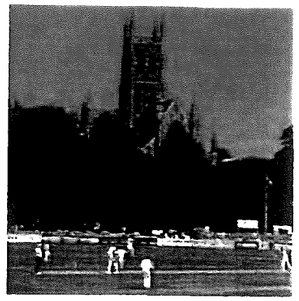
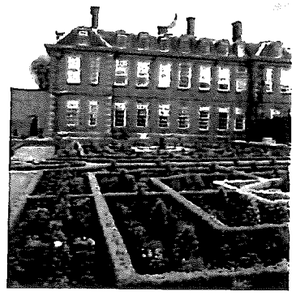
A = Archeology

B = Baldwin Stanley

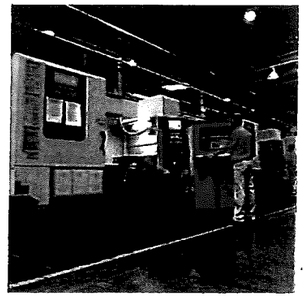


C = Cricket at Worcester

D = Droitwich



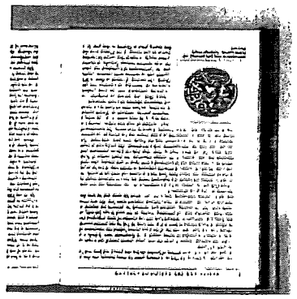
H = Hanbury Hall



I = Industry Mazak Worcester

J = Justice

K = Kidderminster Carpet Making

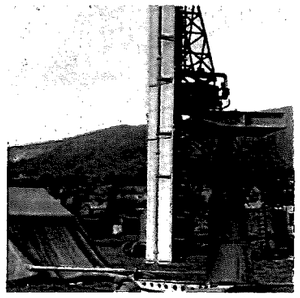


O = Offa King of Mercia

P = Plums

QinetiQ

Q = Quinetic Malvern

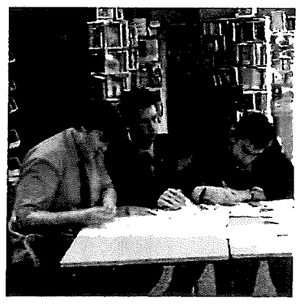


R = Radar Malvern

V = Victoria Institute

W = Walls

X = The Cross Worcester



Y = Youth

worcestershire county council

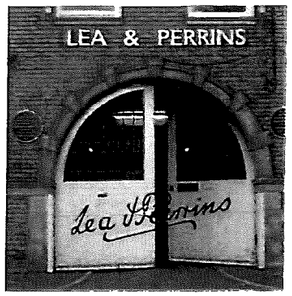
University of Worcester

Advantage West Midlands

E = Edward Elgar

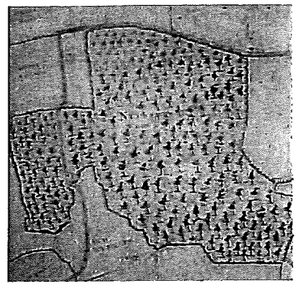
F = Floods

G = Hanbury Garden



L = Lea and Perrins

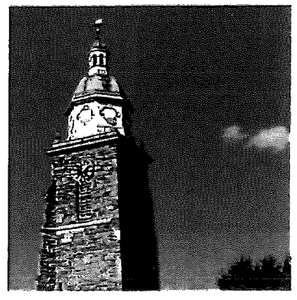
M = Malvern Hills



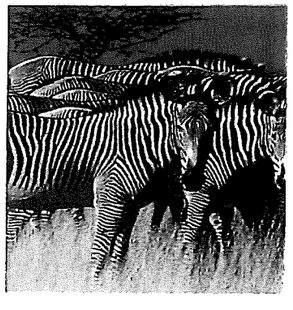
N = Nunnery Wood

S = Sandstone caves near Bewdley

T = Three Counties showground



U = Upton Pepperpot



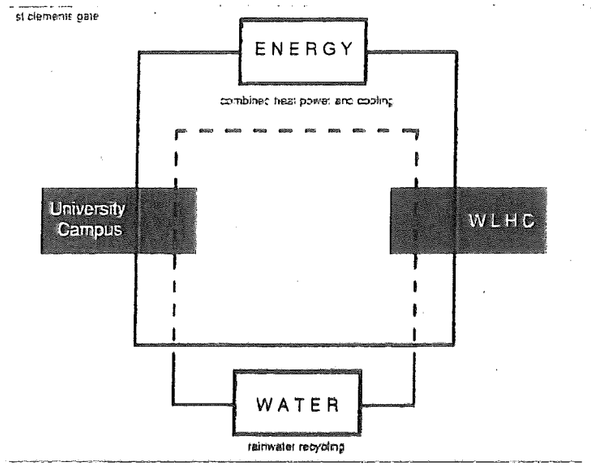
Z = Zebra
Bewdley Safari Park

3.2 Site Context - Local Distinctiveness

The JPT have adopted the A-Z methodology of Common Ground as a consultation tool aimed at identifying what the community might consider makes Worcestershire and its Cathedral City distinctive. These images have been selected to illustrate the themes and subjects which consultees most felt represented their City and County.

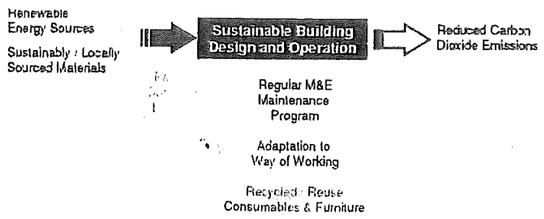
Residents want not only an interesting and high quality civic building but one which adds to the distinctive character of the area through its design and the manner in which it acts as a window on the County. A significant aspect of this would be the visibility the building brings to the archive and archaeological materials it will hold.

Worcestershire's geology is intriguing and could be brought to life in several ways through the design of external spaces and the expoloitation of wall or ceiling planes within the building.



How design decisions made impact on latter stages of building lifecycle

images Taken from DLLLP think 07 – to modify for this project



7.0 Sustainability

7.1 General

