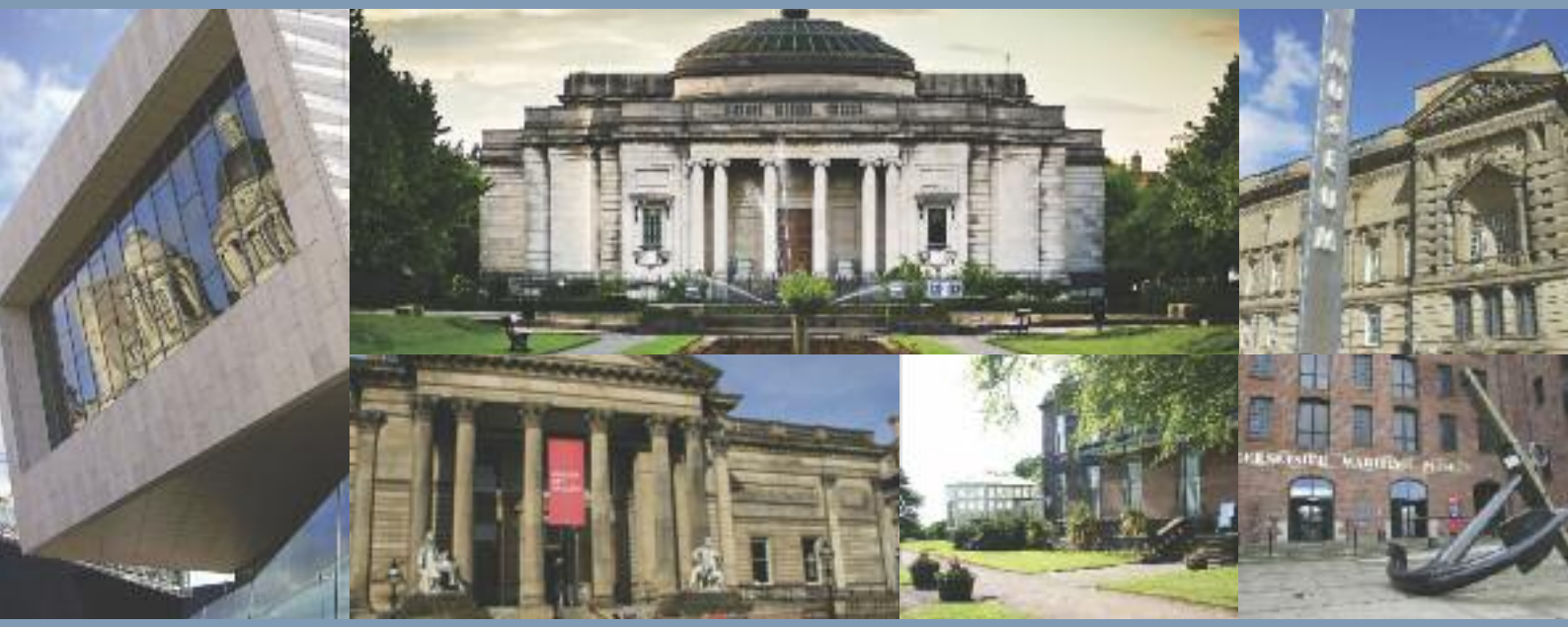

Access Guidelines
May 2014

National Museums Liverpool

Foreword

These Access Standards were first published in 2007 and were reviewed in 2014. They have been considered in light of the Equality Act 2010 and National Museum Liverpool's legal responsibility to remove or minimise the disadvantages some visitors with protected characteristics may experience. This document outlines the steps that we recommend to ensure physical and intellectual access for all visitors.

The document is of particular relevance to staff producing temporary exhibitions, displays, gallery refurbishments, print and the website. Among other areas it offers guidance on creating appropriate circulation and resting areas, providing clear wayfinding and signage, lighting, colour, graphic design, printed information, web content and design, and sound.

The standard will be reviewed annually at the Diversity Working Group, drawing on external best practice advice.

We hope you find the Access Standards useful. If you have any questions or comments, please get in touch with Fiona Philpott, Director of Exhibitions.

May 2014

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Circulation

For all visitors to have access to all exhibits it is essential that they can move around the building and exhibitions freely.

The following provides guidance regarding space requirements. When setting out exhibitions and other areas open to the public, the following rules should be followed.

Where it is not possible to provide access to an area, or where these guidelines cannot be followed, the exhibit / service provided within the area should be also provided in an alternative, accessible format.

Space - movement

Space considerations for people with disabilities are often thought of in terms of wheelchair users, however, the need for ample space when moving around a building is also required for people with mobility problems who may use two sticks, and people with visual impairments who may use a guide dog / person, or a long cane to guide them.

Accessible spaces also make a building comfortable for all people using the building.

When laying out exhibitions use the following guidelines:

- Corridors and space between exhibit areas should be a minimum width of 1200mm, preferably 1800mm where there is a high volume of people.

- Space at the head of stairs or changes in floor level should be a minimum of 1500mm square.

- Turning circles between 1500mm and 1800mm should be provided in areas where there is a need to turn around. 1800mm is necessary for some larger wheelchairs. Where it is necessary to enter an exhibit and move around within a small area, follow the higher standard.

