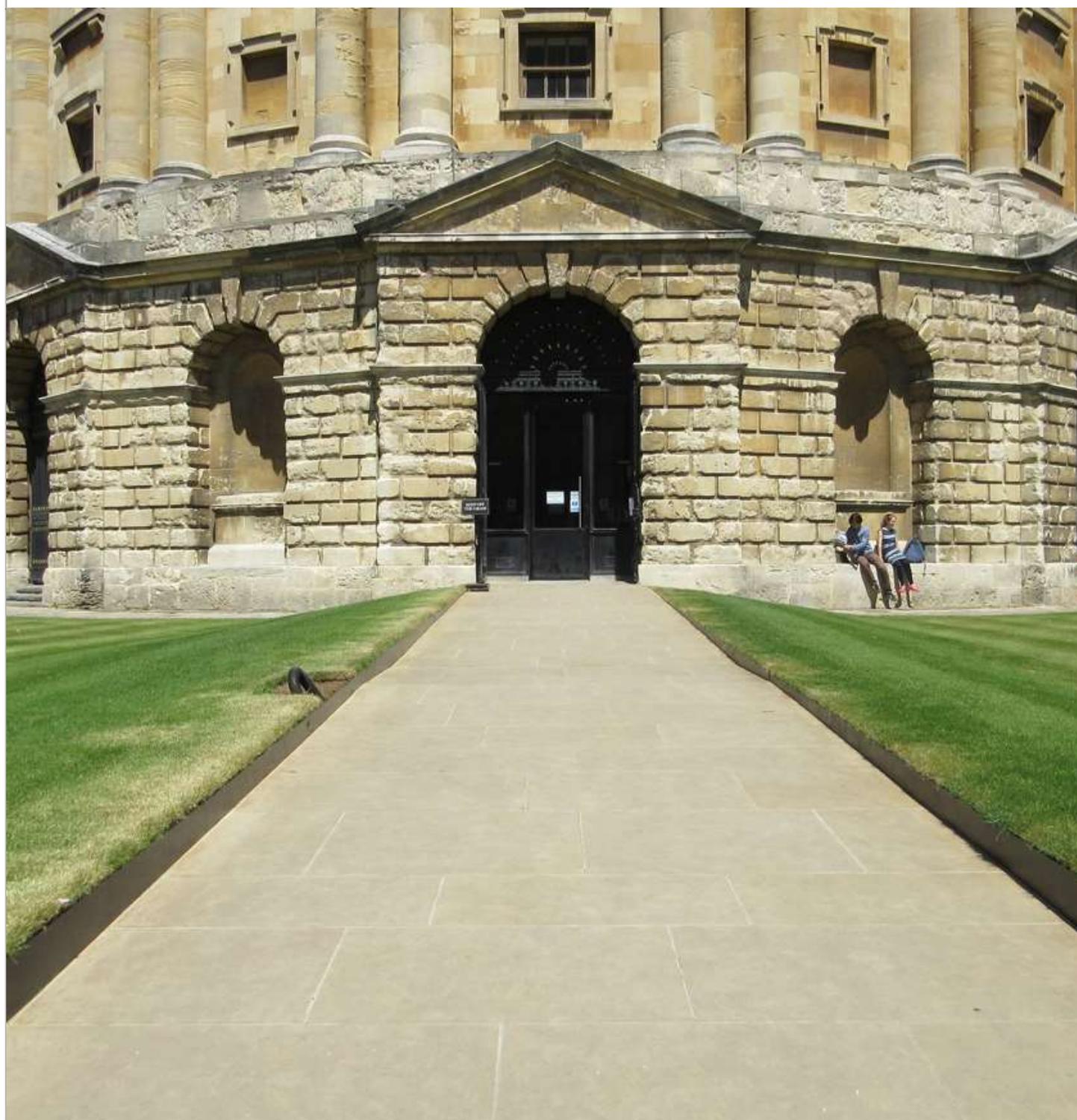




UNIVERSITY OF  
OXFORD

# ESTATES SERVICES

Accessibility design philosophy document



# Version control

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- *Lessons learned from previous projects*
- *Updated British Standards guidance*
- *Ongoing feedback and evidence from disabled staff, students and visitors*

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# 1. Introduction and background information

Estates Services guidance includes a suite of [philosophy documents](#) setting out the University's specific maintenance and design requirements. Projects are expected to refer to all documents. In the case of overlap or even conflict between any documents, projects should seek clarity from the relevant stakeholders.

The University of Oxford aims to provide an inclusive environment for all staff, students and visitors, in line with its [Equality Policy](#). All new University buildings and major refurbishments must provide equal access into and around the building as well as access to, and use of, all services and facilities. This includes public buildings such as museums and galleries as well as departmental buildings. This document highlights issues to which the design team should pay particular attention. It is not exhaustive and further feedback will be given as appropriate through regular and ongoing consultation and through the stage review process.

An **inclusive environment** is one that can be used by all people, regardless of ability or disability. An inclusive environment will wherever possible enable people to independently enter and exit a building, move around a building and make full use of all facilities without undue effort, special treatment, or separation. There should be recognition that people with disabilities will have a diverse range of needs that may be met in a variety of ways.

**Illness or disability** (whether temporary or permanent) can affect characteristics such as a person's mobility, dexterity, reach, balance, strength, stamina, sight, hearing, speech, touch, knowledge, understanding, memory, or sense of direction.

The design of new buildings and refurbishments must comply with the legal framework in Section 1 below, as well as the additional requirements of the University encompassed in this philosophy document.

## 2. Legal framework

Building design is governed by Building Regulations, British Standards Design of Buildings Code of Practice, and duties under the Equality Act 2010. These regulations, codes, and the Act provide the legal and regulatory framework for good practice standards.

### 2.1 The Building Regulations Approved Document M – Access to and use of buildings

#### 2.1.1 Volume 1 – Dwellings

Sets minimum standards in the following areas:

- *Visitable dwellings*
- *Accessible and adaptable dwellings*
- *Wheelchair user dwellings*

#### 2.1.2 Volume 2 – Buildings other than dwellings

Sets minimum standards in the following areas:

- *Access to the building*
- *Use of the building and its facilities*
- *Access to extensions to buildings*
- *Provision for sanitary conveniences in extensions to buildings*

## 2.2 British Standard BS 8300-2:2018 – Design of an accessible and inclusive built environment

### 2.21 Part 1: External environment – Code of Practice

### 2.22 Part 2: Buildings – Code of Practice

The British Standards take the form of guidance and recommendations. Many of the provisions set out in the standards are based on ergonomic research. The current standards were updated to in the light of current good practice and have an increased focus on inclusive design.

## 2.3 Equality Act 2010

The Equality Act 2010 replaced the Disability Discrimination Act 1995 (DDA). Part 3 of the Equality Act 2010 sets out provisions to protect people from discrimination when accessing services and public functions, whether provided in the public or private sector, and whether they are paid for or not. Service providers have a duty to make reasonable adjustments to ensure that disabled people are not substantially disadvantaged when compared with non-disabled people. The duty requires service providers to take positive steps that will ensure disabled people are able to enjoy a comparable degree of access to a service as that enjoyed by the public generally.

## 2.4 Compliance

The Equality Act 2010 is not prescriptive and does not contain specific guidance on the design or provision of buildings and their features – it is not possible to state that particular design features will ensure ‘compliance’ with the Act. There is very little case law in relation to the accessibility of the built environment. While there is specific guidance in British Standards and Building Regulations, there are also some items that are aspirational or open to interpretation.

This philosophy document is intended to reflect the spirit of the legislation, the Building Regulations and British Standards, as well as the University's stated aim of creating an inclusive environment. In addition, this document contains guidance based on lessons learned from previous projects, as well as work and consultation with the University's Disability Advisory Service and Disability Advisory Group.

It is highly recommended that guidance set out in this philosophy document, Approved Document M, and British Standards BS 8300-2:2018 is followed, in addition to ongoing consultation with the Accessibility Advisor. In certain circumstances, further provision, beyond that described in Approved Document M, BS8300 and this document, will be required.

## 2.5 Summary

The design team will be required to meet at least the standards set out in Approved Document M, as well as considering the guidance in BS8300. None of the information provided in this document shall override the legal requirements. Consultation with disabled staff and students is strongly recommended.

Sections 6 to 13 of this document outline the accessibility design requirements of the University.

# 3. University approval procedures

## 3.1 Stage Reviews

It is expected that any significant Capital Projects – particularly new buildings and major refurbishments – will be brought to the standard Stage Review meetings. This is where accessibility considerations can be discussed, along with other stakeholder matters. Stage Reviews provide an overview discussion on the accessibility of a project. Additional dedicated meetings to discuss accessibility will be needed at various stages of the project as appropriate.