It is intended that the project will be a practical and visually explicit expression of the Project Partners commitment to sustainable development in the widest sense, both social and environmental. This section addresses only issues of physical sustainability although community sustainability is expected to underlie the overall design approach.

The public sector within Worcestershire has implemented a wide range of environmental initiatives. There are currently four geothermal installations in the county, a number of creative SUDS schemes on school sites and a major biomass heating installation , with more to follow, including proposals for a 1.5Mw installation the new University Campus. The County Council and AWM are playing a leading role in the development of the renewable energy market within Worcestershire, with the first 2.3 Mw biopark at the detailed planning stage.

The Project Partners aspire to the carbon neutral delivery of services through this development. Their practical experience in implementing their Carbon management Plans and also the design and construction of associated infrastructure improvements lead them to believe that the environmental performance of this project can be an exemplar of best practice.

To this end the project partners suggest that that strategy adopted by bidders for the generation of energy required by the WLHC should be considered holistically with the energy strategy for the campus. The project partners have identified that it is feasible for both the energy required by the campus and the WLHC to be generated centrally by a CHPC (Combined heat Power and cooling) centre.

Design teams should also look beyond the site for other potentially environmentally sustainable sources of energy. Conceptually the project partners would support strategies that engage the latent energy held in the river seven to assist the WLHC's heating and cooling strategies.

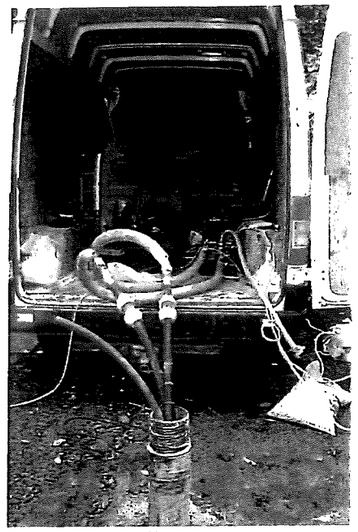
It is a requirement that the project achieves a BREEAM score of "excellent" at the design stage assessment and is also that this score is confirmed again through a BREEAM post construction review prior to handover of the building. This requirement will also apply to the commercial development proposals.

