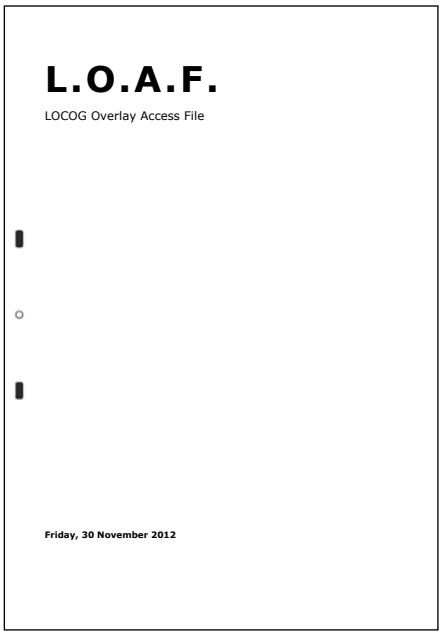
Learning legacy

Lessons learned from planning and staging the London 2012 Games

LOCOG Overlay Access File (LOAF)

Champion Products are examples of tools and formats used by the London Organising Committee of the Olympic and Paralympic Games (LOCOG) in executing its programme.

LOCOG is publishing these as part of its Learning Legacy in anticipation that they may be of use to future projects seeking best practice examples of tools and templates that have been used successfully on a large, complex programme.



Purpose of the document, description and how it was used

The LOCOG Overlay Access File (LOAF) was developed to provide a framework to the engineering, design and procurement teams at LOCOG on access and inclusion standards for temporary facilities and infrastructure added to Games venues (known as 'overlay').

The document drew heavily from the Olympic Delivery Authority's Inclusive Design Standard, Part M of the Building Regulations (Access to and use of buildings) and BS 8300:2009 (Design of buildings and their approaches to meet the needs of disabled people).

The LOAF was an internal facing and 'live' document which was designed to be continually added to and amended as venues were designed and planned. It should be noted that the ultimate design solution for each venue depended heavily on the accommodation/equipment that the market could offer. Many items came from existing stock and it was necessary to work with suppliers to determine the best and most appropriate solution. In this sense the standards in the document acted as a frame of reference. Due to the remit of the overlay design teams, the document's focus was also intentionally oriented towards physical access issues.

Benefit to future organisations/ projects

The document complements existing building regulations, town planning or licensing requirements and provides a useful starting point for any future organisation/project wishing to pursue a high standard of inclusive design in a temporary environment. However, organisations/projects should retain professionally qualified access advisors to account for the fact that access standards are constantly changing and evolving.

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L.O.A.F.

LOCOG Overlay Access File

Wednesday, 19 December 2012

Introduction

In Singapore, London 2012 promised to deliver the most inclusive Games ever. For this purpose, we have developed the LOCOG Overlay Access File (LOAF), a common set of access and inclusion standards, to be applied to temporary overlay across all our venues. The LOAF was officially adopted as LOCOG policy in 2009.

The Challenge

London 2012 will utilise a wide variety of sporting venues, each presenting different challenges in terms of overlay. Our task is to ensure consistent access provision and a great Games experience, for each client group, across all venues.

Permanent purpose built venues (e.g. Olympic Park, Aquatics Centre)
Venues delivered by the ODA should meet the ODA's Inclusive Design Standards. However, the expectations of our client groups will be extremely high at these venues and in any event, LOCOG will still be designing temporary overlay.

Temporary venues (e.g. Hadleigh Farm, Greenwich Park)
At these venues, we have the benefit of being able to design the venue and the associated overlay. Our challenge here is to deliver a high quality accessible experience, through the provision of overlay and operational solutions to serve client groups.

Established venues (e.g. Wimbledon, Eton Dorney, Football Stadia)
These venues already have established facilities and systems which provide accessibility. We need to ensure their established provision meets our needs and where necessary provide overlay and operational solutions to serve client groups.

Established locations with changed use (e.g. Lords, ExCeL)
These venues could potentially present the biggest challenges. The task of providing a field of play, athlete facilities, Games Family services and a fabulous spectator experience in a highly accessible way within a venue not used to hosting that particular sport is challenging.

Although it is understood that all LOCOG overlay is temporary, with much of this provision procured (e.g. lifts, accessible toilets, seating etc) it is vital that all colleagues understand the level of provision required to meet our bid commitments and to deliver an accessible experience for all client groups.

Where possible, LOCOG will work with existing venue owners to provide access improvements which deliver permanent solutions in legacy.

Objective

The LOAF aims to give practical, clear direction enabling designers and Project Managers to deliver high quality accessible venues for all client groups in all front and back of house areas. It should be recognised that the ultimate design solutions to each venue will depend heavily on the accommodation/equipment that the overlay market are able to offer. Much of this will come from existing stock and it will be necessary to work with the suppliers to determine the best and most appropriate solutions.

The LOAF is a living document to be continually added to and amended as we design and plan venues. It should be viewed as a virtual lever arch file containing individual information sheets addressing design requirements and other Games specific issues. In conjunction with Venues and Infrastructure, Atkins and Populous we are developing these sheets (see the full contents overleaf) covering a wide variety of Games specific topics. which include:

Wheelchair spaces

Accessible toilets

Athlete changing

Pedestrian Screening Areas

Refreshment counters

Queuing systems

Cable covers

Faith provision

The LOAF is an in-house document, incorporating appropriate elements of existing standards, the IPC Technical Manual on Accessibility, previous Games experience and some new thinking to help us deliver accessible overlay.

How to use your LOAF

Above all we want The LOAF to be a practical tool to be used by all LOCOG staff planning and designing temporary overlay. It highlights important design features and provides Games specific advice that cannot be found in other guidance. It is not a detailed document aiming to solve complex design issues, nor is it to be used instead of other statutory documents.

The LOAF is the LOCOG standard which ensures we deliver a consistent level of accessibility across all venues. It is inevitable that colleagues will be presented with conflicting demands during the design process. Conflicts will include:

- Existing facility limitations
- Competing design requirements
- Cost
- Legacy

Consequently colleagues may wish to present proposals that differ from the LOAF. In such cases, a meeting involving the LOCOG Accessibility Manager is required to find the best way forward to a reasonable and practical solution appropriate to the venue and the client group. Any proposals which differ from the provisions within the LOAF, require sign off from the Accessibility Manager.

Designing for Accessibility & Inclusion

We have put in place a clear and straightforward system for checking that venues meet the standard set out in the LOAF.

Clearly the Venue General Manager and Populous work with all functional areas and external partners to design individual venues which are accessible and fit for purpose.

Using the LOAF, Atkins then conduct a review of overlay plans at each design stage, producing access reports and highlighting issues and risks which require either a design or operational solution.

Supported by Atkins, the Project Manager and LOCOG's Accessibility Manager, are responsible for resolving the issues identified in a manner appropriate to the venue, sport and client group. Once venue overlay plans are in an advanced stage, the Accessibility Manager and the Project Manager will conduct a series of client walkthroughs to test Games time operability and to sign off

the scheme. The aim will be to ensure provision is equitable, usable, cost efficient but most importantly enhances the Games experience.

Good luck, give us feedback – and **USE YOUR LOAF!**

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1. Street Furniture

Consideration needs to be given to the location and design of all street furniture (on Park and off Park) to ensure that they do not become obstacles and hazards to those using the pedestrian routes.

1. Ensure that all street furniture is located outside of the flow of pedestrian traffic.

2. All street furniture is to have smooth edges to reduce the risk of injury on impact.

3. Ensure street furniture can be detected by a visually impaired person using a cane.

4. All street furniture to contrast with the surroundings.

5. All bollards to stand a minimum height of 1000mm, contrast in luminance/tone with the surroundings and have a 150mm contrasting band around the top.

6. No chains should link bollards or other street furniture. Alternative methods of operating must be sought.

7. Street furniture must not taper at the bottom as this can make it difficult to detect by a visually impaired person using a cane.