## 3.2 Detailed consultation

In addition to Stage Reviews, Ben Smith (Accessibility Advisor), must be consulted throughout the design stages. It is important that consultation happens as early as possible in order that accessibility will be an integral part of the design process rather than something to be 'bolted on' at a later date. Kevin Green (Architectural Assistant (Accessibility)) should also be involved in the consultation process. Consultation and discussion must be ongoing and must include consideration of finishes, fittings and furnishings, and particular building elements, such as reception desks and kitchens/kitchenettes, as well as building layout design.

Student representatives and staff members may also be part of the consultation process.

# 4. Additional information

## 4.1 O&M manuals

The design team must ensure that full information is made available in the O&M manuals on the provision, maintenance, and operation of equipment and aids such as platform lifts, hearing support systems, and evacuation chairs etc. The O&M manual must also include information on the agreed fire strategy relating to persons who cannot evacuate the building unaided, or who may not hear the fire alarm, including refuge locations, refuge alarm systems, pager systems, provision of evacuation chairs, location of flashing beacons etc.

## 4.2 University Access Guide

The University has an [online Access Guide](#) for many of its buildings. The Access Guide provides information to staff, students, and visitors about access to University buildings and their facilities. The design team may find it helpful to review the Access Guide when developing proposals for refurbishment projects and new builds.

# 5. Accessibility design requirements

Sections 6 to 13 outline key accessibility issues to be addressed by the design team. The information outlined is based on lessons learned from previous projects and evidence provided by building users with disabilities. It is not an exhaustive list and is not a substitute for legislation and building regulations. In some cases the requirements of the University are higher than shown in Approved Document M.

## 6. Access to buildings

### 6.1 External landscaping

Landscaping must provide level access wherever possible. The use of uneven materials such as highly contoured cobbles, setts, or riven paving slabs should be avoided as this will be difficult for many people with a range of disabilities to access. Larger paving slabs are preferred; smaller paving slabs are uncomfortable for wheelchair users.



Resin bonded gravel surface is highly accessible for wheelchair users

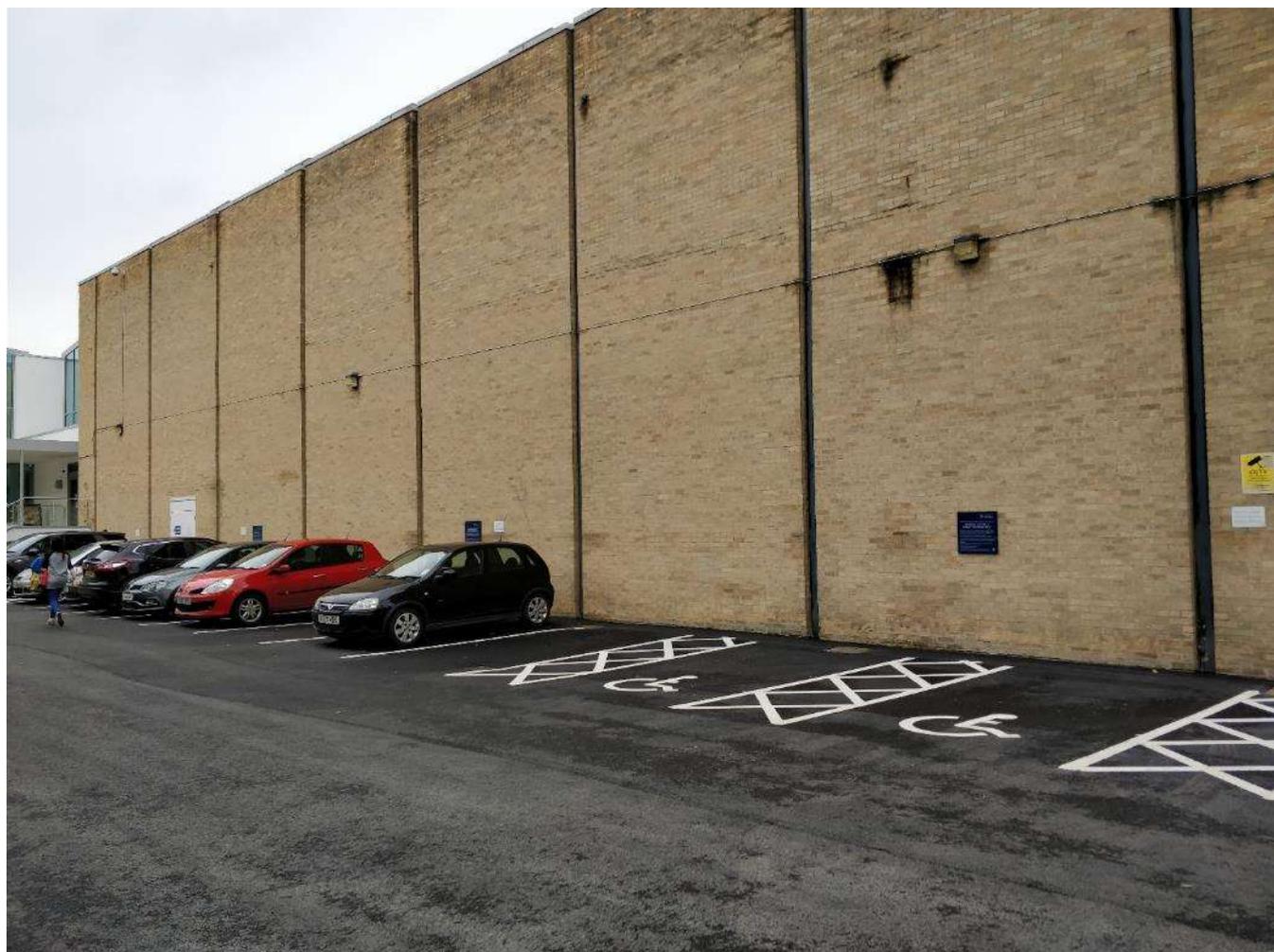
The use of resin bonded gravel surfaces should be carefully considered as an alternative to paving. Avoid loose stones and chippings as this is particularly problematic for users of manual wheelchairs. Ideally there will be a level route from the accessible parking bays to the main entrance. If this is not possible, then avoid excessive slopes and ensure that there is a level area directly in front of the entrance. Avoid creating routes that go across a slope creating a cross fall – this will be problematic for many people with disabilities. Dropped kerbs must be incorporated where necessary to aid access.

If the route goes from the road to a pavement, dropped kerbs must be used to enable wheelchair access. Appropriate tactile paving must also be used to provide relevant information for people with visual impairments.

The principle of inclusive design must extend to outdoor amenity areas as well as the interior of buildings. The preference is for level access. Where there are gardens with benches make sure that some benches have backrests. If there are informal seating areas these should be accessible with suitable furniture and pathways. Roof terraces should be accessible with level access over the threshold. Signage must be clear, and placed where it is easy to see.

## 6.2 Car parking & drop-off areas

At least two designated Blue Badge parking bays must be provided in close proximity to the main entrance (or the accessible entrance if this is in a different location), where possible. Larger buildings may well need more than two bays. Blue Badge parking bays must be clearly marked with a wheelchair symbol (the International Disability Symbol), with markings on the road surface as well as a sign at the driver's eye-level.



Clearly marked Blue Badge parking bays with hatched transfer space to the side

Ensure that all road markings and symbols have high contrast from all viewing angles, and that all signage has large, clear text and symbols and has high contrast. This will help to reduce instances of accessible parking being used inappropriately as well as being general good practice for signage. Avoid the use of stainless steel symbols within granite setts as these are difficult for drivers to see. It is recommended that a vertical sign is installed at the head of each accessible parking bay.

Bays should allow sufficient transfer space on both sides to allow doors to be fully opened. These bays should not be located on a slope and should have a smooth road surface all around to allow easy access to parked vehicles. If users have to navigate a pavement to reach the entrance, dropped kerbs with tactile strips must be provided.

Car parking areas with barriers can be difficult to negotiate. If a barrier is necessary, there should be an intercom located in an accessible position, linked to a staffed area for users to request assistance.

Some people with disabilities will use transport to get to buildings; it is vital that a drop off bay/set down point is provided close to the main entrance.

## 6.3 Shared spaces (i.e. external main pedestrian routes)

Surfaces that are shared by vehicles, cycles and pedestrians without demarcated pedestrian routes and crossing points are highly problematic for many disabled people. Such areas can become no-go areas for disabled people, especially (but not exclusively) those with a visual impairment. This can be the case even in

areas with a low amount of vehicular traffic. If shared spaces are being considered, then accessibility must be part of their design. There should be pedestrian routes that are separate from any shared surface; these should be clearly demarcated by kerbs with upstands or contrasting tactile paving. Road crossings should be clearly marked.