Whilst the BREEAM assessment will encompass many of the sustainability requirements of the project, specific aspirations for this project are:

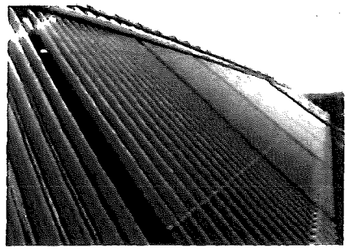
- Carbon emissions and an adaptable servicing approach that allows for a long term reduction in carbon emissions with a lifetime goal of a building with a zero carbon output.
- Use of local materials
- Coordination with the adjacent development on the University campus
- Consultation and communication with users and the local community
- A commitment to and a facility that can inform future developments and improve it's own performance though clear reporting of energy, resource use and user interaction.
- Building and thermal performance design that has anticipated future predictions for climate change

Although BREEAM allows the project team to determine which credits areas contribute to the "excellent" score, expected standards for this project are listed below, in some cases these are in alignment with the expected BREEAM criteria

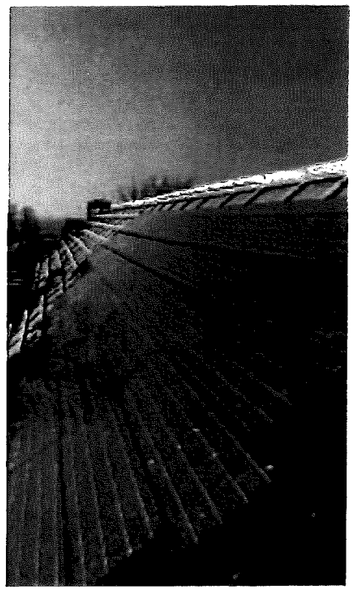
Geothermal, Red Hill

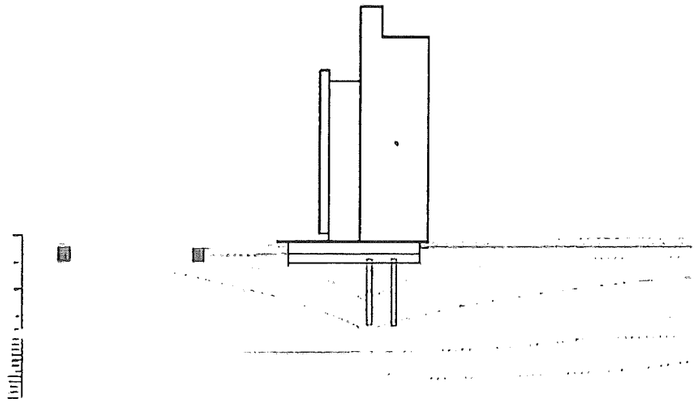


Geothermal, Red Hill



Evacuated tube collectors.
Source: Reyotec Limited





7.2.3 Energy generation and the potential to re –organise/change this in the future

An ambition for the Worcester library and history centre is that it's carbon dioxide emissions are or can be made zero over time.

It is expected that in the initial design of the building and its services, renewable energy generation on site will contribute 50% of the energy consumption of the building as determined by the methodology outlined in the Merton rule.

The building and the services design should allow this percentage to be increased by future adaptation in the building and its servicing strategy, for example; by the connection of additional or larger CHP or tri-generation technology. Photovoltaics should be considered and appropriate allowances made to the servicing and building design to facilitate future expansion of photovoltaic installations.

7.2.4 Monitoring of energy use

A sub-metering strategy for the building should be created to allow individual departments to monitor all of their energy use and this information should be readable to users in the department on a cumulative and instantaneous basis. The recording of this information will be used to determine management and operation actions that have improved or reduced the energy performance of the department.

The building's performance data at this detailed level should be also available for use by the Bishops Wood centre. The data will be used for learning and teaching and consideration should be given to how this can be presented to children and students in a useful way. The Chamber of commerce business library will also offer an opportunity for energy and resource usage in the building to be made widely available to the local business community; this is considered an ideal method of sharing the energy and carbon performance of the building with others.

7.2.5 Building and Thermal Performance Design to Anticipate Future Predictions for Climate Change

There is growing evidence[1] to suggest that the UK climate is changing and as such it is important that new projects take future climate change scenarios into account. The main climate change scenario for the UK is that winters will be warmer and wetter, while summers will be hotter and drier. Building Regulations acknowledge climate change and designers are alerted to the fact that it would be appropriate for more severe weather conditions to be taken into account in the design.