8. Always maintain a minimum distance of 1000mm between items of street furniture.

9. No canopy columns should be fixed within pedestrian routes.

10. Any freestanding post or column within a pedestrian area will incorporate a 150mm contrasting band at 1500mm FFL.

2. Trackway

Well laid and thoughtfully designed trackway can aid ambulant disabled people to travel longer distances and reduce effort and difficulty for wheelchair users. It is essential for the safety of visually impaired people that obstacles are kept to a minimum and where they appear, their design must be considered to minimise impact.

1. All surfaces should be firm, as level as possible, stable, well drained and non-slip.

2. All joints to be flush to prevent walking sticks, wheels or heels getting caught.

3. Where trackway begins\finishes ensure a chamfered piece creates level access. This piece to be in a colour distinguishable from the main trackway.

4. To provide guidance for blind and visually impaired people, paths should contrast with the surrounding surfaces and have well defined edges.

5. Where possible, surfaces should have a cross fall no greater than 1:50.

6. Drop kerbs or temporary ramps must be provided at all pedestrian crossings.

7. Where possible routes should be1800mm wide to allow wheelchair users or parents with pushchairs to pass. On existing pathways, it is acceptable to provide passing places.

8. Pathways to be used by athletes in competition wheelchairs, must be 2400mm wide.

3. Parking

Although there will be no general parking for spectators, London 2012 is providing parking for disabled spectators at all venues. Where this facility is solely for the use of disabled spectators, all parking bays must conform to this standard. In other parking facilities (e.g for staff), ensure that the ratios contained in this information sheet are adhered to.

1. All parking facilities in both front and back of house areas should also provide parking for disabled people. The number of accessible parking bays should correspond with the number required by staff and booked by spectators.

2. Car parking bays for disabled people to be located close to an accessible main entrance.

3. Car parking for disabled people should be within 100m of a destination if covered or 50m of a destination if uncovered. If this is not possible, a shuttle service should be provided.

4. Headroom should be no lower than 2600mm in covered parking (eg multi storey). The minimum vertical clearance should always be shown on the approach to the car park.

5. Parking bays for disabled people require a painted 1200mm wide hatched area to the side and the rear to allow wheelchair transfer to and from the vehicle.

6. Parking bays can be located side by side with a shared space of 1200mm (hatched markings) between two bays.

7. In addition, one bay should allow 3000mm to the side or rear of a vehicle for individuals who use a hoist or ramp.

8. Parking bays should be clearly marked with the British Standard Disabled symbol on the surface as well as being clearly signposted.

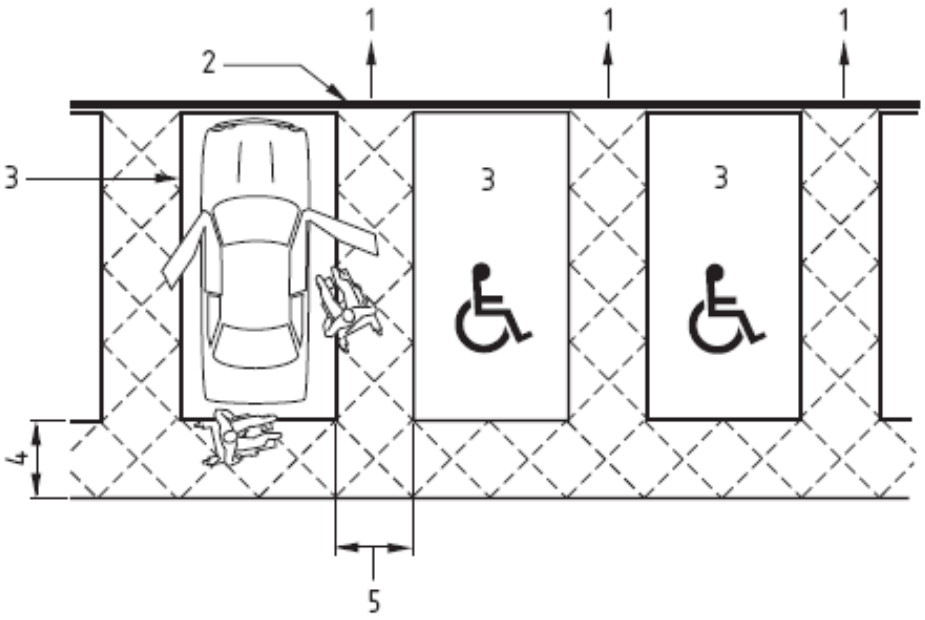
9. Signposts must be positioned so as not to obstruct rear loading vehicles.

10. Bays should be on the level and away from dish gulleys.

11. Implement a zero tolerance policy regarding abuse of parking bays for disabled people.

12. Train staff regarding safe implementation of zero tolerance policy regarding abuse of parking bays for disabled people.

Diagram: From BS 8300



Key

1 Preferred access route avoiding travel behind parked cars
2 Dropped kerb or level access
3 Standard 2 400 mm × 4 800 mm designated parking space
4 1 200 mm wide safety zone for boot access and cars with rear hoists, outside the traffic zone
5 1 200 mm wide marked access zone between designated parking spaces

4. Ramps

Although many of the ramps provided will be temporary in nature, they must meet current standards if we are to deliver an accessible experience for all client groups. Well designed ramps provide high quality access for wheelchair users and also benefit many others, including parents with children and older people. In areas of large pedestrian flows, ramps and gentle inclines can ensure a less dangerous and speedy flow of people through a busy area.
For ease of reference we have divided the different ramp types into 3 main categories:

Ramp Type 1(R1) - Front of house and primary back of house 1:20
Ramp Type 2(R2) - Back of house, secondary accommodation and second entrances 1:15
Ramp Type 3(R3) - Temporary, portable ramp

Ramps in front of house areas (R1)

1. All ramps must provide a gradient no steeper than 1:20, as it is extremely difficult to push a wheelchair up a steep ramp.

2. A ramp with a gradient of 1:20 should not exceed 10m in length without a level landing. This will allow disabled people to rest. These resting places should be at least 1500mm deep.

3. Landings to external ramps should have cross falls that do not exceed 1:50.

4. A level, unobstructed area should be at the top and bottom of the ramp 1500mm x 1500mm clear of any door swing. This ensures that wheelchair users are not required to attempt the task of opening doors whilst positioned on an incline.

5. Ramps must have an up-stand of 100mm at open side of ramp to ensure that the wheels of a wheelchair or children's buggy do not slip off the side of the ramp.

6. A ramp must be 1800mm wide. On short ramps (less than 10m long), a clear width of 1500mm is acceptable, in order to allow an ambulant person to pass a wheelchair user, although this should increase dependant on pedestrian flows.

7. Handrails must follow the details contained in Info Sheet 16.

8. Ramps with a gradient gentler than 1:20 do not need handrails.

9. A stepped alternative should be provided if the rise is more than 300mm.

10. Firm, non-slip surfaces and good lighting are essential.

Ramps in back of house areas

Ramps are required to all back of house areas, but it is important to ensure that ramp provision is appropriate to the need and the use of the accommodation.

Primary Accommodation (R1)

1. A ramp meeting the same standard as those in front of house areas must be provided in all accommodation housing essential facilities (toilets, medical rooms, workforce check-in, workforce dining etc).

2. A ramp meeting the same standard as those in front of house areas must be provided where the change in level exceeds 300mm.

Secondary Accommodation (R2)

In accommodation occupied by 3 or more staff for the exclusive use of a particular functional area (e.g. Anti-doping office) the ramp must conform to the following:

1. A fixed ramp with a non-slip surface finish.

2. A minimum width of 1200mm.

3. A gradient no steeper than 1:15.

4. A minimum 100mm upstand to open sides of the ramp.

5. A minimum 1200mm x 1200mm landing, clear of any door swings or obstacles.

Secondary Entrances (R2)

In accommodation where the main entrance is served by a ramp meeting the same standard as those in front of house areas, the ramp serving the secondary entrance ramp must conform to the following:

1. A fixed ramp with a non-slip surface finish.
2. A minimum width of 1200mm.
3. A gradient no steeper than 1:15.
4. A minimum 100mm upstand to open sides of the ramp.