- Queuing lanes should be a minimum width of 800mm and the corner turning space a minimum of 1200mm. Care should be taken with the type of barriers provided for queuing; these should not create an obstacle or hazard. Rope type barriers can present a hazard where they cut across a walking area. Where there is likely to be a long queue it may be necessary for some people to rest, so a sturdy queuing system should be provided with leaning support where necessary. It may also be necessary to provide nearby seating. People who cannot stand for long periods may be allowed to join the queue at the front.

The space required around doors should be a minimum of 1500mm square:

- Minimum wheelchair turning circle - 1500mm
- Preferred wheelchair turning circle - 1800mm
- Wheelchair width - 635 - 700mm
- Wheelchair length - 1070 - 1500mm - add 250mm for person pushing
- Seated viewing height - 1300 - 1385mm

Minimum space width required for different groups of people:

- Two people - 1200mm
- A person using a walking stick - 750mm
- A person using two sticks or crutches - 900mm to 950mm

Changes in level

Where changes in floor level cannot be avoided, both steps and a ramp should be provided. The following rules should be applied:

Steps

- Risers should be between 150mm and 170mm.
- Going should be between 280mm and 425mm.
- Stepped ramps are not appropriate.
- Step edge markings should be provided.
- Handrails should be provided at each side of the steps, at a height of between 900mm and 1000mm and should extend to 300mm past the top and bottom step ending in a return.

Ramps

- Preferably a ramp should have a gradient of no more than 1:20 on circulation routes, and these should be no more than 10m long.

Going of a flight	Maximum Gradient	Maximum Rise
10m	1:20	500mm
5m	1:15	333mm
2m	1:12	166mm

- Ramps of 1:12 and 1:15 should be accompanied by a handrail on each side at 900mm high.
- The floor surface of the ramp should contrast with the surrounding floor surface.
- Where an exhibit is raised, for example for technical reasons, care should be taken that wheelchair users can approach it (see display unit design).
- Wherever possible displays should not be provided on ramps.

Resting

Some visitors will tire easily and need to rest. Some people may also need to move away from the crowd for a while.

- Suitable seating should be provided, both close to the circulation routes and in quiet areas.
- Generally seating should be provided every 50m. However, in some instances this can be as far as 100m apart.
- Seating should accommodate a range of heights to suit different needs. 400mm and 500mm is desirable.
- Armrests should be provided on some seats in each group of seats.
- Seats should contrast with their background.
- Areas where audio visual presentations last for several minutes should provide some seating.
- An alternative of resting perches can also be provided.
- Where seating areas are provided additional space allowing wheelchair users to be with their companions should also be provided.
- Where a seat is provided to use a computer terminal, it should be possible to easily move this away in order for a wheelchair user to move up to the screen.
- Seating should have rounded edges and wherever possible incorporate a back support.

Seating – Furniture

Seats should be provided with arm rests, and ideally be between 450mm and 475mm high.

- All furniture should have rounded edges rather than sharp.
- Furniture colour should contrast with its surroundings.
- Furniture should be placed away from desire lines.
- Preferably there will be some seating away from the main route where a person can 'take time out'.

Orientation and wayfinding

Many visitors require additional orientation information for the following reasons:

- Need for limited travel distances
- Lack of visual perception
- Lack of directional understanding
- Need for clarity of position

The introduction of elements to the building which help orientation will enhance the enjoyment of the visitor. These can be provided via the general circulation strategies and special access routes throughout the building. By defining the evacuation routes visitors can move independently, reducing the burden on management.

The ability to read the building by its structure, colour definition, and with the help of added components such as signage and maps, helps orientation for all visitors.

The following elements should be included in the orientation strategy:

Readability of routes

In most buildings the structural floor layout is similar from floor to floor. However, the internal layout can be quite different, especially in the changing nature of a venue and its exhibits. It is essential, within these different use areas, that clarity of the position of the circulation routes and fire exits is maintained.

Orientation is helped by colour definition, and by ensuring tributary corridors lead directly back to the circulation or escape route. It should be possible to return to the main route easily, with break out exits provided in exhibitions where necessary. This will allow people to leave or return to the exhibition as they need.

Guiding floor markings are an advantage. In dark areas, lighting placed at low-level can be used as a method of illuminating the walkway and can assist visitor's orientation.

Options for highlighted walkways

Obstructions along the route should be contrasted with their background. The following are options for improving definition of circulation routes.

- Clear route markings on the floor can give suitable orientation information.
- Display elements can be positioned within the line of columns or other physical building features to leave unobstructed routes.
- Columns which obstruct the walking route should be clearly identified. This can be achieved using a contrasting band around the column at eye level, or a contrasting floor covering around the base. Similarly, clearly contrasting exhibition structures could be displayed around the column.

Internal doors

To ensure that people with disabilities are able to move freely about the building it is necessary to ensure that doors do not become an obstruction. The following gives the standards that should be applied to existing internal doors where they are to be replaced to provide better internal access provision throughout the building.

The note takes into account the standards set out in the Approved Document M and the British Standard 8300.

This note should be read in conjunction with the Access Consultancy report provided for the premises.