The implications for building design are as follows:

- Wet buildings are harder to heat as damp reduces the insulating effect of building fabric. Standard 3.10 in Schedul 5 to Regulation 9 of the Building Regulations covers the needto have a building envelope that is able to withstand the effectsof precipitation so that it does not endanger the building.
- Increased rainfall may also increase the risk of condensation, with possible implications for mould growth and consequent health problems.
- Passive cooling techniques need to be sympathetic to normal user behaviour. For example, the tendency to open windows in hot weather is only helpful if this has the effect of cooling the building; if the weather outside is very hot this may increase the user's discomfort due to overheating. This can be addressed by educating the building users to the environment systems.
- Over reliance on the provision of mechanical systems to alleviate the more extreme conditions can add to the problemof climate change through the excessive use of fossil fuel energy (unless renewable or low energy alternatives can be developed). Conventional energy sources may not always be reliable in the future, especially during periods of extreme weather (which puts a strain on energy utilities).

Participants need to demonstrate that the building is able to adapt and remain functional over its projected life expectancy.

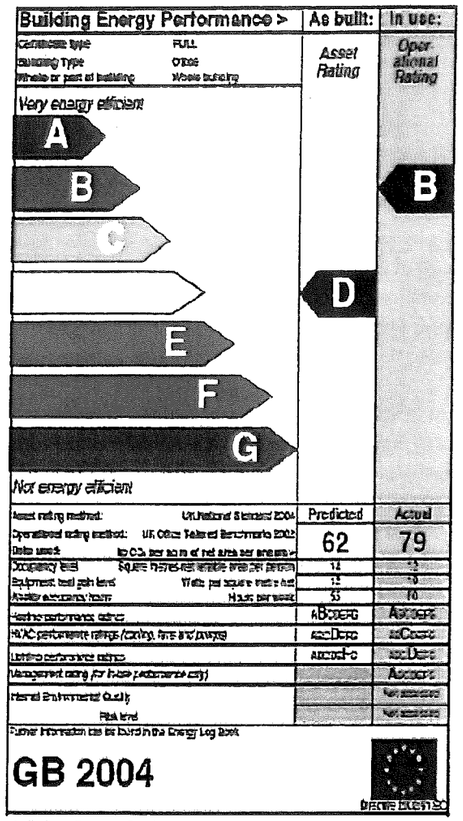
For buildings to provide a safe and comfortable environment in the future they should:

- Provide the means for occupants to regulate the indoor climate.
- Avoid the use of mechanical cooling where possible.
- Avoid the need for large amounts of energy to provide comfortable interiors.

In addition there is a need for:

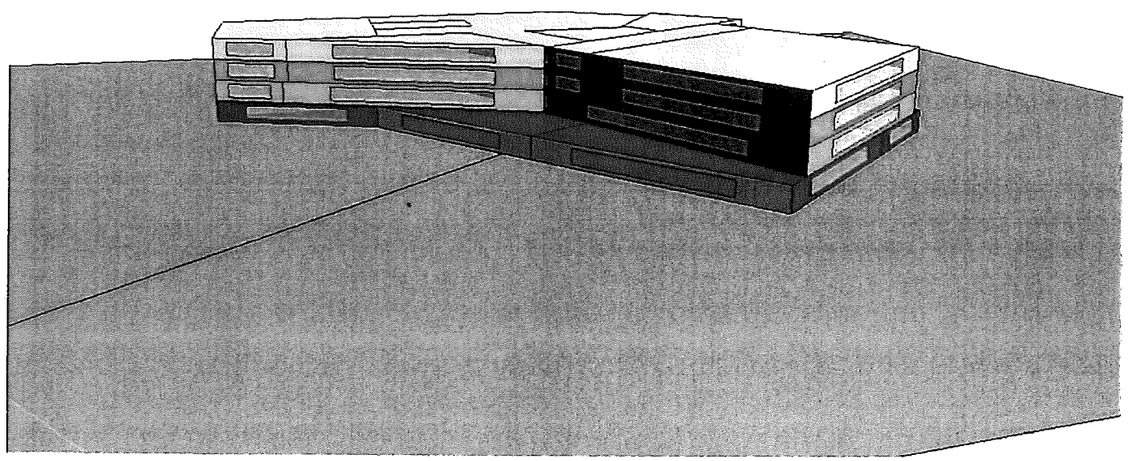
- Education of building professionals on how to design buildings that meet these needs.
- Education of building users on the ways to avoid heat stress and cold stress in ways that require little energy use.
- The instigation of mechanisms for warning building users and the authorities when dangerous weather episodes are expected.