The Accessibility Advisor must be consulted if shared spaces are being considered.

## 7. Access into buildings

### 7.1 Entrances

All users of a building must be able to use the same entrance. Only in very exceptional circumstances is it appropriate for people with disabilities to have to use an alternative entrance.



Level entrance and powered doors – all users of the building have equality of access

All users should have parity of access; people with disabilities should never have to make special arrangements to enter a building – e.g. by having to phone in advance.

It should never be the case that people with disabilities are required to access buildings through goods entrances, rear service yards or similar.

Entry into the building should be level. Thresholds should be level. There must be sufficient level circulation space on both sides of the door to allow for wheelchair manoeuvring. There must be a suitable level area in front of the door to ensure that wheelchair users do not roll backwards and are able to use access control systems. The preference is for access control systems to be activated by proximity card as opposed to key fob. Signage should include large clear text and be located where it is easily visible (see 8.2 below).

## 7.2 Entrance doors

Main entrances should have automatic powered doors. Where there is more than one set of doors through to the reception or main foyer space, all doors must be powered. If non-disabled users have free access to a building, this should be the same for disabled users e.g. pass doors should not be access controlled. The use of PIR motion sensors to open doors is ideal where possible, for use during periods when access control is not required.

Where possible, powered sliding doors are the preferred method of enabling access to a building. The design and layout should mitigate issues of cold air circulation.



Revolving door with powered pass door immediately adjacent

Revolving doors are impossible to use for many people with disabilities e.g. people with visual or mobility impairments or those with assistance dogs, and are therefore not preferred. If revolving doors are to be included as part of the design, they must be supplemented by an adjacent power-assisted pass door. The pass door must give free access during the same periods that the revolving doors allow free access.

Where pairs of powered swing doors are used, the clear opening width of each leaf individually must be equivalent to that required for a single leaf door opening (i.e.. 800mm minimum). The door operators should be configured to work together, and individually when required, to minimise cold air ingress.

Access control readers and push buttons must be sited carefully for ease of use by wheelchair users particularly, to avoid unnecessary deviations to the entrance or exit route. If necessary, additional readers/push buttons should be installed.

## 7.3 Access control systems and security

Design teams should be aware of the potential conflict between access requirements and security measures. When designing security measures, the potential impact on people with disabilities must be considered i.e. if non-disabled users have free access into areas of a building, this must be the same for disabled users even if using lifts as opposed to stairs.

The position of swipe card readers or proximity sensors must be easily accessible by all users and must be at a height that wheelchair users can reach. A height of 1000-1200mm above floor level is acceptable for simple controls and card readers. Switches and controls that require precise hand control should be 750 mm to 1000 mm from the floor. Proximity sensor systems are preferable to swipe card readers or key fobs, particularly for users with manual dexterity issues.

## 7.4 External steps

External stairs must have strong visual contrast on the nosings (treads and risers) to enable people with visual impairments to use them safely. The contrasting nosings should have anti-slip properties, be full width and be a permanent part of the construction (i.e. not stuck on as an afterthought). Possibilities include contrasting stone nosings, contrasting strips inset into grooves into the step surface, and grooves cut into a stone surface and filled with a suitable contrasting paint. Aluminium (or similar) inset strips are to be avoided as they may cause a slip hazard when wet.



Aluminium corduroy strips are a slip hazard when wet and should be avoided

Handrails must be installed on both sides of any set of steps and continue around landings wherever possible.

Tactile surfaces (corduroys) must be installed at the head of external steps and near changes in level to provide a warning to people with visual impairments. Aluminium (or similar) inset strips must be avoided as they may cause a slip hazard when wet.

## 7.5 External ramps

Where there is a change in level between the external ground and the entrance floor of a building, a permanent ramp (maximum 1:15 slope) is preferred to a vertical platform lift or inclined wheelchair lift. Only where this is not possible (e.g. due to space constraints) should a platform lift be used

External ramp surfaces must be anti-slip, and changes in pitch must be visually highlighted. Handrails/balustrades will be required as stipulated in Approved Document M. Ramps which cut through external steps will need to be carefully designed to minimise tripping by users with visual impairments, or those who are distracted (e.g. by views, phones etc.).



Ramps which cut through steps must be carefully designed to minimise the risk of trips

## 7.6 External vertical platform lifts

External lifts should only be used to gain access to a building where there is insufficient space to construct ramps of a suitable pitch, or where planning permission would not be granted for a ramp.

Where this is the case, suitably robust external vertical platform lifts should preferably be used, with any flanking structures designed to minimise visual intrusion. The appearance and location of a lift should be sensitively designed to ensure that use of it feels equal, as far as possible (eg, the lift should be adjacent to any steps leading to the entrance). Lift doors/gates must always be powered.

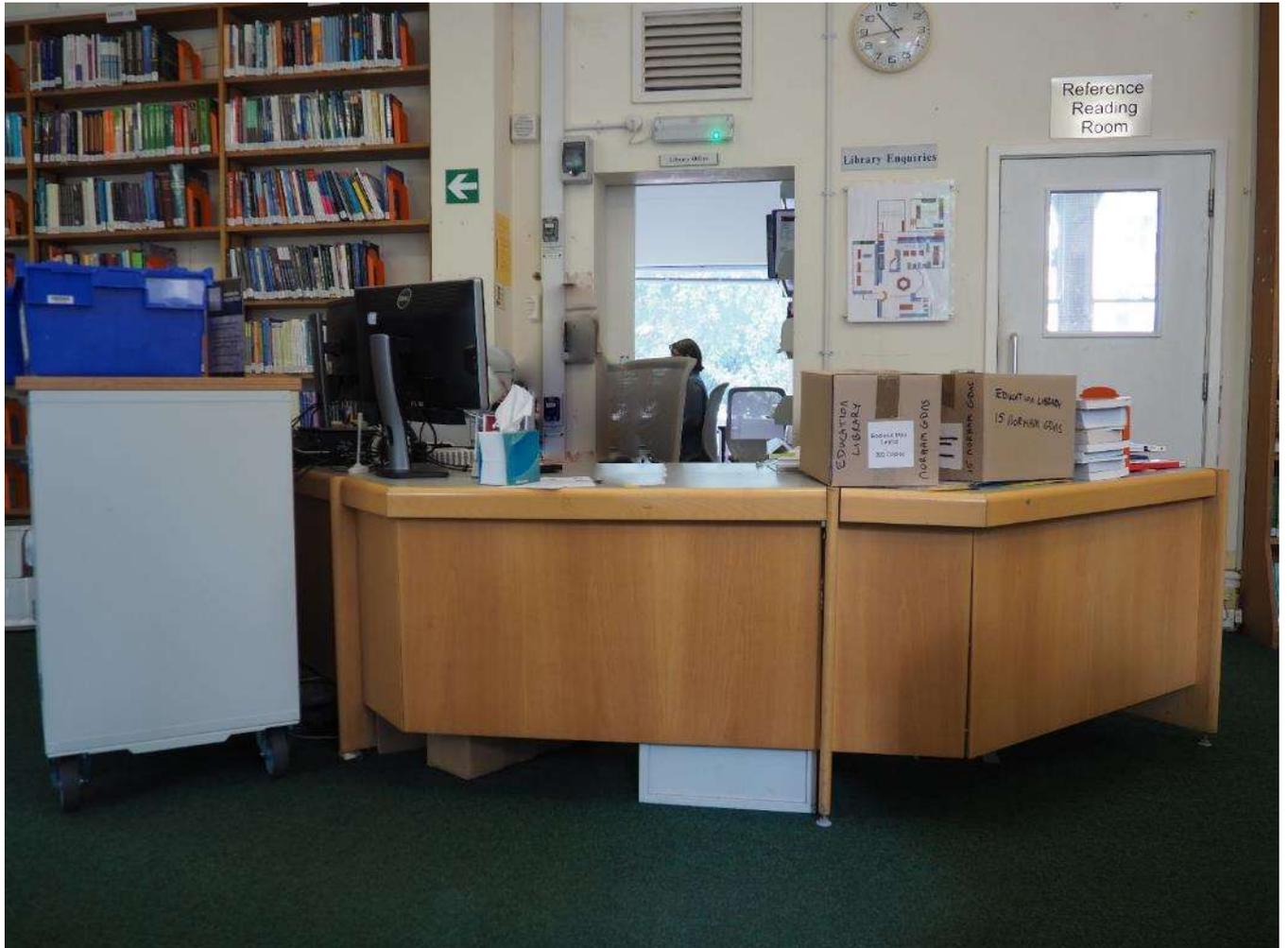
Inclined wheelchair lifts should only be used as a last resort in external situations. Appearance, relatively low weight limits and maintenance issues are significantly more problematical with inclined wheelchair lifts than for vertical platform lifts.