5. A minimum 1200mm x 1200mm landing, clear of any door swings or obstacles.

Individual cabins (R3)

In accommodation occupied by 1 or 2 staff for the exclusive use of a particular functional area (e.g security office) the ramp must conform to the following:

1. A portable ramp with a non-slip surface finish.
2. A minimum width of 1000mm.
3. A gradient no steeper than 1:12.
4. A minimum 100mm upstand to open sides of the ramp.

5. Internal and External Steps

Even if there are alternatives such as a ramp or lift, it is important that stairways are well designed. Stairways should incorporate features that assist visually impaired people to use them independently and safely. In addition, the design of stairways should take into account the needs of ambulant disabled people.

1. Steps must be provided in addition to a ramp or lift where the rise is greater than 300mm.

2. The surface width of a stair must not less than 1200mm.

3. Stairways to have at least 2 risers and no more than 20 in each flight.

4. Stairways with 20 risers or more require a 1200 X 1200mm level landing at the mid-point to allow disabled people to rest, particularly on their journey up the stairway.

5. There should be a level, unobstructed landing at the top and bottom of the stairs, with a depth of no less than the stair width.

6. To assist people with limited strength who find it difficult to lift their foot, risers should be between 150mm - 170mm

7. Treads to be 300mm minimum, to offer enough space to place the foot if you are visually impaired and to allow ambulant disabled people to rest.

8. The rise and going of each step within a flight should be uniform.

9. Always provide handrails to both sides, continuous across landings, to provide an aid to balance for ambulant people and to enable visually impaired people to navigate safely on a stairway.

   (Refer to info sheet 15)

10. Steps should have a good standard of lighting.

    1. An 800mm deep corduroy warning surface is required at the top and bottom of external steps. A 400mm deep corduroy warning surface is acceptable if the steps are not in the direct line of travel.

11. Do not provide spiral staircases, steps that are tapered, open risers or recesses beneath steps.

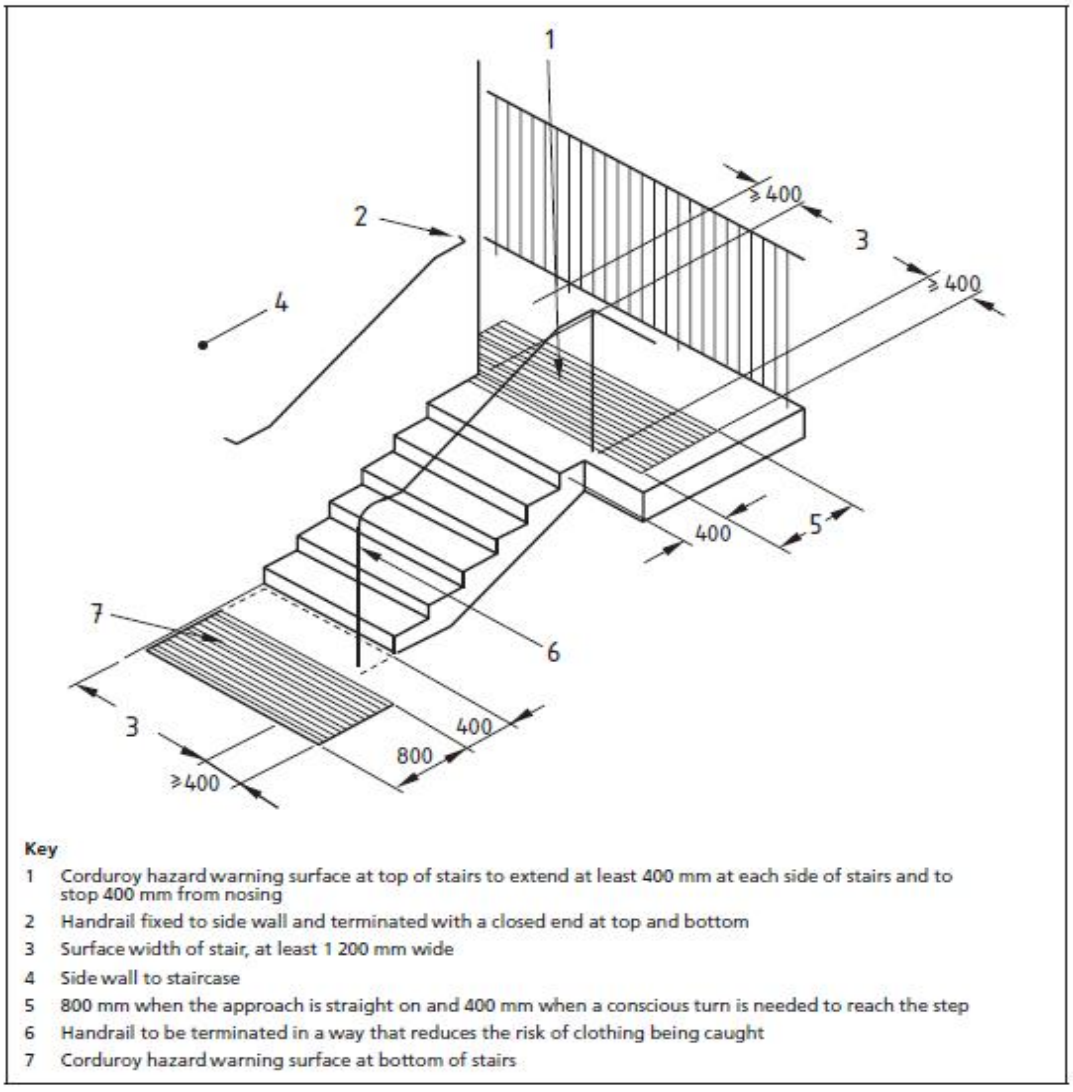
    2. A contrasting nosing will be applied to both tread and riser. Nosings must be 50-65mm wide on each tread and 30-55mm wide on each

riser.

12. Treads will be slip resistant in accordance with BS 5395-1.

Diagram for reference purposes taken from BS8300:2009

Figure 9 **Use of a corduroy hazard warning surface and handrails on an external stepped access**
Dimensions in millimetres



Key

1 Corduroy hazard warning surface at top of stairs to extend at least 400 mm at each side of stairs and to stop 400 mm from nosing
2 Handrail fixed to side wall and terminated with a closed end at top and bottom
3 Surface width of stair, at least 1 200 mm wide
4 Side wall to staircase
5 800 mm when the approach is straight on and 400 mm when a conscious turn is needed to reach the step
6 Handrail to be terminated in a way that reduces the risk of clothing being caught
7 Corduroy hazard warning surface at bottom of stairs

6. Seating and Resting Points

Frequent, well design resting points or formal seating benefit many disabled people, those with small children and older people. During Games time, there will be occasions when spectators are required to queue for periods and also wait during change over times between sessions. Seating provision can make the difference between a good start to a spectator experience and an unhappy one.

1. All seating and resting point must be positioned off the walkway so that it does not cause an obstruction to visually impaired people and does not interfere with crowd flow.

2. Resting places or formal seating should be provided every 50m.

3. A variety of locations is desirable and could include partial shade and protection against wet weather.

4. It is desirable to provide seating in the vicinity of flights of steps, long ramps or gradients.

5. Formal seating should be located with seats between 450mm and 500mm above the ground and 500mm deep.

6. Provide a variety of seating options including those with back support and armrests to both sides.

7. 'Perching' seats may be provided seats 800mm above the ground and 300mm deep.

8. Seating colours, tones and luminance should contrast well against the background. A firm parking area 900mm wide should be provided to both sides of the seating areas so that wheelchair users can sit alongside companions.

7. Signage

Clear frequent signage is important to guide partially sighted people, people with learning difficulties, deaf, hard of hearing people and people who may have difficulty asking for directions and can minimize unnecessary walking for those with mobility impairments. Signage, in fact, benefits everyone where it is an effective part of a much wider wayfinding scheme. All signage should meet the requirements as set out in 'The Sign Design Guide'.