For the summer overheating risk the CIBSE TM36 Design Summer Year DSY (2020) for the location is used for the calculation of summer overheating risk and additionally the CIBSE TM36 Design Summer Year DSY (2050) should also be used to determine the likely effect of climate change on the summer overheating risk of the naturally ventilated spaces.



Building Energy Performance table

Air test, Red Hill



7.2 Energy Use and Generation

7.2.1 Targets for carbon and energy

An initial modelling exercise has been carried out and the following performance data has been extracted from the Part L2 CO_2 SBEM model. The following services strategies have been examined.

System	TER CO2/m2	BER CO2/m2	Htg Seasonal effic	Clg Seasonal effic
Air VRF	73.7668	31.9921	3	2.5
Water VRF	73.7668	28.4774	4.5	4.5
Ground VRF	73.7668	26.3148	6.5	6.5
River VRF	73.7668	25.6659	7.5	7.5

The results indicate that servicing solutions can offer reductions on the TER (Target Emissions rate).

It is believed that the target carbon performance asset rating for this building could be as much as a 50% improvement on the minimum standard necessary to meet the 2006 Part L building regulation standards. This will also contribute towards the achievement of energy credits in the BREEAM assessment.

7.2.2 Minimising energy demand through building design and management

The primary action to reduce energy demand and hence carbon performance, should be to minimise the building's energy demand through the initial design of the building and the integration of the environmental design solutions. The range of departments located within the building requires a flexible servicing approach. The building services systems should adaptable and flexible to enable them to respond to different patterns and densities of occupancy. This particularly applies to the following systems:

- Lighting
- Ventilation
- Comfort Cooling

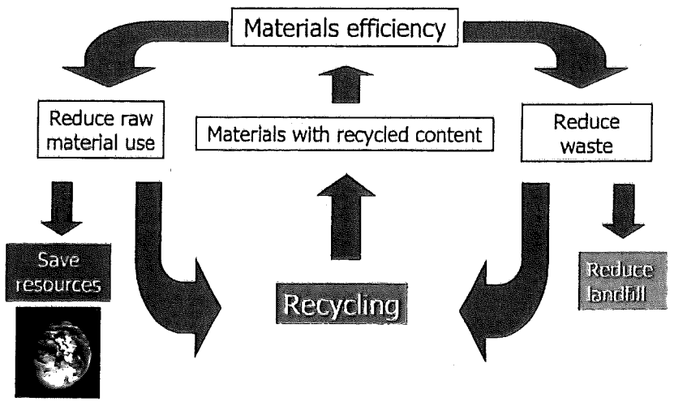
The range of departments in the building and the design of the building form may indicate that coincident cooing and heating demands are experienced in the building. Should this be the case, it is expected that the servicing strategy is designed to enable these demand to be met with minimum external energy input by utilising systems that allow these demands to be matched and energy transferred between zones.
The sub-metering strategy of the building should allow individual departments to monitor all of their energy use and this information should be readable in the department on a cumulative and instantaneous basis. The recording of this information can be used to determine management and operation actions that have improved or reduced the energy performance of the department

The WRAP toolkit helps the process of meeting a recycled content requirement

The toolkit helps in the process of setting a recycled content requirement and demonstrating compliance by:

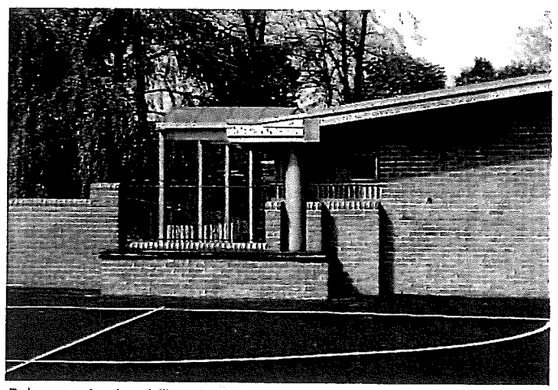
- Estimating the baseline performance of the building
- Identifying the top 10 candidate Quick Wins
- Recording how each selected Quick Win is being achieved
- Producing pre-formatted reports