Doors leading into rooms

- The single leaf of a door should be a minimum of 750mm wide in an existing building.
- Double leaf doors - at least one leaf should have a clear opening of 750mm. As it may be very difficult for a person with a disability to open two doors they should be able to pass through one door easily.
- There should be a 300mm space available between the leading edge of the door and any adjacent wall.
- D shaped lever handles are most suitable as they are easy to grasp. The colour tone of the door handle should contrast with that of the door.
- An additional long pulling handle should be provided on doors where there is no closing mechanism to allow wheelchair users to close it behind them.
- Where vision panels are to be provided consideration should be given to ensure that they are accessible. The vision panel should sit between 500mm and 1500mm from the floor. A strip can be provided between 800mm and 1150mm in order to mount the handle and locking system.
- A kick plate provided at the bottom of the door will allow wheelchair users to bang into the door to open it without damaging the door.
- The opening weight of the door should be no more than 20 Newtons.
- Numbering on doors should be embossed, contrasting with the door colour and tone, and following a logical sequence through the building.
- Either the door or the surround should contrast with the adjacent wall colour.

Corridor doors

- Doors on corridors should have a vision panel with a zone of visibility between at least 500mm and 1500mm from the floor.
- Double leaf doors - there should be at least one door which has a single opening width of 750mm.
- Door handles should be at a height of 900mm and contrasting with the door.
- Door closers should be at a maximum strength of 20 Newtons measured at the door handle.
- A kick plate provided at the bottom of the door will allow wheelchair users to bang into the door to open it without damaging the door.
- Wherever possible, doors on corridors should be held open by a magnetic door opener (if fire doors they must be linked to the fire alarm system) or be on an automatic opening device.
- The doors should contrast with their surroundings and preferably give supplementary orientation information.
- Any fire smoke seals or intumescent strips should not hinder the opening of the door.
- Where an evacuation refuge is provided outside the staircase then a vision panel with a zone of visibility between 500mm and 1500mm from the floor should be provided in the door, to allow the person waiting in the refuge to see when the stair is clear for carry down.

Signage

To ensure people can move around the site and buildings easily, it is necessary to provide appropriate signage. Clear signage and information can be a major assistant in reducing unnecessary travel, and can make a big difference in visitors' ability to enjoy an event, and in some cases, use the services provided.

The system of signage should be consistent, thus providing a simple method for people to find their way. People with visual impairments and people with language and learning difficulties, require signs to be designed in specific ways. However, in addressing their needs the system becomes more accessible to everyone.

The basic principles are:

- Simple wording that is short and legible.
- Location of signs to be established as a part of the planning process for the built environment.
- A standard format should be used throughout, using specific typefaces and other graphic devices.
- Upper and lower case text is to be used, as words are recognised by shape not by individual letters.
- Contrasting tones should be used to maximise visibility.

Positioning of signs

- People with visual impairments may have difficulty in locating signs so they should be placed in a logical position and be easily identifiable.
- Care should be taken that there are no signage gaps along the route.
- Signs should contrast visually with their background.
- Their position needs to be considered as a part of the overall context of the site or building, especially in relation to illumination, which must be provided at all times.
- They should not be positioned against a background of low-level sunlight or artificial light.
- Signs should be wall mounted at, or just below, eye level wherever possible (1400 - 1700mm above finished floor level).
- Suspended signs should give a minimum head clearance of 2300mm.
- Where signs are provided at a high level, the size and clarity of lettering should take account of this.
- Where possible signs should be hung from other objects such as lighting tracks, columns, walls etc, rather than be free-standing, so as to reduce clutter.

Legibility

- Lettering should be in upper and lower case (sentence case), as this is generally easier to read.
- Maximum contrast is important. The colour of the lettering should contrast with the background: black on white or yellow provides the best contrast.
- To achieve sufficient colour differentiation, the RNIB guide to the use of contrast and colour should be used.
- The signboard itself should contrast with the background and the lettering contrast with the signboard. If necessary, a contrasting border, 10% of the width of the sign, should be provided.
- To minimise glare, avoid reflective glass or shiny surfaces.
- Use as few words as possible.
- Pictograms and colour can be used to aid understanding. For instance a particular route could be signed in particular colours.
- Do not mix essential information, eg fire exits, and general information, eg gallery names.
- When the viewing distance is 3m or more, lettering and numbers should be at least 100mm high and should be a bold, simple typeface, such as Soho (National Museum Liverpool's corporate font) or Arial.
- Narrowed or condensed typefaces should be avoided.
- If signs are within reach, raised text can be useful to people with visual impairments.
- The design and layout should be simple - avoid mixing pictures and words in a random fashion.

Directional signs

- Directional signs that make use of simple arrows and colours can be helpful to some visitors.
- Finger posts / freestanding signs can be appropriate, however the number used should be kept to a minimum to reduce clutter.

Door signs

Many people with visual impairments have sufficient residual vision to read high visibility door signs that have been carefully designed and positioned. Others can benefit from tactile signs, provided that they have been properly designed and positioned. If purchasing new signage the following considerations should be made.

In smaller buildings it may be sufficient to provide high visibility signage along side provision of good orientation information.

Positioning

Door signs should be placed on the wall adjacent to the latch side of the door.
Signs on doors are often rendered useless when doors are held open. The signs should be located so that the bottom edge is no lower than 1400mm and the top edge is no higher than 1700mm.