1. Signs will usually be most effectively placed at junctions of circulation routes and at key destination points.

2. Orientation maps and tactile maps should be provided at key, accessible locations. Maps should match the orientation of the location.

3. Consider associated lighting and glare, relating to the position and use of a sign. The sign should be non-reflective.

4. Avoid long lists and group information into and consider a hierarchical system as people progress through the venue. This could be tied in with references on tickets or pre-visit direction.

5. Always use universally recognized and IOC/IPC approved pictorial symbols to supplement text. Symbols should be as large as possible and no less than 100mm in height.

6. Directional signs that are on posts or suspended from ceilings should be no lower than 2300mm.

7. Signs fixed to walls, should be located 1400mm to 1700mm AFFL and should be consistent throughout the venue. Signs should be easily visible to people of shorter stature and wheelchair users.

8. Ensure signage contrasts in luminance/tone with background environment (an LRV of 70 points).

Text should have the following characteristics:

- be upper and lower case
- be in a sans serif typeface
- prefer light colour lettering on a dark background but contrast is more important
- have a 70 point difference in LRV between text and sign

- long distance signs seen when approaching a building **150mm** min.
- medium distance directional signs **50mm to 100mm**
- short distance Room signs **15mm to 25mm**
- audio signage (infra-red, radio frequency, PIR activated and manually operated) should also be considered as part of the wayfinding.

- tactile embossed signs should be used for toilets and similar facilities

8. Pedestrian Screening Areas

Security measures need to be effective and also maintain the comfort and dignity of spectators. Overlay needs to facilitate this and well trained staff can make the experience as easy as possible.

1. All PSA's to offer at least 1 accessible entry point.

2. All raised WTMD (walk through metal detectors) to be ramped at a gradient of 1 in 20.

3. To ensure speedy passage through PSA's for those who cannot stand for long periods clearly identified, access lanes should be provided.

4. These accessible lanes to be clearly signed with International Wheelchair Symbol.

5. All accessible lanes to offer level access and a clear width of at least 1200mm

6. At all PSA's ensure wheelchair users do not use walk through metal detectors, but access via a side gate. At this point they should be given a "pat down" body check and also checked with a wand.

7. Security staff should be trained in this method and ensure they ask for permission before touching the passenger and also ask if there are any sore\delicate areas of the passengers body.

   RATIOS:-

- PSA's containing up to 15 WTMD need at least 1 accessible entry point
- PSA's containing up to 30 WTMD need at least 2 accessible entry points
- PSA's containing up to 60 WTMD need at least 3 accessible entry points
- PSA's containing up to 100 WTMD need at least 4 accessible entry points
- PSA's containing up to 150 WTMD need at least 5 accessible entry points
- PSA's containing up to 250 WTMD need at least 6 accessible entry points

9. Entrance Doors & Lobbies

All entrance doors and lobbies to all areas of Games operation, must be accessible. It is important to ensure easy and full independent access for disabled spectators, workforce, athletes and Games Family.

1. Entrances should be distinct from the façade of a building.

2. Doors should contrast with the surrounding wall and door furniture should contrast with the door.

3. Paths and approaches to be level for a minimum of 1500mm clear of door swing.

4. Provide a 1500mm turning circle in front of the entrance doors.

5. All entrance doors to have a clear wall space of at least 300mm to the leading edge. This is to increase to 500mm at wheelchair sport venues.

6. All doors to swing a minimum of 90^0.

   A single leaf entrance door should have a clear opening of not less than 1000mm. Where there are double entrance doors, at least one leaf should have a clear opening of not less than 1000mm

7. Thresholds should be flush or be ramped locally so as to avoid trip hazards.

8. No revolving, manual sliding or bi-folding doors to be used.

9. Heavy doors should be avoided. The opening force of manually operated doors should be between 20N – 30N.

10. Glazed panels should be highlighted with two 200mm wide bands that contrast with the background located at 900mm and 1500mm AFFL.

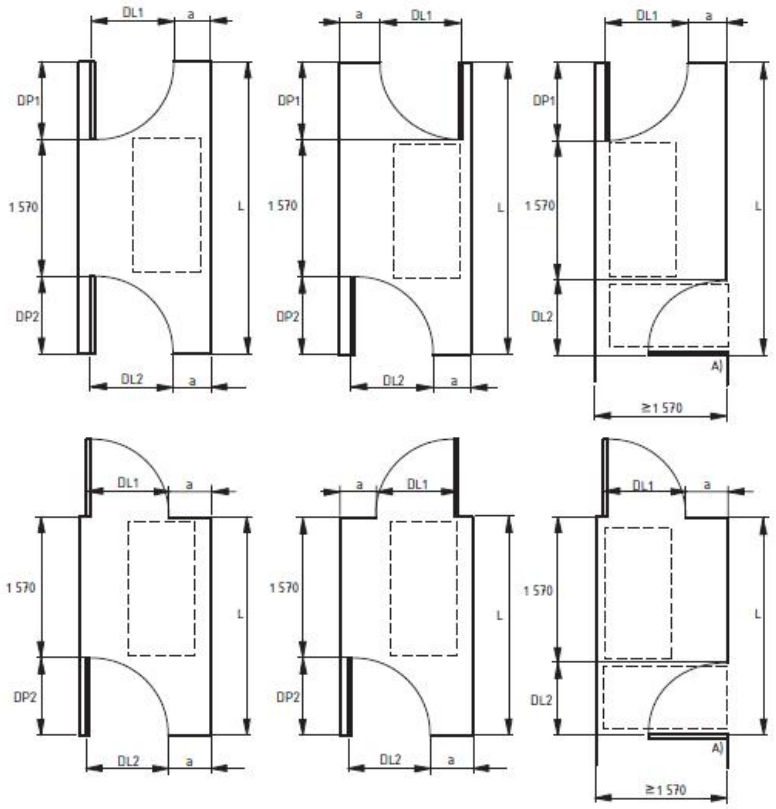
11. Where latches and locks are utilised it should be possible to open the door with one hand and operate with a closed fist.

12. Welcome mats should be flush with floor surface. Avoid natural materials such as coir matting.

13. Avoid lobbies where possible. Where unavoidable always use the dimensions demonstrated in the diagram below.

Diagram for reference, taken from BS8300:2009

Figure 10 **Minimum dimensions of lobbies with single leaf doors**
Dimensions in millimetres



Key

a	At least 300 mm wheelchair access space (can be increased to reduce L)
DL1/DL2	Door leaf dimensions of the doors to the lobby
DP1/DP2	Door projection into the lobby (normally the door leaf size)
L	Minimum length of lobby, or length up to door leaf for side entry lobby

A) No return wall within 600 mm of the doorway to enable a wheelchair user to manoeuvre into a position straight on to the door.

NOTE 1 For every 100 mm increase above 300 mm in the dimension a (which gives a greater overlap of the wheelchair footprint over the door swing), there can be a corresponding reduction of 100 mm in the dimension L, up to a maximum of 600 mm reduction.

NOTE 2 The 1 570 mm dimension represents the length of an occupied wheelchair with a companion or assistant pushing (or a large scooter).

10. Assistance Dog Spending Areas

INFORMATION TO BE COMPLETED BY END OF 2011

11. Internal doors

1. Keep internal doors to a minimum in number and avoid using self-closers, where possible.

2. Heavy doors or doors with a strong self-closer pose difficulties for disabled people, older people and parents with children. Therefore, ensure self-closers are set to the lowest tension setting of no more than 20 - 30 Newtons.

3. Where door closers are required, aim for an opening force of no more than 20N and a maximum of 30N. Where this cannot be achieved, consider the use of automatic opening or hold open devices.

4. Clear opening widths for single leaf internal doors to be a minimum of 825mm but may be a minimum of 1200mm in sports chair zones. 1200mm may be achieved by having an additional opening section.

5. All doors to have a clear wall space of at least 300mm to the leading edge. This is to increase to 500mm at sport specific locations.