## 8. Horizontal circulation

### 8.1 Reception areas

Reception areas must be designed to enable all users to access all facilities at the main reception desk. A lower section of desk and a recessed kneehole space on the visitor side should be included to enable a wheelchair user to pull up to the counter at the first point of contact. Avoid creating a desk where a wheelchair user has to pass a high (obscured) section to reach a low section in order to gain attention. The reception desk and the space behind it must also be designed to enable a wheelchair user to work at the desk

If reception is not staffed, a doorbell or intercom should be provided at an accessible height for all.



Reception desk at wheelchair accessible height but without recessed knee-hole space

Reception areas must be fitted with a fixed induction loop system for hearing aid users. There must be signs in place to indicate the presence and location of the loop system.

Consideration should be given to using sound-absorption materials to reduce noise and echo to support people with sensory/neurological processing difficulties.

Where waiting areas are provided, there should be accessible seating areas, including seating with backrests and arm supports. Suitable space should be kept clear to accommodate wheelchair users within the waiting area. There must be good contrast between the floor, walls, doors and furniture. Avoid unnecessary clutter in the waiting area as this can be a hazard for visually impaired people, and confusing for those with sensory/neurological processing difficulties



Reception desk at wheelchair accessible height with recessed kneehole space

## 8.2 Signage

Good signage benefits everybody, and helps people with visual impairments, and sensory/neurological processing difficulties use the building with greater independence. Signs must be clear, concise and consistent.



Accessible toilet door sign with wheelchair symbol and information in Braille

Consideration of signage should be a part of the overall design process. The location and placement of signs should be carefully considered to ensure that they are highly visible and easily found. Signs require good illumination and should not have a reflective finish. Sans serif fonts are preferred. Blocks of capitals are harder to read for most people. While a few words in capitals are acceptable (for example in a heading), they should generally be avoided. The use of Braille is encouraged where practical; if used there must be consistency throughout the building.

External signage should be in accordance with the University's sign guidance documents. Visit the Estates services signage page for more information: <https://estates.admin.ox.ac.uk/signage>

The use of colour labelling of floors or departments within a building can help with wayfinding and should be considered as part of the design process. Additionally, signs indicating floor levels when leaving stairwells or lifts will be helpful to many people.



External signage with large sans serif font and high contrast between text and background

## 8.3 Internal doors and security gates

Doorways in new buildings must have a clear opening width of at least 800 mm. This is also preferred for refurbishments of existing buildings although a minimum of 750 mm is acceptable if 800 mm cannot be achieved (see table 2 in Approved Document M Vol. 2 for further clarification). The clear width is measured from the doorstep to any projecting door furniture.

If the door is manually operated, there must be an unobstructed space of at least 300 mm on the pull side between the leading edge of the door and any return wall. This is to enable a wheelchair user to grip the handle, pull the door open without releasing the handle and without the footrest hitting the return wall. There should also be 300 mm clear space adjacent to the leading edge on the push side of the door.

Very large/oversized doors should be avoided (*note* - this is also a requirement of the [Building Design Philosophy Document](#)). Heavy doors are difficult to use for many non-disabled people, as well as for people with disabilities. Suitable doors and door closers should be used to ensure that the force required to open them is as low as possible. Slide channel door closers should ideally be avoided. All door closers should be adjusted prior to handover to ensure the force required to open them is as low as possible.

Powered doors are recommended on routes to all main areas in a building. Main areas would include lecture and seminar spaces, cafés, common rooms, WC lobbies (where accessible WCs/showers can only be accessed through a lobby door). Doors with hold open mechanisms linked to the fire alarm are an acceptable solution to enable better access around a building. If a door is not powered, there should be a minimum 150mm between the top of the door and the ceiling to allow for a door operator to be fitted in the future. Full height door leaves in any situation present a problem when retro-fitted door automation is required; consider that the architectural appearance may be compromised at a future date if suitable space for an operator is not allowed for.

Door schedules, to include details of which doors are powered, should be provided to the Accessibility Advisor for review at the earliest stage possible, and should include confirmation of which doors are powered. This is to ensure that powering has been budgeted for.

Doors should usually include vision panels to enable users to see others approaching and avoid collisions. This is mandatory for doors along corridors, but should also include seminar and meeting rooms, where persons may need to enter during a meeting. Exceptions to this would be rooms where privacy is required or where a room has a specific purpose e.g. a darkroom.

Lever handles are always preferred over door knobs for ease of use by those with mobility or dexterity impairments. Level handles must be operable with a closed fist.



Full height, large heavy doors. These are difficult to use for many users, especially wheelchair users and people with limited upper body strength

Where pull handles are fitted to doors they must only ever be used on the pull side of the door to avoid giving misleading information. Suitable push plates must be fitted on the push side of the door.

Sliding or bi-fold doors are difficult to use for many people and must not be used (unless they are powered) – and should never be used for accessible toilets. Where powered sliding doors have been fitted to accessible WCs they have been problematic, causing them to be out of operation for long periods and are therefore not recommended.

Doors must be apparent to visually impaired people through the use of carefully chosen colours and materials of the door and its surroundings. Doorframes and all door opening furniture must contrast visually with the surface of the door.

Glass security gates must have large, clear, and high contrast manifestation. This is frequently omitted by projects and makes glass security gates difficult to identify, and potentially dangerous, for visually impaired people (as well as non-disabled people).



The lack of contrast makes this door extremely hard to identify for all users, but especially visually impaired people



Glass security gates without high contrast manifestation

## 8.4 Corridors

Corridors should enable easy movement around the building for all users. Two wheelchair users should be able to pass each other at any point along a corridor – where this is not possible there must be passing places at reasonable intervals.

A common problem in existing buildings is environmental clutter caused by corridors being used as storage areas – this creates barriers for people with visual or mobility impairments. To mitigate this the design should include storage and delivery space to ensure that corridors remain free from clutter.

There must be visual contrast between the wall and ceiling, and the wall and floor, to help with spatial awareness – this is especially important for people with visual impairments. Lighting in corridors must be even and diffused. Glare, reflection and shadows make an environment difficult to navigate for people with visual impairments and should be avoided.

The preference is for floor finishes to be plain. Patterns can cause confusion for visually impaired people, or those with sensory/neurological processing difficulties, and should be avoided.

Corridors should be level wherever possible. Any slope or ramp should be readily apparent e.g. with the use of colour/contrast.

## 9. Vertical circulation

Passenger lifts should always be provided where possible. A vertical platform lift can be considered for existing buildings, and for new buildings where there are exceptional circumstances, if a passenger lift cannot be accommodated. It should be noted that a platform lift is not equivalent to a passenger lift.

Inclined wheelchair platform stair lifts are the least preferred option, and should be avoided if at all possible.

### 9.1 Passenger lifts

New buildings and major refurbishments should always incorporate new passenger lifts, where lifts are to be installed. Wherever possible these should be evacuation lifts, requiring a dual power supply from separate substations; where this is not possible, the secondary supply may be taken from an adjoining University building. The University Fire Officer must always be consulted about evacuation lifts.

The location(s) of lifts within buildings should enable easy access to all areas of the building, by all users. There should be a clear route from the entrance to the lift. Heavy non-powered doors between the entrance and the lift will pose a significant barrier to users. The position of lifts in relation to secure areas should be carefully considered. If a lift is to give access to an open or public area do not place it behind an access controlled door or gate. This will ensure that people with disabilities have parity of access.

The lift must have sufficient space to accommodate an electric/power wheelchair and one accompanying person. While a lift car size of 1100mm x 1400mm is acceptable, the preferred dimensions are 2000mm x 1400mm as this will accommodate a wheelchair user and other passengers, as well as enabling wheelchair users to turn through 180°. Consider the anticipated frequency of use when deciding on the lift size. While 800mm is an acceptable clear width for lift doors, 900mm is preferred and should be used in new buildings.

There should be a suitable waiting time before the lift doors close to enable users to enter or exit the lift without risk of the doors closing on them. Lift doors must have safety sensors fitted to prevent doors closing onto people. Lighting within the lift car must be uniform and should not cause glare, reflection or shadows. The light source should not be located adjacent to the control panel. Floor finishes within the lift car must have good contrast to the walls.

Lift call buttons, and the lift control buttons must be located so that they are accessible to wheelchair users. The lift must have tactile buttons – Braille on the buttons will help some people with visual impairments but there is no requirement to include this. There should be a clear visual indication and an audible announcement to indicate the level reached.

Refer to the M&E Philosophy Document for more detailed information on the installation and operation of passenger lifts in University properties.

### 9.2 Vertical platform lifts

Platform lifts should only be specified where it is not possible to provide a full passenger lift.