Visibility

- The sign should contrast in tone with the wall to aid visibility.
- A contrasting border will enable the same sign style to be located on both dark and light walls. For a typical sign, eg 300mm by 80mm, a 15mm border is recommended. The border can be increased proportionally for larger signs.
- The text should contrast in tone with the sign.
- The sign board should have a matt finish or have a gloss factor no greater than 15%.
- Characters should be in a clear and uncomplicated font, eg Soho or Arial.
- Upper and lower case should be used, eg 'Committee Room' and not 'COMMITTEE ROOM'.
- Characters should be 15 - 50mm capital height.
- Words and pictograms should be used consistently throughout.

Tactile signs

Tactile signs have limited use. However, in some instances they are helpful, eg in teaching areas where there is a choice of classrooms, or on doors to toilets.

General circulation signs should not be tactile, as it is difficult to know where they are, or to be able to touch them.

Tactile, embossed signs benefit people with no or very little sight who cannot distinguish individual characters. The sign needs to be in an obvious position where it can be easily touched.

- The sign characters should be tactile embossed and not engraved.
- The thickness of embossing should be 1 - 1.5mm.
- The stroke width should be such that both sides of an embossed character can be felt with the fingertips at once. Inter character spacing and inter word spacing should be 25% greater than standard.
- The characters should not have sharp edges. At the same time they must be clearly defined, possibly by being only slightly rounded or by being chamfered/bevelled.
- The sign and any border should not have any sharp edges.
- Signs should be visually clear and also incorporate Braille.

Braille

- Braille can be used if there is a need to target people with visual impairments.
- English Standard Braille should be used.
- The dots should be dome shaped.
- Grade I Braille should be used for single words and short descriptions.
- A Braille locater notch on the sign edge is recommended.
- All text should be ranged left and aligned with the text above.

Manifestations on glass doors

Each glass door should have two horizontal rows of graphic manifestations, at approximately 900mm and 1500mm from the floor. Automatic doors should be clearly marked, with a sign on each moving pane, at the higher level.

Digital signs

- Digital signs should be back-lit and liquid crystal rather than dot matrix.
- Solid colour is required.
- When choosing colours for lettering the RNIB guide to the use of contrast and colour should be used.
- Scrolling signs are preferable where information is predictable. This way lettering can be large and clear.
- Where scrolling text is used, information should be left on screen long enough to be read by people with visual impairment or those with learning difficulties.

Temporary signs

- Where possible use a signage template, available on the intranet.
- A copy of this policy should be kept at the venues for reference by staff making emergency / temporary signs not covered by a template.
- Use matt laminate rather than gloss when producing temporary signs or notices.

Maps and diagrams

- These should be made as simple as possible, giving a clear indication of where visitors are located.
- Tactile maps should be placed in quiet areas and copies made available for study at home.
- Colour coding can be used.
- Do not use arrows to label features, as they can be mistaken for parts of the map or diagram.
- Paper signs should not be laminated with a glossy finish. Where the decision to laminate is taken, only matt surfaces should be used.
- It is not essential that all signs are black and white, or yellow and black. However, strong contrast between text and background colours is essential.

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Lighting

Circulation

- Lighting should provide guidance and reassurance, as well as aiding recognition of building features. This is of particular relevance where visitors are first encountering unfamiliar environments. Receptions, the main concourse and waiting areas are particularly important.
- People with visual impairments generally find that their eyes take longer to adapt to changes in illumination levels. This means that where lighting levels between exhibits change dramatically an area of mid lighting is required, where a person can wait without obstructing the flow of visitors.
- Large variations in brightness from one area to another should be avoided with any changes arranged gradually.
- Reception lighting should illuminate the reception counter and should be carefully designed so that any glare from the counter top is reduced, especially if light coloured or reflective surfaces are proposed.
- Reception lighting should avoid back lighting and areas of deep shade. This will help where people need to lip read.
- Lighting in unusual or unexpected places can disorientate and create shadows and misleading visual effects, and therefore should be avoided.
- Shadows on the floor can often appear like holes and should be avoided
- Contrasting colours, especially tones, help many people with visual impairments to move around and locate or avoid objects, eg a dark door set into a light wall.
- Lighting systems should improve colour rendering and should not result in glare that reduces contrast.
- Colours in a room, or area illuminated with lamps of good colour rendering, tend to look brighter and more saturated than when the spectrum of the lighting source is poor.
- Bright lighting and white walls can cause problems for some people, therefore bright, white walls should be avoided.
- Downlighting should not be used as the sole form of lighting as it can create confusing pools of light and dark. A combination of indirect forms of lighting will enable environments to be more easily interpreted.
- Where downlights are considered on or near staircases, suitable diffusers should be used to prevent glare.
- Where possible, lighting on corridors should be positioned immediately outside rooms where high internal lighting levels are provided.
- The illumination level of lobbies or anterooms should be an average of the illumination levels of rooms served.
- In corridors, linear fluorescent lamps should follow the line of the corridor. At intersections, a different, distinct arrangement is a helpful indicator of a decision point and can also provide greater illumination in order that signs and other way finding indicators can be interpreted.
- Since the ceiling is generally the least cluttered space in an area, people with visual impairments can often determine scale and proportion by viewing the intersection between ceiling and walls. To assist with this, use lighting that illuminates the ceiling by indirect methods and adds contrast to the walls.