6. Swing of door to be at least 90^0.

7. Bi-fold and manual sliding doors are not to be used.

8. Where privacy is not required, vision panels should be provided between 500 – 1500mm affl.

9. Where a door is to be left open or does not have a closer, the leading edge should contrast with the surrounding surfaces.

10. Doors should contrast with their surroundings and door furniture should contrast with the door.

11. Locks and latches should be possible to operate using one hand and with a clenched fist.

12. Handrails

Well designed handrails offer support for ambulant people and also act as a guide for visually impaired people.

1. Handrails will be of a circular profile with a diameter of 32 – 45mm or an oval profile of 50mm wide and 38mm deep.

2. All handrails to have 60-75mm clearance between wall and handrail.

3. Handrails should extend 300mm beyond the top and bottom of ramps and steps and return to the wall or ground, at both ends in such a way as to avoid the catching of clothing.

4. Handrails to be installed at between 900mm-1000mm above the pitch of steps or ramps and 1100mm above landings.

5. Provide handrails to both sides of ramps and steps. Handrails should continue across landings and resting places.

6. Handrails should be in a luminance/tone which contrasts with the background.

7. The material used for external handrails should not become uncomfortable to touch if extremes of temperature are experienced (possibility of too hot during summer).

8. Handrails will be fixed to handrail support centrally, on its underside and the clearance between the bottom of the rail and any support or fixing bracket should be at least 50 mm.

9. Handrails fixings will be in accordance with loading recommendations given in BS 6399-1: 1996

13. Lifts

The lifts provided as part of temporary overlay will be hired from overlay suppliers and will be temporary in nature. Ultimately, the final products will be selected from existing stock and it will be necessary to work with suppliers to determine the best and most appropriate solutions. The technical guidance below is provided to enable designers to understand the standards that we aim to achieve. Clearly some elements in this section are more appropriate for permanent lifts within a lift shaft. Lifts are either essential or desired by a wide range of users, including wheelchair users, people with an ambulant disability, people with visual impairments and those with small children.

1. The internal dimensions of each individual lift must be determined depending on the location and use of the lift.

2. Ensure lift capacity is sufficient to enable swift exit at the end of sporting sessions and change over times.

3. The minimum internal car size should be 1100mm wide x 1400mm deep, which will allow one wheelchair user and a companion to travel.

4. Provide a minimum of 1500mm x 1500mm space in front of the lift entrance for convenient entry by wheelchair users.

5. The landing areas in front of any lift access and the internal car area will have a good standard of lighting .

6. Lifts must be well signed and have doors that are visually distinct from their surroundings.

7. Signage indicating the number of the floor will be provided in each lift lobby on the wall opposite all the lift doors.

8. Lifts must be located close to other means of vertical circulation (stairs, ramps).

9. The entrance to the lift should provide a clear opening width of 900mm to 1200mm (dependant on sporting activity within each venue). Lift doors will remain open for five seconds to allow adequate time for entry.
10. The lift call button on the landing should be positioned no higher than 1100mm AFFL, and at least 400 mm from any return wall to allow reach from wheelchairs.

11. Lift car control buttons should be located on a horizontal panel centred at a preferred height of 900mm to 1100mm above the floor level. This should be accompanied by a standard vertical panel. In large lift cars, duplicate controls will be provided on opposite sides of the car or where there is more than one entry/ exit point

12. All controls to be identifiable by touch with raised and Braille symbols. The controls to be in a contrasting luminance/tone on non-reflective panels.

13. Provide illuminated and audible systems to identify floor levels. Lift arrival indicators will not be placed within the reveal of a lift doorway.

14. Provide an internal handrail 900mm above floor level on at least one sidewall of the lift. The gripping part of this handrail will have cross-sectional dimensions between 30mm and 45mm with a minimum radius of 10 mm. The free space between the wall and the gripping part shall be a minimum 35mm. The height of the top edge of the gripping part will be 900mm from the car floor.

15. Floors within lifts must be slip resistant and not have a high reflectance value. A mirror must be installed to the lift car wall, opposite the entrance, to assist wheelchair users in reversing out of the car. The mirror must not extend below 900mm above floor level.

16. Passenger lifts should be fitted with an emergency communication system. This should include an inductive coupler with the option to alter the volume of the microphone and speaker, to benefit people who wear hearing aids.

17. In addition, provide a visual indicator that confirms that an emergency call has been received and is being addressed.

18. Passenger lifts will be in accordance to the requirements of BS EN81-1, BS EN81-2 and BS EN81-70.

14. Internal Corridors and Spaces

It is essential that corridors are as wide as possible and are kept clear of obstructions to enable visually impaired people to navigate safely and to offer as much space as possible for wheelchair users to manoeuvre.

1. All corridors, passages and spaces must offer at least 1200mm width.

2. Keep all corridors clear of obstructions and appliances, e.g. fires extinguishers and radiators. All such appliances should be recessed.

3. Use slip-resistant floor covering and ensure that surfaces contrast in colour, tone and luminance with walls.

4. Ensure all corridors are well lit.

5. Ensure all glazing across corridors (eg automatic doors) is highlighted at appropriate heights with bands or strips in a colour and tone that contrasts with the background.

15. Standard Venue Seating

The seating provided as part of temporary overlay are likely to be procured and will be temporary in nature. Nevertheless, they must meet current standards if we are to deliver an accessible experience for all client groups. Prefabricated, temporary or demountable seating all need to satisfy the same criteria. All seating should provide high quality sight lines, avoiding glare or obstacles.

1. It is presumed that all seats provide a C-value of 90. However, a viewing standard that is appropriate to the venue and sport should be agreed as part of the design process.

2. Barriers, balustrades, handrails and columns should not obstruct sight lines.

3. Good lighting should be provided but should not create glare.

4. Seating should contrast visually with the surrounding surfaces.
   (A minimum of 30 LRV point difference)

5. No part of the field of play is to be more than 190m from a spectator position.

6. All seating must have:

   - A seat height of between 450mm and 475mm
   - A minimum row depth of 760mm

7. Identify seats that have a direct view of the scoreboard or video screen, for each venue. These seats can be of great benefit to hearing impaired people who cannot receive information given via the public address system.

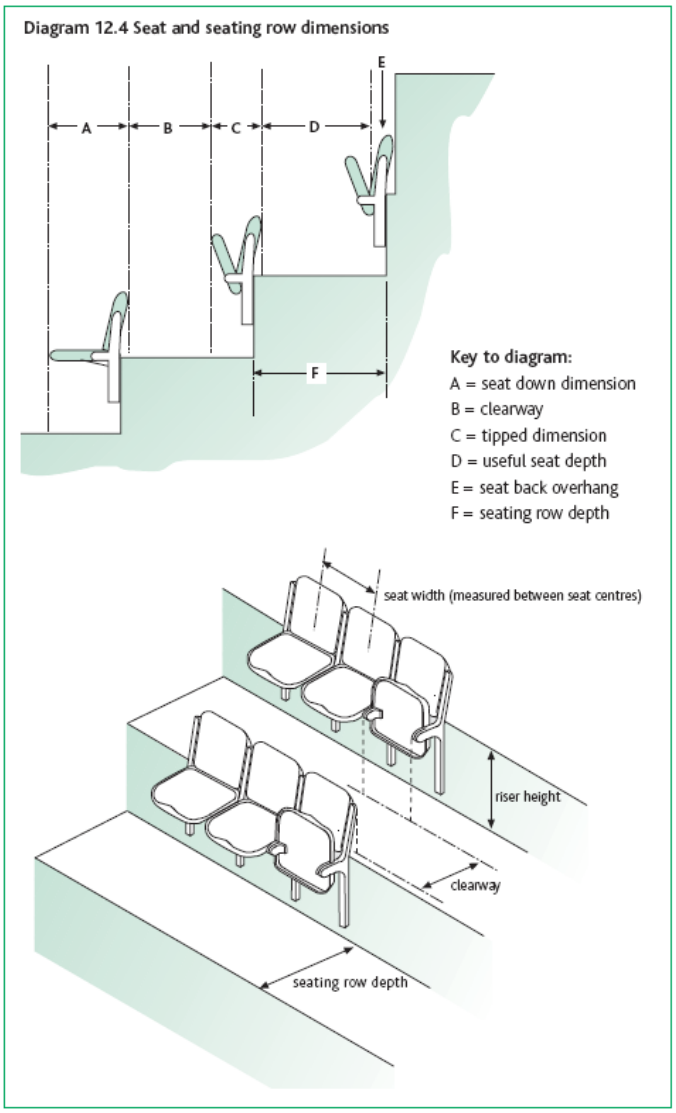
8. Always provide seating positions for visually impaired spectators which are close to the action.