Where vertical platform lifts are necessary to provide access, the proposed platform lift specifications/supplier quotations must be sent to the University Accessibility Advisor for comment. Detailed proposed designs showing lift lobbies and push button locations, must also be sent to the University Accessibility Advisor when available. The planned management of the lift is an important consideration and the Accessibility Advisor should be consulted on this. The strong preference is for the user to be able to operate the lift independently, rather than having to locate a member of staff for assistance

The listed status of a building need not be a barrier to the installation of a platform lift. A Sesame lift has been installed in the entrance hall of the Grade II listed Old Indian Institute enabling wheelchair users to access the building.



Sesame lift installed at Old Indian Institute

Vertical platform lifts must be able to lift a reasonably heavy weight (minimum 400kg) so they can accommodate a powered wheelchair. The lift should be large enough to accommodate a wheelchair user and one accompanying person

Lift call buttons must be located so that they are accessible to wheelchair users. The swing of powered doors should not hinder the use of the call buttons or the manoeuvring space to get into the lift. The lift must have tactile buttons – Braille on the buttons will help some people with visual impairments but there is no requirement to include this. There should be a clear visual indication and an audible announcement to indicate the level reached.

Platform lifts must have powered doors, this benefits all users but in particular those with limited upper body strength, and wheelchair users. Lift manufacturers usually quote for powered doors as an option – however they must be included as standard for every installation. Retro-fitting door automation is expensive, takes time to install and can be unsightly due to surface conduits to repositioned push buttons.

The layout of platform lift lobbies must be carefully designed; there must be adequate manoeuvring for wheelchair users to wait for, enter, and exit the lift at each level.

Platform lifts must have a local alarm; where possible a secondary alarm should be taken to a normally occupied location in the building so help can be summoned when necessary. A Windcrest or other approved (by the UES Mechanical Services Team) autodialler system must be installed in every platform lift.

Platform lifts cannot be used as a means of escape unless this has been agreed with the University Fire Officer.

Refer to the M&E Philosophy Document for more detailed information on the installation and operation of platform lifts in University properties.

### 9.3 Inclined wheelchair lifts (stairlifts)

Inclined wheelchair stair lifts are the least preferred option and should only be used when it is not possible to install a passenger or platform lift.

Where inclined wheelchair stair lifts are the only option, they must be able to take a reasonably heavy weight (ideally 300kg) so they can accommodate a powered wheelchair. In several locations across the University 225kg capacity lifts have not been adequate.

The planned management of the lift is an important consideration and the Accessibility Advisor should be consulted on this. The strong preference is for the user to be able to operate the lift independently, rather than having to locate a member of staff for assistance. The lift must have a local alarm; if possible a secondary alarm should be taken to a normally occupied location so help can be summoned when necessary.

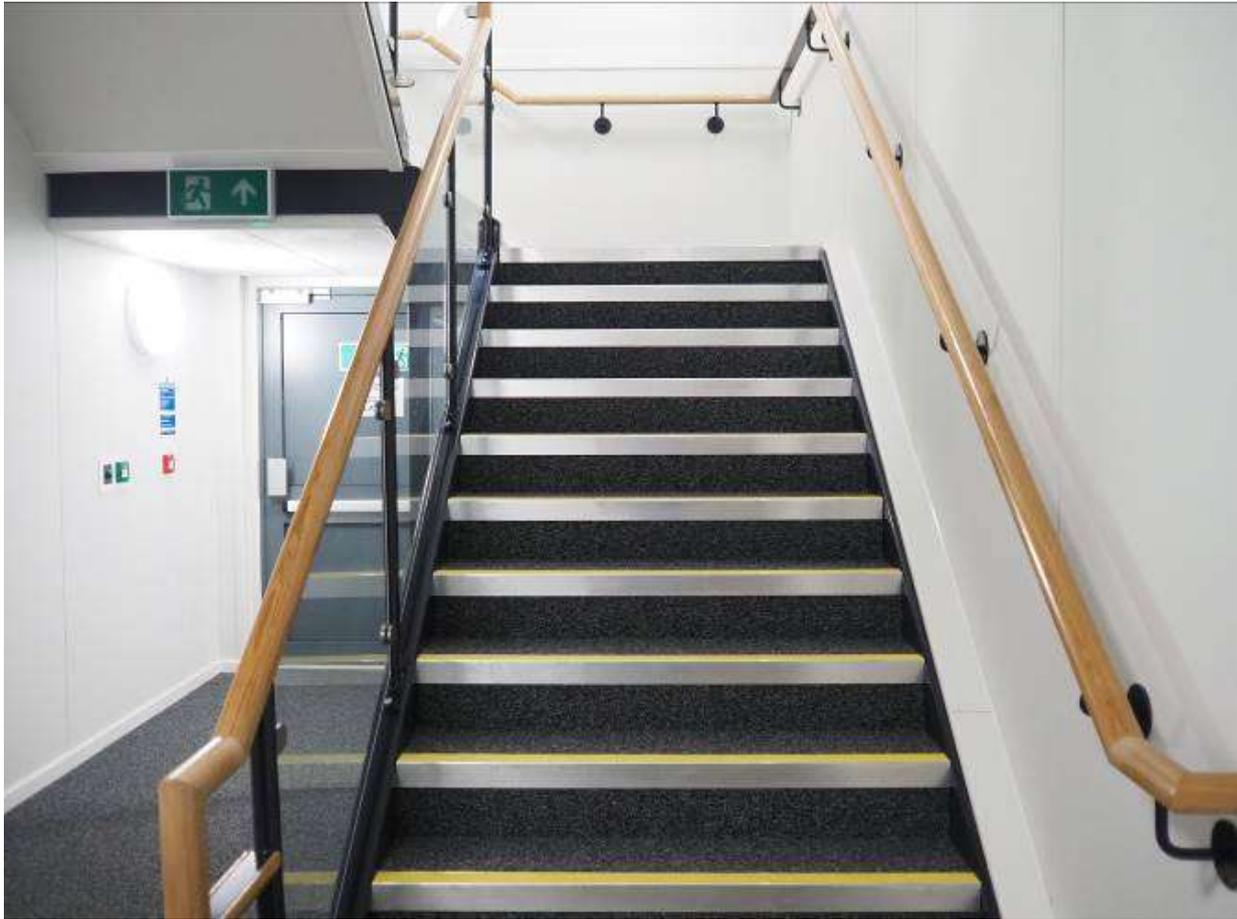
Refer to the M&E Philosophy Document for more detailed information on the installation and operation of inclined stair lifts in University properties.

### 9.4 Internal stairs

All internal stairs must have tactile, high contrast nosings to enable people with visual impairments to use them safely. This is particularly important where steps are light in colour and/or where there is a mix of landings and steps.

Handrails should be installed on both sides and continue around landings wherever possible.

Tactile surfaces are not required to indicate internal stairs (although are required at the head of external stairs and near external changes in level).



Stairs with contrasting nosings and handrails extending around the landing

## 10. Facilities

### 10.1 Lecture theatres

Lecture theatres should be designed to give parity of access to all users, to include lecturers and audience members. Detailed proposed layout designs must be sent to the University Accessibility Advisor for comment.

The preference is that wheelchair users will have a choice of areas to sit. Consider that wheelchair users may want to enter a lecture theatre unobtrusively and not want to sit right at the front. This will enable users to access the space even if they arrive late for a session. Ensure that the extra height of wheelchair users does not obstruct sight lines for others in the audience.

There should be cut outs or movable chairs at the front and rear of the room. Spaces which incorporate desks should be adjustable for wheelchair users. Desks that are too low to fit under are not accessible to wheelchair users.

Tiered seating with a slope is highly preferable to steps. A level platform will be required for the wheelchair seating positions. If access to the lecture theatre is by staircase only, then a vertical platform lift must be provided to enable people unable to use steps to access the front or back of room (depending on how it is laid out). Inclined wheelchair stair lifts should only be used as a last resort in lecture theatres. There should be seating available that does not require the use of steps to enable access for ambulant disabled people.

Some people who experience anxiety or sensory/neurological processing difficulties may benefit from seating that is away from the fixed rows; consider provision of some seating that is not fixed and can be moved as needed.



This lecture theatre has ramped access to seating, ramped access to the stage, and areas of seating that can be removed to accommodate wheelchairs

All steps within the lecture theatre must have tactile, high contrast nosings to enable people with visual impairments to use them safely.

As well as the seating area, the stage and all associated equipment should be accessible for all users. There should be ramped access to the stage (this is preferable to platform lifts), and a height adjustable lectern. Computers should be on height adjustable desks and lighting controls should be at an accessible height for wheelchair users.