Exhibition lighting

- Care should be taken when designing lighting that it does not cause glare at both a standing and seated height. Glare can inhibit perception of the exhibit and cause discomfort, resulting in reduced attentiveness. It can also mean that an exhibit cannot be seen, especially where it is behind glass.
- Lighting and internal finishes, especially floor and wall finishes, should be considered as one, eg brightly lit, highly reflective surfaces can create confusing images.
- Where it is necessary to provide low lighting conditions to protect exhibits, the use of floor lighting as an orientation aid is useful.
- Limit glare on all printed surfaces. Print on matt, non-glare surfaces.
- Lighting that can be switched on to provide additional light for a short time can also be useful for people with poor vision. However, it should stay on long enough to allow their eyes to adapt to the change in lighting conditions. It should also be possible to keep the light on for longer periods if necessary.
- Lighting requirements vary according to the time of day, the task for which it is required and the relative brightness of the surfaces in the space. The ability to adjust lighting to cover these differences is important.
- Lighting can play a part in orientation and display of exhibits by throwing light onto a specific area.
- Where lip reading or sign language is likely, consideration should be given to the lighting of the vertical plane to enhance facial features and contrast.
- To reduce flickering in areas illuminated using fluorescent lighting, high frequency control gear operating in the range of 20-30KHz should be utilised.
- To create the effect of natural daylight, lamps of a CIE general colour-rendering index (Ra) in excess of 90 should be selected for accurate colour matching or discrimination.
- The general colour-rendering index (Ra) of compact lamps, in particular, should be examined.

Lighting design principles

- General principles for good internal lighting include: light coloured walls, floor and ceiling; vertical windows rather than roof lights; and light fittings which have a large downward spread, positioned and designed to avoid glare.
- Use lighting to clearly indicate the features of a room rather than simply increasing overall lighting levels, thus improving the modelling of a space.
- A combination of up lighters and directed down light can be used to give clear guidance to the user.
- Good lighting is achieved when the direct light in the space is not excessive in comparison to the reflected light in a space. All surfaces in the space will appear adequately lit if the reflected light level in a space is more than half of the direct light level on the horizontal working plane, ie 850mm above finished floor level.

The following levels are recommended for lighting surfaces:

Circulation area	Approximate light levels
Corridor	75-100 lux
Lifts	75-100 lux (on control panel)
Signage	50 lux above surrounding
Ramps	100 lux from a combination of sources
Staircases	100 lux (tread level) normal use - 10 lux min, emergency use
Work surfaces	300-400 lux plus task lighting which is user controlled

Task lighting

There are four important aspects of task lighting:

1. Task illuminance - its level and distribution.
2. Contrast in illumination level within the task.
3. Contrast in illumination level between the task and its surroundings.
4. Absence of discomfort glare.

- Where particular areas are to be used by many people with visual impairments, the level of illumination should be adjustable to suit different eye conditions. Someone with light sensitive eyes will require dim lighting whilst someone else may need much higher levels. Glare can be a result of incorrectly positioned lights and bare lamps.
- Where task lighting is provided as an integral part of desks, exhibits or displays, shields should be included to provide light cut-off at the edge of the desk, thereby avoiding glare and stray light to the floor that could disorientate by providing shadow areas on the floor.
- Task lighting should be considered around each area of activity where people might otherwise be in their own shadow.
- Localised task lighting should take the form of low voltage or fluorescent lamps offering minimal heat build up, allowing the user to work in close proximity to the source.
- Task lighting may be required even where the immediate surroundings are bright, eg near a window, where task visibility is reduced due to glare caused by bright areas in the field of view.

Lighting and photosensitive epilepsy

A number of people suffer from light sensitive epilepsy. Generally each person is different, however the following guidance will help when designing exhibits that contain light flickering images.

Where the following guidelines cannot be achieved, the exhibit should contain clear signage indicating that it contains flickering light.

- Light flickering or flashing generally causes problems for people with light sensitive epilepsy when it is produced at a rate of 10 to 15 flickers per second. Where the flashing light is rhythmical, and has periods when the flicker is on and off, this too has been found to cause problems.
- The longer the period that a person is exposed to flickering, the greater the chance of an induced seizure.
- In cine projection, it has been found that the sensitivity levels begin at the range of 16 to 24 flashes per second.
- The rate of flashing in a disco environment is considered to become a problem at 5 flashes per second.
- Problems have been noted with televisions with 50 Hz flickers. The smaller the screen the better, however a compromise must be made for the legibility of the screen. Flash rates of 25 and 50 flashes per second create problems, whereas 100 Hz high fidelity TV sets, or plasma and LCD screens do not.
- The level of ambient lighting in a TV / Video game viewing area can actually increase the risk of a seizure and should therefore be below illumination of 300 to 400 lux, and above levels of 20 lux.

Colour and contrast

The use of colour within venues and exhibition areas will have a big impact on interest and content. It is not always understood that colour can be a major aid to helping visually impaired people find their way around their environment.

Good colour contrast gives the environment form. More in depth advice can be found in RNIB's books Building Sight and Contrast and Colour.

The contrast required so that visually impaired people can benefit is in relation to brightness, rather than using a different colour.

The degree of contrast between elements should be a minimum of 30° luminance. It should be noted that where a colour is different but at the same luminance this may appear the same to someone with impaired sight. For instance:

- Red and blue in the same shade can look the same.
- Red in light and dark shades can be distinguished as different.