16. Amenity and Easy Access Seats

All venues should provide amenity seating for those who may require more space . (eg a guide dog owner or somebody unable to bend their knees). All venues must also provide easy access seats for those who require a seat with few steps, (e.g. a person who uses a walking aid)

Amenity and easy access seating should offer a choice of viewing positions and can be co-located with the standard seating at a variety of locations at all levels.

1. Amenity and easy access seats should consist of individual locations (e.g. at the ends of a row) and some arranged in groups.
2. Easy access seats should be located where there are no more than 8 steps to negotiate and at a rake of no more than 20°.
3. Amenity and easy access seating should be located close to wheelchair and scooter storage space. Also consider location in relation to services (e.g. concessions and toilets).
4. Some amenity/easy access seating is to have a good view of the score/video boards.
5. Amenity and easy access seating combined, should be a minimum 1% of net seating capacity.
6. The seat clearway (space between the front of the tipped up seat and the back of the seat in front) must be a minimum of 650mm.
7. Provide armrests to give additional support. The design of the armrests must not obstruct the clearway.
8. Seats should be at a minimum width of 500mm centres and 400mm depth, with a height of between 450 – 475mm.
9. All amenity and easy access seats should have backs. Benches or bucket seats are not acceptable.



(Diagram from Green Guide for illustration purposes only)

17. Wheelchair Spaces

Within venues we must provide high quality wheelchair spaces for disabled spectators, designed in line with the specifications in this information sheet. At existing venues, (e.g. Regional Football Stadia, Wimbledon) it is understood that the challenges will be different. Nevertheless, it should be our aim to provide the best possible solution on a venue by venue basis using the following information as guidance.

1. Ensure that at least 1% of net seating capacity consists of wheelchair spaces.

2. Provide additional wheelchair spaces, over and above the 1% net, in line with IPC requirements, at Paralympic venues.

3. At open air, cross country events (rowing, mountain biking) ensure that dedicated raised platforms are provided at key points. These platforms should be made available to wheelchair users and others who cannot stand for long periods.

4. Ensure the platform is raised at least 1m above the space in front and that it is stewarded.

5. Ensure that all wheelchair spaces are provided in appropriate locations and in sufficient numbers, to serve all client groups.

6. At formal venues, ensure all spaces are provided with at least one adjacent companion seat. (Adjacent companion seats are not essential in areas reserved for athletes as spectators).

7. It is desirable to design flexible seating arrangements to provide either banks of wheelchair spaces, single wheelchair spaces with companion, family groups including a wheelchair user or a group of wheelchair users.

8. Ensure that a choice of seating positions is provided for wheelchair users.

9. Barriers, balustrades, handrails, columns, camera positions and photographers must not obstruct sight lines.

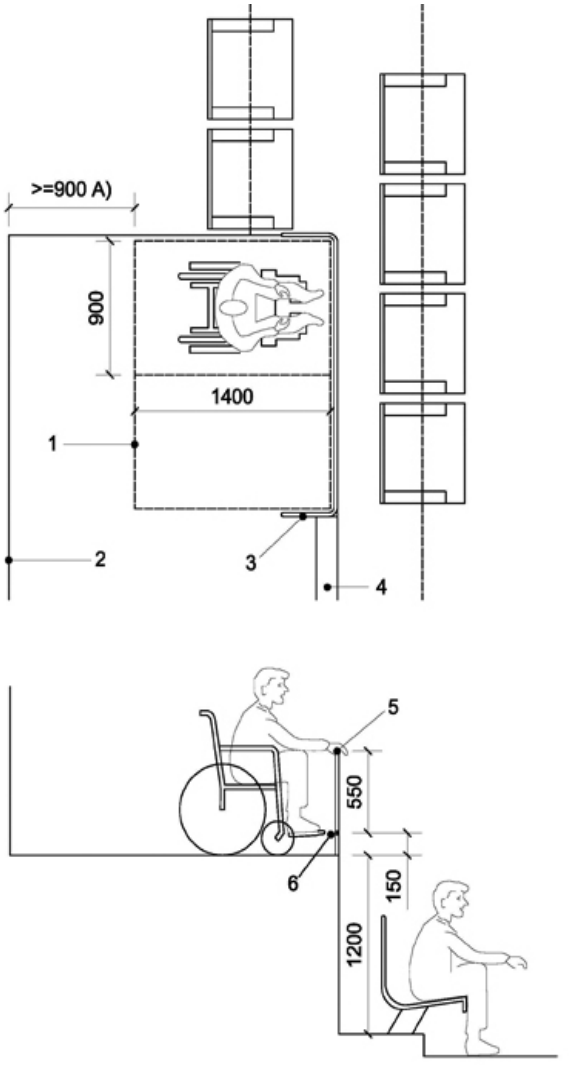
10. Ensure all ramps serving wheelchair spaces do not exceed a gradient of 1:20 and are designed in accordance with the LOAF.

11. Ensure that each wheelchair space is at least 900mm wide and 1400mm deep.

12. Adjacent to each space, provide a minimum 900mm x 900mm turning space to the rear, allowing wheelchair users to maneuver into position.

13. It is vital to ensure that adequate sightlines for wheelchair users are maintained even when spectators occupying the seats in front stand up. Therefore, ensure that a super riser measuring at least 1200mm in height is provided between the space and the row in front. A lower super riser may be acceptable for particular sports and should be demonstrated where applicable. Please refer to the attached diagram.

14. Ensure that accessible seating is within 40m of an accessible toilet facility.



NOTE The details shown relate to the plan arrangement in Figure 33.

Key

1 Wheelchair space allowance 1 400 mm x 900 mm
2 Wall or balustrading
3 Handrail and crash bar at change of level
4 Steps
5 Handrail
6 Toeboard at 150 mm above wheelchair floor level

A) 1 200 mm preferred.

18. Wheelchair Accessible Toilets

The wheelchair accessible toilets provided as part of temporary overlay will be hired from overlay suppliers and will be temporary in nature. Ultimately, the final products will be selected from existing stock and it will be necessary to work with suppliers to determine the best and most appropriate solutions. The technical guidance below is provided to enable designers to understand the standards that we aim to achieve. Clearly, ensuring that adequate toilet facilities are provided for disabled people is extremely important, particularly for wheelchair users who would find using the male and female blocks difficult. The most straightforward means of offering reasonable provision is to provide enough unisex accessible toilets designed to current standards. This makes the most efficient use of space and allows companions of the opposite sex to offer assistance if required.

1. At formal venues, ensure that one unisex accessible toilet is provided for every 15 wheelchair spaces and that numbers are rounded up for fixture calculations.

2. At open air, cross country events (rowing, mountain biking) with roaming spectators, provide unisex wheelchair accessible WCs at a ratio of 1:45 wheelchair user spaces based upon 1% of net venue capacity.

3. At formal venues, ensure that the unisex accessible toilets are located as near as possible, and preferably within 40m horizontal travel distance to wheelchair spaces.

4. At open air, cross country events (rowing, mountain biking) with roaming spectators, ensure that the unisex accessible toilets are located as near as possible, and preferably within 80m horizontal travel distance to wheelchair spaces.

5. Avoid lobbies into all accessible WCs because negotiating an extra door often creates a barrier.

6. Ensure that all accessible toilets have clear internal dimensions measuring at least 2200mm x 1500mm. This is the minimum required space for a wheelchair user to manoeuvre a in and around a toilet.