To support people with a visual impairment, whiteboards with a matte finish should be used. Lighting adjacent to whiteboards must be carefully installed so as to avoid glare. Avoid glass whiteboards as they create significant glare which some users with visual impairment find difficult.

Lecture theatres must include hearing support systems such as an induction loop or infra-red system. The University Accessibility Advisor can advise on a suitable system. Where flat-tape induction loops are fitted extreme care must be taken not to cut the loop when carpet is fitted – this has happened a number of times and renders the system useless. Protection to the cabling should be included as part of the installation. The commissioned system should be demonstrated to the occupying department as part of the handover.

Seminar and meeting rooms should be designed to give parity of access to all users both as lecturers and participants. Furniture should be easily movable to create space for wheelchair users.

The preference is that wheelchair users will have a choice of areas to sit. Consider that wheelchair users may want to enter a seminar room unobtrusively and not want to sit right at the front. This will enable users to access the space even if they arrive late for a session.

## 10.2 Seminar and meeting rooms

Seminar rooms of a reasonable size should normally include a fixed hearing support system. This would normally be an induction loop or a fixed infra-red system. In small seminar and meeting rooms a portable infra-red system or portable loop may be sufficient provision, particularly where several rooms in a building require provision. The University Accessibility Advisor can advise on the most suitable system for a space. Where flat-tape induction loops are fitted care must be taken not to cut the loop when carpet is fitted – this has happened a number of times and renders the system useless. Protection to the cabling should be included as part of the installation. The commissioned system should be demonstrated to the occupying department as part of the handover.

## 10.3 Bleacher seating

Where bleacher seating is proposed, the associated steps must have tactile, high contrast nosings, and a handrail to one side to enable people with visual and mobility impairments to use them safely. Although the bleacher seats should not be used as steps it is likely that they will be. Therefore the seat edges should have contrasting edges, either by provision of a well-defined and obvious shadow line or the use of contrasting materials.

## 10.4 Libraries & study carrels

Users should have access to height adjustable desks; the preference is for the desks to be spread throughout rather than all clustered together. Where computers are a necessity e.g. to access essential information or to self-issue books, then at least one must be provided on a height adjustable desk.

Users should be able to enter and exit access control gates independently – give careful consideration to gate widths, manoeuvring space and location/height of access control readers. Proximity card readers are strongly preferred over card swipe readers which can be difficult to use for people with limited dexterity.

Library counters/help desks have the same requirements as for reception desks (see section 7.1). Where there are strong magnetic fields local to the library counter, eg security gates adjacent to the desk, a counter loop system may not be usable due to interference. If possible the security gates should be located away from the desk. Where this is not possible a portable loop can be kept at the desk for use in a space remote from the magnetic field.

Routes around the library and spaces between desks and shelving should be wide enough to enable easy access for wheelchair users. It is preferable for shelving to be at an accessible height as far as possible. Where this is not possible an acceptable solution is for staff to provide assistance for users wanting to access books; therefore consider the locations of information desks carefully.

It is preferable to include a quiet/secluded space in the library; this may be useful for all but can be particularly beneficial for people with sensory/neurological processing difficulties and mental health conditions. Areas of the library where lighting is dimmable may be helpful for users with sensory/neurological processing conditions, visual impairments, or who experience migraines.

Where study carrels are provided, at least one should be accessible for people with mobility impairments i.e. suitable manoeuvring space for wheelchairs, height adjustable desk etc. If computer equipment will be provided consider the provision of adaptive technology such as text to speech software, large monitors, and high contrast keyboards. Some people with sensory/neurological conditions may find it beneficial to use study carrels as a quiet working space.

## 10.5 Laboratories & write-up areas

All teaching laboratories should be fitted with a provision of height adjustable benching (and height adjusted facilities to match provision to standard work areas), and where applicable, one or more height adjustable fume cupboards. Accessible bench space should be located to give easy access and sufficient manoeuvring space for a wheelchair user. Access to switches for equipment and power banks should be easy for those with limited reach or upper body strength.

Eye wash stations should be accessible for all users; include sinks that are wheelchair accessible. Taps which can be used with a closed fist are preferred.

Teaching laboratories should be provided with a suitable hearing support system for hearing impaired users. The AV provision and method of teaching/demonstration will determine what kind of system would be suitable. The University Accessibility Advisor can advise on the most suitable system for a space.

In larger research laboratories a provision of height adjustable benching should be provided. In smaller laboratories the benching system should be chosen so that should a height-adjustable bench be required at a later date it can be easily swapped in. It should be noted that height adjustable benches may have a lower bearing capacity compared to standard benches, so provision should be proportionate.

In write-up areas a provision of height adjustable desks should be included. In smaller areas the desk system should be chosen so that should a height-adjustable desk be required at a later date it can be easily swapped in. Write-up space should be located to give easy access and sufficient manoeuvring space for a wheelchair user.

## 10.6 Café areas

Café areas should be designed to enable wheelchair users to manoeuvre easily. If a counter is present, there should be a lower section with a recessed kneehole space to enable wheelchair users to reach the displays and the payment point. Any self service facilities such as refrigerated cabinets should be easily accessible by all users with displayed items in easy reach.

Chairs and tables should be movable to accommodate a wide range of users.

Tables should have suitable kneehole space and not obstruct wheelchair manoeuvring, e.g. small tables with corner legs as opposed to pedestal bases. Tables with a substantial frame underneath should be avoided as these can be difficult for many users. A wheelchair user should never have to sit at an angle to the table while eating a meal.

If the layout has fixed seating in alcoves, it should be designed so that wheelchairs users can also sit at a number of these tables – e.g. by ensuring that there is clear kneehole space under the tables. Some chairs should be provided with arms and some without, as people with strength or mobility conditions will have a range of support needs.

Where there is a route through a café space which needs to be kept clear, the route should be clearly marked, e.g. by using contrasting flooring.

Acoustic shielding in café spaces should be considered; this will absorb excess noise and echoes, which will help users with hearing impairments and sensory processing difficulties.

Food preparation areas should be avoided adjacent to work areas, as smells can be overwhelming for those with sensory/neurological processing difficulties.

## 10.7 Staff kitchens & kitchenettes

Narrow galley kitchens should be avoided. It is not acceptable for kitchens to be designed in such a way that wheelchairs cannot be turned around in the space. Detailed proposed layout designs must be sent to the University Accessibility Advisor for comment.

Kitchen worktops and fittings must be at an accessible height for all. Consider providing a height adjustable worktop and sink. Where the worktops are fixed, the sink and a section of worktop should be provided at a lower height with a recessed knee space underneath. The underside of accessible sinks and hobs must be insulated to prevent injury to users. There must be a provision of low level storage space available for a wheelchair user to use, or pull-down shelves if higher level wall cupboards are the only option. Fridge doors should be hung to make access easy from a wheelchair. Other facilities (e.g. dishwashers) should be easily accessible.



Kitchen work surface with recessed knee space and height adjustable controls

Mixer taps or Zip taps fitted at the back of a sink can be difficult to reach safely for many wheelchair users. It is preferable to provide a countertop boiling water dispenser which can be more easily reached. Where chilled water is available a countertop dispenser is preferred.

There should be high contrast between work surfaces and walls/tiles, cupboard/drawer handles, and switches and controls. This will make kitchens more accessible for people with visual impairments.

Avoid placing food preparation areas close to work areas; smells can be overwhelming for those with sensory/neurological processing difficulties.

## 10.8 Common rooms & break out spaces

The use of freestanding rather than fixed furniture is preferred so that rooms can be rearranged as needed. Tables should have suitable knee-hole space and not obstruct wheelchair manoeuvring, e.g. small tables with corner legs as opposed to pedestal bases. Tables with a substantial frame underneath should be avoided as these can be difficult for many users.

Hot drink making facilities should be at an accessible height for wheelchair users, and should be usable without having to overreach. They should have high contrast fixtures and fittings for people with visual impairments.

It is preferable to have quieter areas available in communal spaces for people with sensory/ neurological processing difficulties; acoustic shielding in suitable areas should be considered to absorb excess noise and echoes.

Deep pile carpets have been used previously in common rooms and break-out spaces; these are very difficult for wheelchair users to travel across and should be avoided.

# 11. Sanitary accommodation

## 11.1 Accessible toilets

The preferred terminology is 'accessible toilet', not 'disabled toilet.'

There are almost always errors in the fit out of accessible toilets that can be avoided. These have to be identified as snags and can prove difficult or costly to rectify. To avoid this it is highly recommended that projects consult and follow the guidance in Approved Document M Vol. 2, as well as providing detailed drawings to the Accessibility Advisor for review and comment.