In the book Contrast and Colour there are charts which can be used alongside the Dulux colour palette. These can be used to judge whether or not the colours are in sufficient contrast. Sometimes all that is required is a subtle change in two shades and a large improvement is made for people with visual impairment.

Where the light is reduced in an area, say to preserve an object, then a greater contrast in shades is required to give the same effect.

Where to use contrasting colour

By defining the shape of an area with colour, a person with visual impairments is more able to use the space and negotiate the directions to travel. The following is a list of ideas that can be helpful and can be used throughout an exhibition.

Contrast the:

- walls with the floor
- skirting with the floor and walls
- doors and the walls
- exhibits with the background
- push buttons and the screen
- light switches with the wall
- information panels and their background
- handrails with the wall
- furniture and the carpet
- cutlery with the table, etc

Surface finish

Surface finishes can also make a difference to visually impaired people, who prefer matt or mid sheen finishes to shiny, reflective surfaces.

Busy surfaces

The use of excessive numbers of colours can cause problems for some people. Having busy areas of colour is not prohibited, however, it is of benefit to many people if they are defined by a border of some kind. This does not have to be a traditional border and can be achieved by contrasting with the colour of the adjacent walls, ceiling and floor. This is often a problem where textual information is presented over a picture, making it difficult to read. This is covered more fully in the section on signage.

The messages of colour

Colour is used in the environment to provide messages in the following ways:

- To draw people into an entrance
- To define walkways
- To warn of an obstruction
- To define a place of interest
- To separate spaces

The hazards of colour

Colour can be used in a way that does not help visually impaired people.
The following are a few examples of this:

- Dark areas on the floor can appear like holes.
- Obstacles finished in the same colour as their background will not be seen.
- Step edges not marked are a hazard.
- Doors which are the same colour as the walls cannot be seen.

Graphic design for exhibitions

Tiered information

When writing the brief for an exhibition it is recommended that there should be a maximum of four levels of textual information.

The first two levels of those will be 'main section introductions' and 'sub-section texts' and it is recommended that these are no longer than 150 words split broadly over 3 paragraphs. This text should be set at a minimum size of 44 on 48pt.

The next, or tertiary level, will be 'extended label text' relating to a group of objects, and this should have a maximum number of about 100 words, set at a minimum size of 36 on 40pt.

The final level will be object labels and these should aim to be a maximum of about 50 words in length, set at a minimum size of 18 on 22pt.

The following rules should be followed when producing text panels:

- Exhibition text should have a line length between 50 and 65 characters per line. Avoid splitting words at the end of lines.
- Body text should be presented in upper and lower case (never all capitals) and should generally be aligned to the left.
- Using a question and answer format and glossary of terms can be beneficial for visitors with learning difficulties.
- The label should contrast with its background and preferably be framed
- Text should contrast with the background of the label and can be either light on dark, or dark on light.
- Do not place text over a picture or busy, patterned background.
- Text and key images should be displayed in a viewing band between 700mm and 1900mm from the floor.

Language

- Use everyday language, keeping key information in plain English. Essential information in exhibition text must be accessible to all people, some of whom may have difficulty reading English. The maximum reading age required for labels and graphic panels is 12 years, although this should be reviewed in mind of specific target audiences.
- The Marketing and Communications department has prepared writing style guidelines and terminology documents, which are available on the intranet.
- Avoid colloquialisms, jargon or technical language, unless such language is explained within the text or in supplementary handouts.
- Using a simple hierarchy of title, with the key information in the first paragraph, followed by more detailed information, allows visitors to gather the gist of a story without having to read all of the text.

- Provide illustrations that complement the text. This can aid comprehension for those with reading difficulties.
- Written information should be available in alternative formats for people who cannot read print, ie audio guides or audio description points.

Typeface

- Use typefaces that are as distinct as possible. They should have a clear extension for lower case b, d, g, h, j, k, l, p, q, t and y and distinguishable numbers 3, 5, 6, 8, 9 and 0.
- National Museums Liverpool's corporate type face is Soho, although Arial may also be used if necessary.
- Do not over-capitalise - limit to titles and headings, and avoid in continuous text.
- Medium or bold type is recommended to provide adequate contrast with the background. However, it should not be so bold that the centres of the letters become indistinct.
- Most information should be presented within an optimum viewing band between 700mm and 1900mm from the floor. If text is outside this viewing band size and spacing must increase to compensate.
- Increasing leading and tracking can help with clarity.
- Stick to even word spacing – avoid forced justification.
- Provide navigational aids - rules between unrelated sections and larger spacing between paragraphs helps make the layout easier to follow.

Type size

- The minimum point size that should be used for wall labels is 18pt. This is in instances where a visitor can get right up to the label to read it.
- 24pt should be used when a label has to be read from a distance.
- Where the viewing distance is 3m or more, cap heights should be between 100mm and 170mm.
- Labels should always be created or positioned to contrast with their background.

Printed information

Leaflets, publications and gallery guides

Provision of accessible leaflets and booklets should be made as a matter of course. However, it may not be feasible to print all leaflets and publications in a completely accessible format, so that information will often be made available via the national Museums Liverpool website as well.