Materials resource efficiency cycle



A two thirds reduction in consumption of fossil fuels and virgin materials is needed to achieve a sustainable and globally equitable level

WWF – "One planet living study" - 2004



Rainwater feed and filter, Redhill

7.3 Resources Use

7.3.1 Materials

The material used in the construction, external hard landscaping and fencing and floor coverings should all comply with a summary rating of A in the BRE green guide (2007). The use of recycled materials is encouraged, particularly those sourced locally.

We would expect design teams to use the online tool, WRAP to assess the top 10 opportunities to increase the recycled content of the materials. It is expected that at least 5 of the top 10 opportunities are taken for this project and that the recycled content is at least 30% by value of the project.

7.3.2 Water use and collection and re-use (archaeology)

The collection of rainwater for use in the building is expected. Water use for process washing in Archaeology will be high. The waster water form this process should be re-used as a grey water source for WC flushing. The BREEAM water use calculator should be used to assess the design proposals and a maximum score using the calculator should be obtained for the proposed design

7.3.3 Whole life costing (60 year)

A whole life costing approach is the correct way to consider all design decisions. An approach to whole life costing in accordance with the BREEAM credit for this activity is preferred. The BREEAM credit requirements are expected to be as follows.

"Building Whole Life Cost Model(s) - the costs covered in the model must include as a minimum the following:

Investment related (Initial capital costs) - construction and installation. operational (future costs) - facilities costs including, as a minimum, planned maintenance, life cycle replacement and repair, cleaning, management costs, and energy.

A life cycle study period of 60 years should be provided and it must be shown in real and discounted cash flow terms (at the recommended Treasury rate)

The model as a minimum shall be at building element and component level with summary specification showing for each whole life cost activity:

- *Cost rate, frequency of activity or replacement.*
- *Assumptions on operating costs based on resource and sub- contractor proposals.*

The model will be developed concurrently with the design to ensure an ongoing appraisal and selection of the most appropriate solution/strategy/components. The process should be initiated no later than RIBA design stage B feasibility and continue through to at least stage E detailed design.

Whole Life Cost Option Appraisal - the model(s) must identify different or alternative options have been considered and that the chosen solution meets the performance requirements for the building.

The option(s) with the lowest discounted WLC over the period should be preferred ,assuming that their selection results in;

A reduction in building energy consumption over the operational life span of the building;

A reduction in maintenance requirement/frequency, prolonged replacement intervals of services infrastructure/systems or building fabric;

The working WLC model(s) will be handed over to the client or building operator and will be incorporated into the ongoing O&M manuals."

6.0 Access

This section of the Design Statement is the second stage in the development of the projects Access Statement. The process will finally be concluded with the preparation of an Occupancy Access Statement at project completion stage.
A strategic statement was included in the Outline planning Application. It included three of the projects principle objectives, which express the partners commitment to achieving a genuinely inclusive environment.

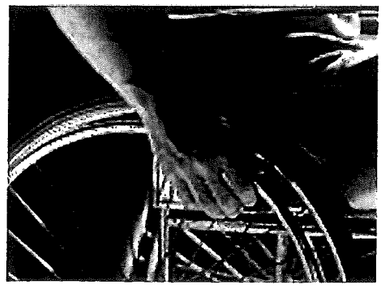
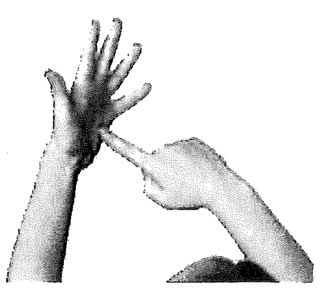
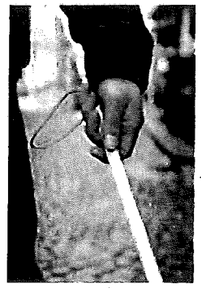
- "Create a facility and services that are positively welcoming for everyone".
- "Raise aspirations and reach new people".
- "To improve the quality of life for individuals and communities".

