signers and translation services to be provided as necessary; appropriate provision of accurate access information and other literature;
— hearing enhancement systems – advertising; regular checking and maintenance of systems;
— alarm systems – checking of systems; staff training in procedures;
— surfaces – ensuring cleaning does not cause slippery surfaces; maintaining junctions to avoid worn surfaces becoming tripping hazards; replacing surfaces like with like; maintaining colour contrast in redecoration;
— lighting – prompt replacement of bulbs; keeping windows and light fittings clean;
— means of escape – specific evacuation strategies to be devised for people who need assistance, including staff and visitors; staff training; regular practice drills; maintenance of fittings and equipment; reviewing evacuation procedures;
— security – ensuring security procedures do not conflict with accessibility good practice;
— training – staff training is critical to maintain access and to provide accessible services and employment opportunities. Training can cover areas such as disability awareness and equality, use of equipment such as platform lifts and induction loops, British Sign Language, hearing awareness, clear lip speaking, guiding people with visual impairments and general access awareness.
— health and safety policies – implementation of policies on access, risk assessment;
— responsibilities for access – identification of responsible people to approve improvements, set priorities, ensure access is included in maintenance and refurbishment programmes, provide auxiliary aids, review numbers of disabled people using a service and establish and run user groups;
— funding for access improvements – identification of specific access funds or grants; funds for specific employees such as 'Access to work'; use of the maintenance budget;
— policy review – regular reviews of all policies, practices and procedures affecting access.