While many of the issues already mentioned relating to typeface, contrast, language legibility, line length and colour should be applied to all printed materials, it may be considered reasonable to produce printed information using a minimum type size of 10 on 12pt, and provide supplementary 'large print' information using the following guidelines.

- Large print leaflets should be in upper and lower case, and the minimum font size should be 14pt.
- Large print leaflets should always be as easily available as other leaflets.
- Soho or Arial fonts should always be used.
- Paper should be matt and not brilliant white. Dark coloured paper should not be used.

Information on special facilities

- Information about all services provided for people with disabilities should be provided in promotional leaflets and gallery guides
- General information sheets should be available in large print
- Access provision and information for each venue is included on each venue's webpage

Posters, banners and adverts

Wherever possible all marketing materials should be designed in an accessible format, and again the principles around typefaces, contrast, legibility and colour should always be applied to the design of posters, banners and all other forms of advertising material.

Particular attention must be focused on the issues of using text with a 'lead' campaign image, and in the design and use of logos.

- Text must always be strong enough to be legible and read easily even if placed over an image or textured background.
- Care must be taken not to put type over a visually busy or disruptive image (or portion of it).
- If text cannot be easily read over a picture then a border or plain background must be used to make the information accessible.
- Logos and exhibition titles must be clear and legible in their design and application.
- Careful consideration must be given to the use of contrast in colour and background in order to retain clarity.

Forms

Forms should be laid out in a simple format following the above guidelines and should also be made available in an electronic format via the intranet.

The website

We strive to make the website as accessible as possible to as many visitors as possible. We follow best practice and follow the WCAG2 guidelines set by the W3C.

What we do to make the website accessible:

- Use appropriate alt tags on images.
- Ensure colour contrast is sufficient.
- Caption or provide transcripts for videos and audio clips wherever possible
- Provide alternative accessible versions of interactive content that relies on JavaScript or Flash.
- Test the validity of XHTML and CSS as we create new pages and styles.
- Ensure that the text on pages can be enlarged using browser controls.
- Ensure that JavaScript based interactions are coded to be accessible.

Information about access to our venues is provided on a dedicated access page within the visitor section of each venue's website.

More information is available at:
liverpoolmuseums.org.uk/about/accessibility.aspx

Sound strategy

Key principles

A good acoustic environment is essential for people with hearing impairments to be able to communicate and move around our buildings. Facilities should be provided to ensure visitors can make full use of the hearing that they have in our galleries, shops and cafés.

- Options that could be considered are induction loops, infrared systems, subtitles and sound cushioning. It is essential that the correct type of auxiliary aid be provided with each auditory facility.
- The standard symbol should be provide wherever a loop or infrared system is present.
- Where public telephones are provided these should include an inductive coupler and volume control.
- Care should be taken to ensure that artificial lighting and other electronic devices are compatible with the loop systems.

Information desks

People with hearing impairments need to be able to hear any instructions and an induction loop should be provided at all information desks. Care should be taken that it is installed in such a way that there is no magnetic field close to it, that will interfere with its transmission (eg colour monitors). In some instances, staff training can help. Provision of a pad and pen at counters is also appropriate.

Interactive displays I Video I TV systems

It is important that people with hearing impairments and deaf people are able to use interactive displays. When these have a speech/sound effect, then either an induction loop, subtitles or BSL should be incorporated. Make this requirement a part of the specification when these are purchased.

PA systems

PA systems should be linked with induction loop systems, so general information can be given to the hearing aid user. Ideally, this should also be backed up with digital signs and video monitor information.

Meeting - Function rooms

All meeting and function rooms should be provided with an induction loop or infrared system. The type of activity in the room and the desired flexibility of the space will have a significant effect on the type of and specification of the system.

Portable induction loop pads should be provided within smaller meeting rooms. The pros and cons between infrared systems, induction loops and radio are as follows:

Infrared

Sound is converted into infrared light signals and beamed at the audience from radiator transmitters.

- Good quality sound.
- Not subject to spill over.
- Requires special head phones.
- Less effective if user is moving away from infrared light beams.
- Infrared systems can be used by people who do not normally use a hearing aid.
- Infrared can be used for translation of different languages.
- Issue of retrieval and maintenance of receivers.

Induction loop

This is an insulated cable, laid around the perimeter of a space and driven by a microphone, PA system or TV.

- Subject to interference from nearby magnetic currents.
- Minimal user input.
- Sound can be received by hearing aid users in adjacent rooms.

Radio

Sound is transmitted on a set frequency via a radio transmitter to a special receiver worn by the user.

- Good quality sound.
- Not susceptible to the same magnetic interference as induction loop or infrared.
- User can move around within a space and still receive good messages.
- Can be used by different users, accessing different channels, within the same space.
- Expensive and subject to interference from other radio signals and power cables.
- Issue of retrieval and maintenance of receivers.
- User has to wear equipment.

To choose which system to use, it is important to decide upon the use of the theatre or meeting room, and consider the following questions:

- Will there be interference from magnetic currents?
- How might these be suppressed?
- Will overspill affect other auditory uses of the building?
- How will headsets be given out and collected?
- How much flexibility is required within the use of the room?
- Is there a need for privacy?

Inclusive exhibits

It is desirable that exhibitions are accessible to all people, however, in some instances providing access for all people may reduce the effectiveness of the exhibit. It is important that, where this happens, there are alternative, equivalent exhibits for people to enjoy.