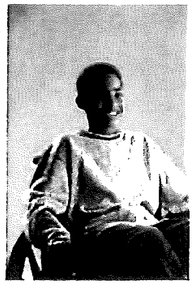
The purpose of this section of the Design Statement is to encourage designers of all disciplines to treat access and inclusion as key factors throughout the design development process. The section also highlights issues arising from ongoing consultation with user groups.

The project will support the rights of those with sensory or physical impairment to independent living.

Regulations require reasonable provisions to be made for access; all designers will be expected to take consideration of access well beyond pure legal compliance (The Disability Discrimination Act, Building Regulations Part M and British Standards 8300). It is essential that securing the confidence and physical comfort of users with sensory or physical impairments are treated as important aspects of design development.

This section aims to highlight the importance of ensuring that all people can make full use of the building they visit or work in. The design should make sure that people with impaired sight, mobility or hearing can utilise the facilities.
Good management is necessary to make certain that the benefits of careful design endure for the life of the building. It can also play an important role in overcoming some design limitations.



6.1 Organisation

Clarity of organisation and ease of navigation
Section 5 of the Design Statement sets out the organisational principals of the project from a service point of view. An underlying theme of these principals is a desire to create a building which is easy for all members of the public to use . The most fundamental aspect of this will be the arrangement of both horizontal and vertical circulation so that routes through and around the building are easy to follow.

Discussions with user groups confirm the importance of direct and easy access to public lifts and staircases.

Consultees have urged that public stairs should be easily negotiated by those with visual impairments as not everyone is comfortable in the confined space of a lift. Using a stair in a public space should be a pleasurable experience.

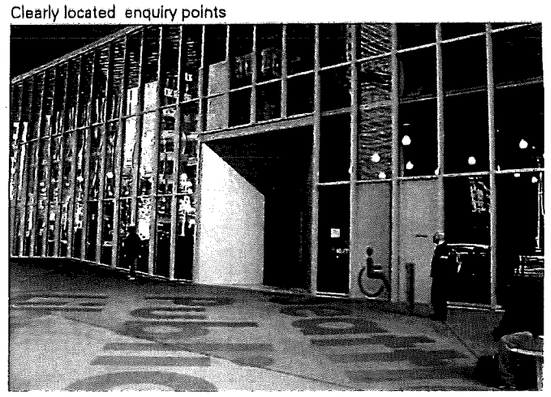
Section 5.5 outlines the proposed service management principals. There will be a clearly located and signed reception point at ground level. Once in the building, users will find enquiry points located in the same position relative to lifts and stairs on each floor. Consultees regard this as very important in encouraging their use of all parts of the building.

The enquiry points will have touch screens for enquiries and catalogue access. They will also be telephone linked to the main enquiry point so that users can always have direct access to library staff if they require assistance when an enquiry point is not staffed when they need help. It is at these points that users will also be able to self issue and return material they are borrowing. The intention is that users can deal with all their library transactions and enquiries at one place, with or without assistance.

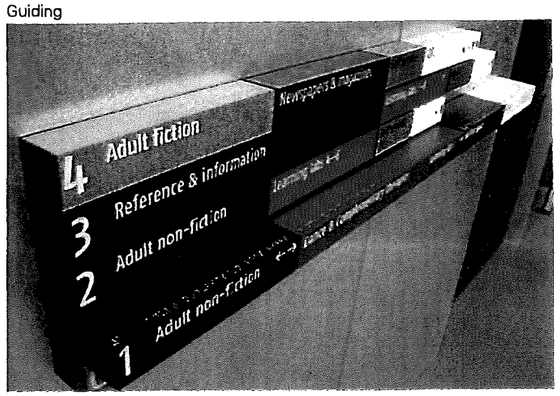
Simplicity of building layout and operation, consistency in design and colour association, improve building legibility for all.

Defined arrival points
Visitors will arrive at one of two levels. Ground level arrival will be from a drop off point on the Butts and from dedicated parking for disabled users located at ground or basement level or through the pedestrian link in the University Campus. First floor level arrival will be via the footbridge over The Butts. Users coming from the City Centre pedestrian zone or from the bus station and Shopmobility in the Crown Gate Centre will use this route.
The approaches to each of these routes will be clearly defined and the design of the hard landscape will assist both those with mobility problems and visual impairment. Equality of access for all will be made explicit. Avoidance of "back door " entry to the building is essential in achieving this.