Frequently seen errors are:

- Pull cord alarms and reset buttons in the wrong place
- Toilet seat at incorrect height
- Flush lever on the wrong side of the toilet
- Wrong type of flush lever
- Sink located too far from toilet
- Tap on wrong side of basin
- Fixtures and fittings too high or too low
- Support rails not securely fitted
- Missing pull rail on door
- Clothes hooks fitted too high or too low
- Double action pivots fitted when not needed
- Missing security release when double action pivots fitted
- Gaps between door and frame when double action pivots fitted
- No wheelchair symbol on door

## 11.2 Locations, Provision & Sizing

Accessible toilets should be provided near reception areas, lecture theatres and main teaching areas. In larger buildings, accessible toilets should be provided on every floor. These facilities are to be provided in addition to the required numbers of standard toilets for buildings (stipulated by the Workplace Health, Safety & Welfare Regulations) and not as a substitute for lack of provision elsewhere. This is to minimise waiting times; some disabled people need to use a toilet more frequently than other users.

Approved Document M currently stipulates wheelchair accessible toilets to be 2200mm x 1500mm. BS 8300:2018 recommends a larger size of 2200 x 1700mm. Wherever possible the latter size should be used in the expectation that Approved Document M will be modified in due course. Careful consideration should be given to wheelchair manoeuvring space immediately outside the WC to ensure easy access and egress.

Wheelchair accessible toilets should never be shared with other facilities e.g. for baby-changing or storage of cleaning equipment.

## 11.3 Doors and door furniture

The internationally recognised wheelchair symbol should be used on signs for wheelchair accessible toilet doors. If using text as well, ensure that the preferred terminology of 'wheelchair accessible' toilet, as opposed to 'disabled' toilet, is used. Consider also providing a sign which states "Not all disabilities are visible" to reduce the risk of people with hidden disabilities being challenged when using the accessible WC which can be upsetting and undignified.

Heavy fire doors should not be specified for accessible WCs.

Doors should open outwards so that they can be opened from the outside in the event of an emergency. If this is not possible (e.g. where opening onto a busy corridor) then an inward opening door can be installed providing

the cubicle is suitably enlarged, the door is fitted on pivots (self-centring pivots preferred, see below) and an emergency release stop is fitted to enable outward opening in an emergency.

Sliding and bi-fold doors should not be used for wheelchair accessible toilets. They are difficult to use manually because of the lateral strength required and therefore require powered mechanisms which can be confusing to use and make emergency release difficult.

## 11.4 Door stops & privacy

Where the door is outward-opening only, fixed stops should be fitted. For normally inward-opening doors (on pivots) an emergency release door stop (e.g. Hafele ref 932.87.010) will need to be fitted, set into the top of the latch jamb, to allow the door to be opened outwards in an emergency.

For inward-opening doors on pivots there will be gaps at the leading and pivot edges of the door; these need to be filled with brushes or rubber blades inset into the door or frame to maintain privacy when the door is closed. A heeled frame can be used to the pivot edge to maintain privacy, but the frame at the leading edge should be flat.

## 11.5 Door closers

The preferred closing mechanism for a wheelchair accessible toilet door is self-centring pivots (e.g. Royde & Tucker H131-490). These require the lowest force to open, while giving a suitable closing action. Standard door closers are not to be used.

WC lobby doors which lead to facilities which include a wheelchair accessible toilet or shower must be easily usable by all. If fitted with door closers they must be suitably adjusted to minimise the force required for opening (ideally 20N maximum). The preference is for lobby doors to be powered; self-centring pivots could also be used provide the closing mechanism. Door furniture should be large, high contrast and easy to grab.

Small and fiddly locking mechanisms should be avoided. Locks should be fitted which can be operated with a closed fist (eg a lift to lock lever). Locks must have an emergency release mechanism, to enable opening from the outside in an emergency.



Lift to lock lever set

## 11.6 Fit out

Accessible WCs are sometimes designed as ugly, utilitarian afterthoughts. Aim to provide a space as stylish as the standard toilets. Good colour contrast between flooring and walls will help visually impaired users – *this principle should be applied to all WCs*. The floor surface should be level and non-slip. The WC pan must protrude 750mm from the rear wall/panelling; ideally a close-coupled WC will be used rather

than a separate back support which some users find uncomfortable to use. The top of the cistern can also be used as a colostomy bag shelf; where the cistern is within the ducting a separate shelf must be provided.

The Twyford's Doc M Rimless Super pack (other manufactures have similar options) with grey grab rails & seat has been used in many locations around the University. The layout of the toilet, basin, and support rails must be as Diagram 18 in Approved Document M to allow adequate space for forward and side transfer onto the toilet. The basin must be placed so that a person is able to wash and dry their hands while seated on the toilet.

The toilet flush should have an easy-to-operate lever handle (on the open side for easy access) or infra-red flush activation as opposed to panel-mounted pneumatic buttons. The soap and toilet roll dispensers should be simple to use, ideally with one hand. Please note that foot operated sanitary and rubbish bins are not acceptable as they are not operable by wheelchair users. Hand operated opening or motion sensor opening bins should be provided.

Support rails, a hand-rinse basin, toilet paper and soap dispensers, emergency alarm pull cord and reset button must all be within easy reach of the WC pan. Where a paper towel dispenser is fitted, this should also be within reach of the WC pan if possible. Support rails must be firmly fixed to suitably solid construction; hinged support rails in particular will be subject to higher forces when in use so may need additional strengthening of the rear wall/panelling where it is fixed.

There must be a full-length mirror (avoid placing this directly opposite the toilet), clothing hooks, and either a paper or hand-dryer option, all at wheelchair accessible heights.

Lighting must be operated by PIR sensor, with a suitable overrun period after activation; the sensor should activate the light as the door is opened. The sensor should cover the whole WC. Normally a minimum two light fittings will be required to provide adequate lighting within an accessible WC. An emergency light must be fitted.

Additionally a flashing beacon linked to the fire alarm must be fitted, so a person with a hearing impairment will be alerted if the fire alarm goes off. This requirement also applies to standard WCs, whether gendered blocks or individual facilities (where the WC is a room, rather than a cubicle within a larger WC), and shower rooms.

Electric hand dryers must be fitted at a wheelchair accessible height – manufacturer's guidance should also be followed. Hand dryers must be the type where users hold their hands underneath to dry. Dryers where hands have to be inserted in the top must never be fitted in accessible toilets (e.g. Mitsubishi Jet Towel).

## 11.7 Emergency alarm system

Emergency alarm systems in WCs must include a full-length pull cord, with red pull bangles at 100mm and 800mm above the floor. The standard position for the pull cord is adjacent to the side wall of the WC, within easy reach from the WC pan. An alarm reset button must be located next to the alarm cord, also within easy reach from the WC pan, at a height of 1m. Alarms should be regularly tested and pull cords should never be tied up.

The alarm should sound locally, and also link to a secondary area staffed during working hours (e.g. reception, or a suitable admin office). If this is not possible, or if the building can be used by wheelchair users out of normal hours, then the alarm should link to Security Services via a Smartwatch link. Staff should be suitably trained in alarm response procedures - the Accessibility Advisor can give guidance on request.

There must be flashing beacon alarms linked to the building fire alarm systems in all accessible toilets and showers. There should also be flashing light beacons in standard toilet blocks, where WCs are within cubicles (normally one beacon will suffice, if positioned correctly), individual toilets where the facility is within a fully enclosed room, and standard shower rooms



## 11.8 Toilets for people with ambulant mobility impairments

Where separate-sex toilet cubicle arrangements are provided, at least one cubicle suitable for use by people with ambulant mobility impairments should be provided within each washroom. Both horizontal and vertical support rails are required, on both sides. A raised height toilet pan is required.

Where unisex self-contained toilets for individual use are provided, at least one toilet suitable for use by people with ambulant mobility impairments should be provided within each range of facilities. Both horizontal and vertical support rails are required, on both sides. A raised height toilet pan is required.

## 11.9 Non-gendered toilets and showers

The terms 'gender-neutral' and 'non-gendered' are both considered acceptable.

The University has a policy to include non-gendered toilet and shower facilities in addition to separate-sex toilets, wherever possible. These should take the form of self-contained non-gendered toilets/showers for individual use. Designating an accessible WC as the non-gendered facility is to be avoided wherever possible. Door signage should clearly indicate the toilet/shower is non-gendered.

## 11.10 Changing Places facilities

It is desirable to include a Changing Places facility in a new development or refurbishment where there will be significant public access e.g. museums, galleries, gardens and sports facilities. These are toilets for disabled people who cannot use standard accessible toilets. People with profound and multiple learning disabilities, as well as people with other physical disabilities such as spinal injuries, muscular dystrophy and multiple sclerosis often need extra equipment and space to enable them to use the toilets safely and comfortably. A Changing Places toilet will meet these needs as well as providing enough space for up to two carers. The Accessibility Advisor will give guidance on where such a facility would be suitable. More information is available here: <http://www.changing-places.org>

## 11.11 Accessible showers

Where standard showers are provided, a reasonable provision of accessible showers must be included as well. Please consult with the Accessibility Advisor.