Design principles

- It is reasonable for people with hearing and visual impairments to expect consistency in the delivery of presentations that are suited to their needs across National Museums Liverpool.
- All presentations using sound must have induction loops installed locally for the benefit of hearing aid users, and this facility must clearly marked by use of the appropriate signage. The only exception will be where technical issues render the system inefficient.
- Oral histories are popular with all visitors and are well suited to the needs of individuals with hearing, visual, physical and learning disabilities.
- Consistency of approach in how National Museums Liverpool offers this type of presentation will reassure visitors.
- The Vista Group Soundstik and Gorilla handsets are currently used by National Museums Liverpool.
- Audio descriptions of gallery layout, themes and key objects, can also be made available through handsets.
- On screen subtitles will provide access to film and video presentations for visitors with hearing loss.
- Subtitling must not be seen as a process that summarises the spoken word. It is provided to enable people with hearing impairments to gain as much enjoyment as the hearing visitor. Therefore, it is essential to use an experienced professional for this service as the interpretation and speed of text on screen requires great expertise.
- National Museums Liverpool's audio visual team will co-ordinate subtitling as part of the production process.
- Clearly printed transcripts of all soundtracks should be made available.
- All audio-visual and interactive installations must have buttons or controls that are simple and easy to use for visitors with problems such as arthritis. They must also be displayed well within the reach of wheelchair users and small children.
- Instructions should be simple, using the minimum amount of text. The use of pictures and or audio should be considered to aid visitors.
- Computer interactives should make use of tracker balls, or touch screens with large sensitive areas, rather than a mouse.
- Front-of-house and other staff likely to come in to contact with hearing impaired visitors could be offered training in the Sympathetic Hearing Scheme, use of induction loops as well as British Sign Language.

- The height of audio systems should be consistent, for use by people in a standing or seated position.

Audio system	Controls	Sound device
Standing height	1300mm	1500mm - 1625mm
Seated height	1200mm	1065mm - 1170mm

See also reach tables *taken from BS8300*

In order to provide options for all visitors to enjoy exhibitions care should be taken to include the following methods of displaying and providing information.

Tactile exhibits

There should be a range of exhibits, including some tactile. Where objects are delicate and may be damaged by constant touching, options such as using replicas, or special touch sessions may be used.

Use of smell

Smell should be used wherever possible, to give an added dimension to the topic area. It can be used to supplement the information, or as the main method of provision.

Ambient sound

Background sounds can be used as a method of conveying the visual display and atmosphere.

Use of temperature

Where possible changes in temperature can be used to add expression to an exhibit.

Display units

- Showcases should be low enough for small children and wheelchair users to be able to easily view their contents. A maximum case base height of 700mm from the floor is recommended.
- Wherever possible the display should reach the floor and not protrude over into the walking area (so as not to be a hazard).
- If it is necessary to move up close to a display to operate it, then a knee space of a minimum of 750mm should be provided.
- Consideration should be made to reach distance wherever there is a requirement to interact with an exhibit.

The following is a table of reach distances that should be used when designing exhibitions.

Person	Access	Reach angle	Height comfortable (mm)	Height extended (mm)	Depth comfortable (mm)	Depth extended (mm)
Wheelchair user	Front -24° Side	+70° horizontal 650 +70° horizontal -24°	1000 (750) 650 1060 (750) 665	1150 (750) 120 1170 (750) 630	90 180 200 100 220 165	120 230 135 310 230
With ambulant disabilities	Front	+70° horizontal -24°	1500 (850) 750	1625 (850) 700	200 280 180	250 400 310

Taken from *8S8300*

- Pictures and graphic panels should be displayed on a centre line, 1500mm from the floor.
- Where an exhibit is displayed at an angle, care should be taken to ensure that objects and labels are still visible to wheelchair users, and that the lighting does not cast shadows or reflections over the information.
- Where an exhibition element needs to be raised for technical reasons, it is important that it remains accessible to all people. The principles set out for changes in level in the buildings should be used.
- Where an exhibit on open display requires protection, a barrier 900 to 1100mm high from floor level should be installed around it.

Drawer units

Ideally, a drawer unit should not protrude into the walking route more than 100mm. Where it does, the bottom should be no more than 100mm from floor level.

- A contrasting floor surface should be placed around the cabinet to enhance its presence.
- Sharp edges should be avoided.
- Drawers should have a positive action and be easy to operate.
- It should be possible open the drawers from the front and the side.
- The force to open the drawer should be no more than 20 Newtons.
- The handle should contrast in tone with the front of the drawer.
- The minimum height for a drawer should be 560mm to the lowest handle.
- Non-reflective glass should be use.
- Lighting should not be placed directly above the drawers as this will cause glare.
- Labelling within the drawers should be a minimum of 18pt and sans serif.
- Line length should be no more than 50-65 characters.
- Matt paper should be used, with strong contrast between lettering and background.
- Avoid fitting text around illustrations.
- Text can be difficult to read when displayed on the flat, so labels should be slightly angled towards the reader.
- Label numbering should sit next to the object it refers to. Preferably place a small picture of the object next to the label concerned.

Additional reference material

BS8300 - Approved document M
BS8300 - Building sight
BS8300 Colour and Contrast
BS8300 Sign Design Guide
NHS Estates sign design