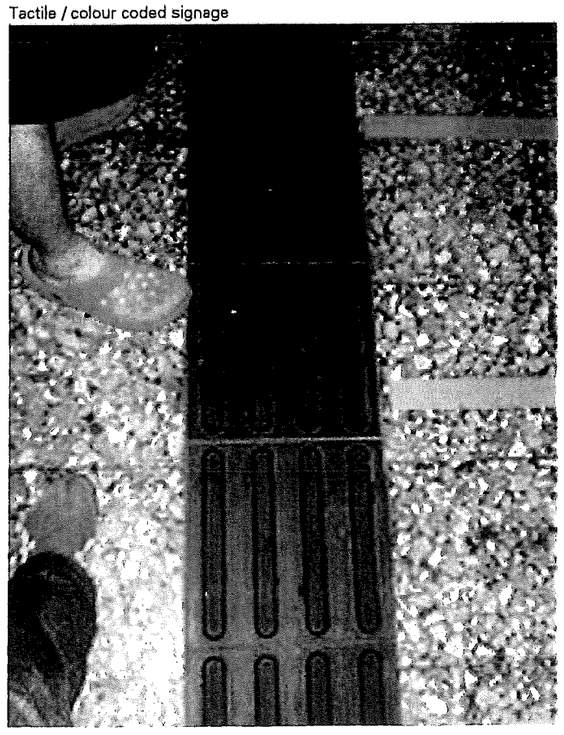

Clearly located enquiry points


Defined arrival


Guiding



Tactile / colour coded signage


Walking aids for the visually impaired

Guiding.
The projects approach to guiding and signing will be extended beyond the site to include the principal pedestrian routes to it, from the University, Foregate Station, the Bus Station and the City Centre.
Key internal signage will be multi lingual.
In an unfamilliar building, an adequate number of clearly legible, well-designed signs helps everybody find their way around. Signs are particularly vital for people with speech or learning difficulties.
Issues to be considered are:
Consistancy throughout the building, both in design and location - in relation to a lift entrance for example.
Signs should be clearly visible, in advance of the area for which they inform.
Signs should be legible by both sight and touch where appropriate. The number of people who read Braille is small compared with the number of people who would benefit from the appropriate use of well-designed embossed lettering, numbers or symbols.
Provision should be made for symbols to indicate services for particular groups with disabilities.
Positioning of signs where the reader will not obstruct traffic flow.

User friendly thresholds

There will be a wide range of activities available to the public using the WLHC. The thresholds (or boundaries) between these will be defined in four ways. Section 5 of the Design Statement describes these in principal; their design must recognise the specific needs of users with sensory or physical impairments. The design of "open" and "open-soft "thresholds will be especially demanding and would benefit from user input during design development.

Safe environments for the vulnerable.
A personal care suite (Data room ref..) has been added to the brief at the request of consultees. It will be located close to the reception area as indicated in Section5. Individuals and their carers will have card access to the facility. This provision will enable those with exceptional care needs to use the WLHC for much longer periods of time than would otherwise be the case. There will also be public toilets on each floor including disabled facilities and baby changing.

Emergency alarm systems will take account of special needs, with the provision of flashing light fire alarms and portable vibrating pagers.

It is essential that at least one of the main entry points is designed for the safe and easy use of disabled visitors at night and outside normal opening hours.

6.2 Physical comfort

Design of the thermal environment should also consider the needs of those with limited mobility, this would specifically require thermal system that can be adjusted in zones and individual spaces and that would respond quickly to a change in set point.

Achieving an acoustic environment suitable for users with impaired hearing is an important factor. Some parts of the building may be relatively noisy. There have been requests from stakeholders for some spaces which are very quiet or totally silent. Evidence from visits to benchmark projects show that it is possible to accommodate both noisy and quiet environments in buildings of this type.

The approach to defining "activity settings" and different types of "threshold" described in section5 will enable the creation of spaces for quiet study and relaxation for those who are most comfortable in that type of environment. There will be quiet spaces on each floor of the building.