Shower seats must be firmly fixed to solid construction. A sizeable force may be transferred to the seat in use, and injury is likely to result from a failure.

An emergency alarm system must be included, to match those installed in accessible WCs (see above). In combined accessible toilet and shower rooms there must be pull cords and reset buttons within reach of both the toilet and the shower seat.



A well laid out wheelchair accessible shower

# 12. Emergency provisions

## 12.1 General requirements

Emergency fire exit doors and exit paths must be wide enough to accommodate wheelchairs and must be kept clear of clutter and obstructions. Routes from buildings to the proposed muster points must be accessible to all. Where there is a level change to outside from an emergency exit door which would otherwise be usable by someone who cannot use stairs, a suitable ramp must be constructed.

Standard emergency alarm call points should be installed so that they are highly visible (e.g. contrasting to the wall colours), unobstructed, and at an accessible height.

The University Fire Officer must be consulted in order to agree a fire strategy which includes suitable provisions for those who would be unable to leave a building without assistance. The agreed strategy should be communicated to the Accessibility Advisor for future reference.

## 12.2 Emergency refuges and refuge alarm systems

Some disabled people will be unable to leave a building without assistance. Therefore a sufficient number of emergency refuges must be provided on each floor of a building in order that users can await assistance within a fire protected area.



An Emergency Voice Communication system

Refuge alarms must be linked to the building's fire alarm control panel, where a light will indicate the occupation of a particular refuge. The control panel must allow an acknowledgement signal to be sent back to the occupied refuge.

The refuge must be fitted with an Emergency Voice Communication system (EVC) – this is also a British Standards requirement (see document BS 5839-9:2021). The EVC should also be fitted with an induction loop. Projects should discuss proposed EVC specifications with the University's Accessibility Advisor and Senior Fire Engineer.

Only in exceptional circumstances can an "assurance light" system be fitted as opposed to an EVC, for example:

- a refurbishment where the building is expected to be occupied for a short period
- a refurbishment where the refuge point is an addition to existing University yellow break glass system

## 12.3 Visual fire alarm beacons

Flashing beacons linked to the fire alarm system must be installed in the following areas, so a person with a hearing impairment will be alerted if the emergency alarm is activated:

- Accessible toilets
- Toilet blocks, where WCs are within cubicles (normally one beacon will suffice, if positioned correctly)
- Individual toilet facilities where the facility is within a fully - enclosed room
- Shower rooms
- Any area where there is a likelihood someone will be alone (e.g. 24 hour access building)

It is preferred not to install a fire alarm sounder within these areas if possible; the fire alarm system should ideally be designed to achieve the correct decibel level using sounders outside the facilities.

## 12.4 Evacuation chairs

A basic provision of suitable evacuation chairs must be provided by the project. The University uses two types:

- Evac Chairs (model 300-H) for straight-flight stairs to travel downstairs
- Ibex Transeats for travel upstairs (e.g. from basement areas), or downstairs, where a stairway has winders.

The University Fire Officer or the Architectural Assistant (Accessibility) can advise on a suitable provision of chairs.

# 13. Additional considerations

## 13.1 Flooring

Hard, non-slip surfaces are ideal for most people, whether ambulant or wheelchair users. Flooring should have a high contrast with walls and door frames. There should be consistency of flooring throughout the building – this is useful for all but can help with wayfinding for people with visual impairments and sensory/neurological processing difficulties.

Carpet provides good acoustic sound deadening but avoid deep pile carpets as they are a barrier for wheelchair users. Patterned carpets and floor surfaces can be confusing for people with visual impairments and people with sensory/neurological processing difficulties – plain carpets and flooring is the preferred option. Avoid sisal matting at entrances – this can cause problems for wheelchair users due to the grooves.

Where flat-tape induction loops are fitted in lecture or seminar spaces care must be taken not to cut the loop when carpet is fitted – this renders the system useless.



Highly patterned flooring is visually confusing and should be avoided

## 13.2 Windows & glazing

Window opening/closing mechanisms should be simple to use and should be easily accessible for all users. Handles should have a high contrast with the surroundings. Full height floor to ceiling glazing can be problematic for people with visual impairments and sensory/neurological processing difficulties.

Where full height glazing is used internally, suitable manifestations must be fitted to contrast with the background seen through the glass. This must be effective in all lighting conditions. Ideally the minimum requirements of Approved Document M should be exceeded to ensure good contrast. Frosted manifestations have good contrast against dark floor coverings but are poor against lighter flooring, e.g. cork tiles and lighter carpets. Bespoke patterned manifestations (e.g. showing departmental logos) have proved to be effective in some areas.

## 13.3 Furniture

Tables and desks without rails underneath are preferred; rails can obstruct knee recess space for wheelchair users.

For fixed height desks, the distance from the floor to the underside of the desk (or rails) should be no less than 700mm, and the desk surface height should be between 760mm and 860mm from the floor; these will accommodate a high proportion of wheelchair users. A minimum knee recess of 500mm in depth under the desk is required to accommodate wheelchair users.

Provision of some height adjustable desks will benefit many wheelchair users, wheelchair users with larger wheelchairs, and many other disabled or non-disabled people. Manually adjustable desks have a lesser range of travel than powered desks, which can be used as sit-stand desks.

Office chairs with removable arm rests are preferred. The provision of some ergonomic chairs in any hot-desking/communal study areas is suggested (although this can also be considered on a case by case basis for individuals and provided at a later date by the department).

Where informal meeting spaces are being considered, e.g. fixed seating in alcoves/pod style workspaces, ensure that wheelchairs can be accommodated by ensuring suitable knee recess space.

A mix of seating should be provided in waiting areas – e.g. fixed and movable, with and without arm rests. Space should be included for wheelchair users within waiting areas. Seating should contrast visually with the surrounding surfaces.

In eating areas, square or rectangular tables with legs at the corners are preferred to circular tables with a central pedestal, which can prevent wheelchair users using the table. Heights and knee recess depths should be as given above for desks. Movable (as opposed to fixed) chairs are preferred.

### 13.4 Internal lighting & electrical sockets

Lighting which is as close as possible in colour to natural daylight will provide the best quality of light for people with visual impairments, and those with sensory/neurological processing difficulties. Glare, reflections and shadows can be disorientating for people with visual impairments and for people with sensory/neurological processing difficulties – this can create particular problems on stairs. An even level of lighting across a room or space is preferred. Natural and artificial lighting should be designed to avoid glare, pools of bright light and strong shadow. When possible, allow users the option of varying local lighting levels using dimmer switches. This is particularly helpful for people who suffer from migraines and similar conditions.

A range of lighting options in lecture theatres, seminar rooms and meeting rooms, laboratories, personal/group work areas, and other workspaces can be beneficial to those with visual impairments and people with sensory/neurological processing difficulties; these should allow local lighting level changes to be made to suit different users.

Install power and data sockets at an accessible level for all users. Consider high contrast sockets in workspaces to assist people with visual impairments.

### 13.5 Acoustics

People with sensory/neurological processing difficulties can find noisy environments overwhelming. Minimising the transmission of sounds is important – carpets, ceilings and floors should be sound dampening where possible.

The mechanical and electrical services fit out can be a source of noise that is unbearable to those with sensory/neurological processing difficulties – e.g. ventilation systems, fans, heaters, radiators buzzing from lights etc. M&E equipment may also give a high level of background noise for people with hearing impairments when they are using hearing support systems, particularly in lecture and seminar spaces.

The M&E design should aim to minimise such noises as much as possible.

### 13.6 Hearing support systems

Hearing support systems can use either induction loop or infra-red technology, or a mixture of both. Hearing support systems can be fixed or portable. There must be appropriate signage to indicate the presence of hearing support systems. Proposed hearing support systems should be discussed with the Accessibility Advisor, and details provided when available.

Lecture theatres should usually be fitted with a fixed induction loop. Larger seminar rooms should normally also include a fixed hearing support system. This could be either an induction loop or a fixed infra-red system.

In smaller seminar and meeting rooms a portable infra-red system or portable loop may be sufficient provision, particularly where several rooms require provision.

Systems must be fully tested and commissioned, and demonstrated to the relevant departmental member of staff before handover, including any AV equipment expected to work with the systems. It is recommended that the project provides a hearing loop tester to the department or building and that the relevant members of staff are shown how to test all of the hearing support equipment. Details of how to test the systems, and a suggested frequency should be included in the O&M manual.

# Appendix 1 – Key contacts



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