7. Make best use of space available inside the toilet by having the door of the WC compartment open outwards and provide a clear opening of at least 900mm.

8. If the door swings inwards the WC compartment should be 3000mm x 1500mm. In addition, it must be possible for an inward opening door to open outwards, in the event of an emergency.

9. Ensure that a small wash-hand basin is installed at 750mm above finished floor level.

10. Provide a mixer tap (monobloc) with lever handle with the tap fixed on the side of the basin nearest to the WC.

11. Provide flooring of a slip-resistant material.

12. Provide the door locking mechanism of the lever type to enable people with limited manual dexterity to activate the lock. No thumb turns may be used.

13. Ensure that the hinged support rail is counterbalanced.

14. Ensure that an emergency pull cord is installed which extends almost to the floor on the transfer side of the WC so that disabled people who have fallen to the floor can reach it easily. The cord should be fitted with a pull ring at its end. The reset button should be located within reach of the toilet pan.

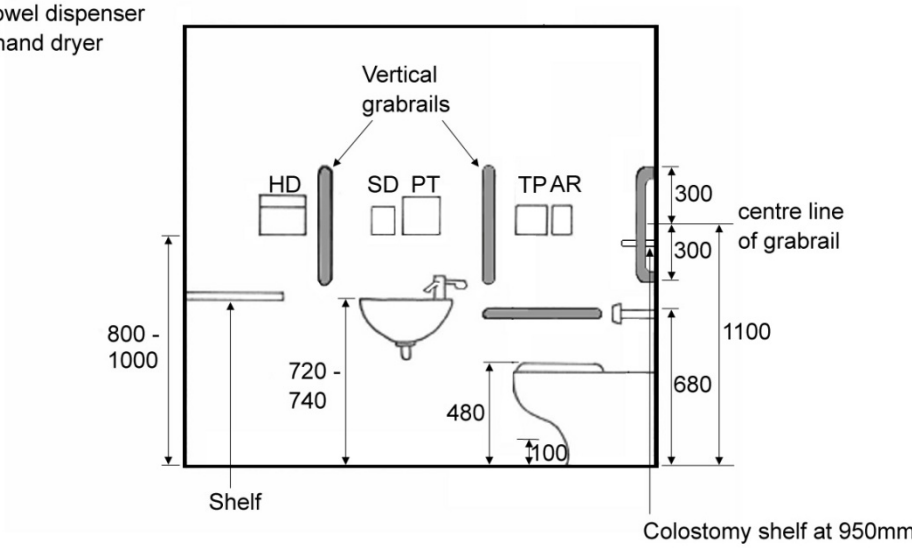
15. Provide a closed coupled cistern installed with a large, flushing handle on the transfer side at a height of 800mm so that it can be reached easily by wheelchair users.

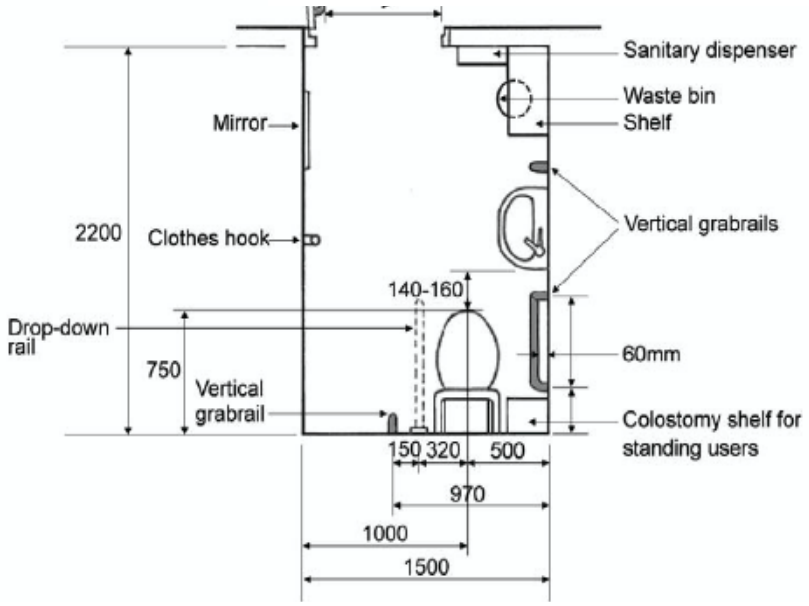
16. Provide coat hooks at two levels, namely, 1050mm and 1400mm; light switches no higher than 1000mm; toilet-roll dispensers between 450mm and 750mm; a full length mirror; a small shelf included for items such as gloves at a height of 750mm.

17. Unisex accessible toilets are also used by visually impaired people therefore luminance/tone contrast, good lighting and non gloss surfaces are essential.

Source ¦ BS 8300:2009

TP Toilet Paper dispenser
AR Alarm reset button
SD Soap dispenser
PT Paper towel dispenser
HD Hot air hand dryer





18. In addition to unisex accessible toilets provide single sex accessible WC's located within the single sex blocks to replace the required enlarged cubicles. This is necessary to meet the requirements of certain faith groups,

19. For all venues below 15,000 gross capacity, ensure at least one women's and one male toilet block provided for spectators includes a single sex accessible WC.

20. For all venues between 15,000 and 40,000 gross capacity, ensure at least two women's and two male toilet blocks provided for spectators contain a single sex accessible WC.

21. For all venues above 40,000 gross capacity, ensure at least three women's and three male toilet blocks provided for spectators include a single sex accessible WC.

22. All single sex accessible WC's must be counted as a standard WC and not to be used in the calculation of the required number of unisex accessible WC's for the venue.

23. Where toilet provision caters for the requirements of up to 400 staff provide at least one unisex wheelchair accessible WC.

24. Where toilet provision caters for the requirements of more than 400 staff we would provide at least 2 unisex wheelchair accessible WC's.

19. Changing Places Facility

A changing places facility is a larger accessible toilet with a hoist and an adult changing table. This will be used by disabled people who require a higher level of support to use the toilet. The technical guidance below is provided to enable designers to understand the standards that we aim to achieve.

1. Provide one changing place facility, in the front of house area of each venue, available to all client groups.

2. In existing venues, identify an existing unisex accessible toilet which offers the required space to be upgraded for this use by the provision of equipment.

3. In temporary venues provide a dedicated cabin offering sufficient space and the necessary equipment.

4. A changing places facility may also be required to back of house, at those venues which host certain Paralympic sports (e.g. Boccia). Always consult competition manager for advice.

5. Ensure that the changing places facilities are located as near as possible to other managed facilities within the venue.

6. Changing places facilities can be counted in the overall total of unisex accessible toilets.

7. Changing places facilities should offer at least 7 square meters space

8. Ensure the door of the changing places facility opens outwards and provides a clear opening of at least 1000mm and be fitted with a horizontal pull rail fixed to the internal face of the door.

9. Ensure provision of a height adjustable changing bench (minimum length of 1800mm) with a safe working load of 200kg

10. Ensure provision of a wide tear off paper roll to cover the changing bench to maintain cleanliness and hygiene.

11. Provide a hoist capable of supporting a working load of 200kg.

12. Coat hooks should be fitted at two levels, 1050mm and 1400mm; light switches should be no higher than 1000mm; toilet-roll dispensers between 450mm and 750mm; a full length mirror should be fitted; a small shelf should be included for items such as gloves at a height of 750mm.

13. Flooring should be of a slip-resistant material.

14. A wash-hand basin should be provided and the WC should have visually contrasting drop-down rails installed at either side.

15. An emergency pull cord should be installed which extends almost to the floor. The cord should be fitted with a pull ring at its end. The reset button should be located within reach of the toilet pan.

20. Cafeterias and Dining Areas

The aim must be to provide catering facilities that enable independent use for disabled people if they so wish. To this end, layout must allow disabled spectators or disabled staff to independently use all areas of the facility unimpeded. In particular, obstacles should be removed to assist visually impaired people.

1. Ensure that the servery counter and the tray shelf are both positioned at the optimum height of 850mm AFFL, to allow wheelchair users and children to reach food and cutlery. This is subject to further development of catering strategy.

2. Box-in, or round off the protruding end of the tray shelf to reduce the hazard for people with visual impairments.

3. Provide a clear unobstructed 1200mm wide route along the front of the servery to allow wheelchair users enough room to maneuver.

4. Provide knee recess space below the servery or tray shelf to enable wheelchair users to get close to food and cutlery.

5. Provide 730mm clear from FFL to the customer/staff underside edge of the servery counter or tray shelf.

6. Ensure staff access points exceed 800mm clear width to enable disabled staff and volunteers to enter.

7. Allow sufficient under-counter clearance at each counter, for a minimum of 1500mm wide turning point on the staff side.

8. Provide a variety of seating, including seats with and without armrests, because some disabled people prefer to have armrests to assist in getting up, while others require a seat without armrests to enable easy transfer from a wheelchair. This is subject to fire and crowd movement strategies.

9. Provide some loose seating to ensure flexibility. Although, for operational reasons, it may be desirable to provide fixed seating and tables, these arrangements restrict choice for wheelchair users and may also be difficult for ambulant disabled people.

10. Ensure table legs and supports do not obstruct wheelchair users wishing to sit at tables.

11. Ensure tables and chairs contrast in luminance/tone with their surroundings so that visually impaired people can identify them as obstacles and can also use them for orientation.

12. Provide tables with a minimum clear under top space of 700 – 750mm.

13. If possible, provide drink and snack dispensers with operating buttons and coin slots of no more than 1200mm AFFL.

14. Provide menu and price signage to assist people with visual impairments designed in accordance with Info Sheet 08.

15. Ensure that the amount to be paid by the client is clearly displayed on till registers. This benefits hearing impaired people and those for whom English is not their first language.

16. Have regard for the orientation of the counter to avoid glare or being heavily backlit by windows.

17. Avoid the use of queue rails as these create a difficult environment for wheelchair users to manoeuvre. See Info Sheet 12 for more details on queue rails, if they must be used.

18. Allow for the use of trays on wheels.

19. Locate refreshment areas within close proximity of toilet provision.

20. Ensure that kitchens and displays allow for preparation and sale of halal and kosher food Note 8. Add plates, cups etc should contrast with surfaces and items of food. For example a poached egg on a white plate will be difficult to see.

21. Quiet/Faith Spaces

The Olympic and Paralympic Host City Contract precludes LOCOG from using the Games to promote religion or any religious creed and faith provision for athletes and officials is set down by the IOC.

In regard to provision for staff and accredited persons, LOCOG is committed to ensuring they can observe religious or cultural customs whilst performing their roles. Additionally, a space will be provided for spectators to enjoy quiet contemplation and/or prayer.

It is also recognised that a separate quiet space is required in both back of house and front of house areas for those people on the neuro diverse spectrum who may need to escape crowded/noisy areas.

1. Within an appropriate back of house area provide a quiet area and 2 separate prayer spaces to enable single sex use by staff and other accredited persons.
2. Ensure the prayer space and quiet space, are both centrally located and available to all relevant client groups.
3. Combine the quiet space and the prayer space.
4. Ensure that this facility is not used for any other purposes and is always kept available for prayer or quiet time.
5. Within back of house areas, indicate the location of suitable wash facilities.
6. Ensure that there are well designed washing facilities for staff in back of house areas.
7. Ensure faith provision for athletes and officials as set down by the relevant IOC Technical Manual.
8. In all venues provide a suitable "quiet space" within spectator areas for rest, prayer or quiet contemplation.
9. Make use of Look and Feel to identify this front of house facility.
10. Indicate qibla direction by use of signage and Look and Feel.

22. Induction Loops

Induction loops are devices which assist hearing aid users to hear the spoken word more clearly. They are most useful at reception counters or in meeting rooms where two way communication is necessary. They allow the speakers voice to be heard more clearly because they cut out background noise.

1. Provide a portable or permanent induction loop system at all Ticket Sales cabins and all Information Points within a venue.

2. Ensure that this facility is clearly indicated by signage.

3. Train staff in the efficient use of the induction loop system.

23. Cable Covers

Although with careful planning it should be possible to ensure that cables do not cross pedestrian pathways, inevitably such occasions will arise. It is therefore vital to provide a cover which does not greatly impede access.

1. Plan location of services and broadcast facilities so that cables are hidden and protected below walking surfaces or supported overhead.

2. Where operational planning leads to cable trunking crossing pedestrian pathways always provide an accessible cover allowing wheelchair users and others to cross safely and easily. Accessible cable covers should traverse the width of any path or concourse to avoid trip hazards and people needing to cross the flow of traffic to get to the accessible ramp.

3. It is essential that we do not install two sets of cable trunking close together as this creates a substantial barrier to access. Therefore, always provide a gap of at least 10m between cable trunking where it crosses pedestrian pathways. The aim is to reduce the 'mogul' effect of numerous cables crossing the routes separately. Where possible cables should all be housed within a purpose made ramp and platform to avoid standard cable covers.

4. Cables should not run across the fronts of seats or down stairs.

5. Where cables run parrallel with paths they should be on the adjacent ground so as not to be a trip hazard or narrow the width of the path.

6. An accessible cover must offer an appropriate gradient to enable easy access. Where the cable trunking is 100mm high ensure a gradient of 1 in 12. Where the cable trunking is more than 100mm high ensure a gradient of 1 in 15. Cable covers should be no more than 150mm.

7. A cable cover must contrast in colour with its surroundings to make it easier to locate for visually impaired people.

24. Athlete Training Facilities

Paralympic athletes have a variety of different needs and requirements to be able to compete and train at the highest level. This may depend on their impairment or the particular need of their sport. Our aim is to provide an appropriate environment befitting their status as elite athletes.

There are some key considerations if we are to deliver accessible training facilities and changing rooms\showers in particular, including:

1. Ensure transport drop off is as close as possible to changing areas and ensure the whole route offers level access from bus drop off to changing rooms / field of play.

2. At training venues for wheelchair sports, provide doors offering a clear 1200mm wide opening for access to both changing rooms and field of play.

3. Ensure easy entry into any changing and\or toilet areas with no airlock type arrangements as this creates a barrier for by people who use mobility aids;

4. Provide easy to reach lockers and storage areas that have a space for a wheelchair to sit while preparing for or after exercising;

5. Provide change tables and benches for people who cannot stand or have injuries;

6. Provide wheelchair accessible toilets within each gender changing room;

7. Provide at least one accessible toilet inside or close to each changing room.

8. Provide at least one enclosed accessible changing cubicle inside or close to each changing room for privacy.

9. For wheelchair sports, provide 2 accessible toilets inside or close to each changing room.

10. All Paralympic training venues must offer accessible showers, to include the following features:

- Each shower area should be 900mm wide and the floor of the shower should slope gently towards a gulley or drain.

- Ensure 30% of showers provide a "flip down" shower seat .

- Seat to should be at a height of 475mm on the side and not the rear wall. It should be 360mm in depth and self draining.

- A portable shower spray attached to a flexible hose should be fitted. A rise and fall fitting will ensure the shower spray can be adjusted to different position.

- The shower stream should be thermostatically controlled.

- Lever controls should be used; these to be set at 900mm above floor level.

- A hand rail 1000mm AFFL should be fitted all round the shower compartment for support.

- The floor should be slip resistant.

- A fold-up seat should be provided in the dry area at a height of 475mm with a depth of 360mm.

- A full length safety mirror should be provided set 300mmm from the floor.

- Coat hooks should be provided at duel heights of 1200mm and 1800mm. A towel rail should be positioned at a height of 1000mm.

11. Ensure treatment/first aid, coaches, referees, officials rooms also offer accessible changing rooms. For these areas one unisex accessible changing room and one accessible toilet can be provided rather than providing one unit for each area.

12. At training venues for visually impaired Paralympians, provide temporary tactile direction strips to guide between key facilities.

13. At training venues for visually impaired Paralympians, highlight facilities or barriers using luminance/tone contrast.