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Inclusive Design Standards



MAYOR OF LONDON



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Introduction

The vision for the London 2012 Olympic Games and Paralympic Games is to use the power of the Games to inspire change. This vision will define the venues that are built, the Games that are staged and the legacy left behind.

In support of this ambition the 2005 Candidate File stated:

“The Games in London will set new standards of inclusive and sustainable design in sporting facilities, residential developments, transport procurement and service delivery. This term ‘inclusive design’ goes well beyond the narrow definition of ramps for wheelchair users. It encompasses the whole life experience of disabled people. **Part of this process will be to change and enhance current policies and procedures and by doing so provide improved benchmarks for use by future Games organisers.**”

As the body responsible for the design and construction of the new Olympic and Paralympic facilities in east London, Weymouth, Broxbourne and Eton Dorney and associated transport and utilities infrastructure, the ODA has a key role to play in delivering the accessible inclusive design outcomes associated with the 2012 Games.

To meet its objectives the Olympic Delivery Authority (ODA), together with its partners, is determined to take a proactive approach to making the greatest contribution it can to improving standards of inclusive design, within the constraints of time and cost required by the Games programme.

This document provides ODA project teams with guidance on the principles of inclusive design they are expected to adopt and the procedures they are expected to follow in delivering them. The document also provides an overview of the current published inclusive design guidance and standards applicable to specific elements of projects and points to the standards the ODA expects its teams to try to meet.

The document has three parts:

- **Part I** describes how to use this document
- **Part II** sets out the procedures all design teams are expected to follow
- **Part III** includes guidelines and standards for design teams to use when considering specific features of their buildings, spaces or infrastructure

Part I - how to use this document

What are the ODA standards for?

The exceptional set of circumstances brought about by the planning, construction and operation of facilities for London 2012 means its designers and project teams will need to challenge conventional thinking if they are to deliver the wide range of priority objectives in such short timescales, with such a large number of temporary structures and within tight budget constraints.

In seeking to meet inclusive design objectives the ODA will also have to work closely with LOCOG and other longer term partners to achieve an appropriate and efficient balance between investment in physical features and investment in operational and management measures. The appropriate balance will vary for each ODA project and in each case decisions are likely to be weighed against the longevity of investment and value for money arguments.

The procedures, guidance and standards described in this document are intended to set out the ODA's expectations for the delivery of inclusive design. They provide a benchmark against which project team's performance can be measured and reported. They are also intended to be helpful to designers, explaining design intent, highlighting relevant best practice and indicating issues of particular relevance to London 2012.

The document should be read in conjunction with the ODA Inclusive Design Strategy, Design Strategy, Equality and Diversity Strategy and Sustainable Development Strategy. The standards and procedures it describes are intended to complement requirements for Building Regulations, Town Planning or Licensing, not replace or override them. These standards do not replace the need for reference to other relevant published design guidance in project briefs.

Throughout the document a wide range of best practice guidelines are referred to from a number of published sources. A list of all documents referred to is contained at the end of the document with the relevant websites and source addresses for each. Designers and other users will be expected to refer to these documents in addition to the ODA standards when presenting the inclusive design proposals they have developed.

What projects do these standards apply to?

The ODA inclusive design standards and procedures are applicable to all projects the ODA is directly responsible for delivering. This includes:

- all Olympic, Paralympic and Legacy venues the ODA is directly procuring (including those outside the Olympic Park);
- all other buildings the ODA is directly procuring, including the Main Press Centre and

International Broadcast Centre and training facilities at Eton Manor;

- all public realm aspects of the Olympic Park and other public realm associated with ODA delivered buildings; and
- all Games time back of house and front of house areas/spaces delivered by the ODA.

Whilst many of the standards are applicable to a wide range of buildings and environments, others are specific to sports buildings and public buildings. In some exceptional cases more appropriate guidance may apply to particular types of buildings and facilities, examples include:

- utility buildings with no public access (e.g. energy centre, primary sub-stations, wind turbine);
- plant rooms, control rooms, utility tunnels and sewage pumping/control structures;
- other maintenance related structures (such as bridge gantries).

In such cases it is recommended that project teams seek specialist advice and refer to building regulation and health and safety authorities for advice and guidance.

Where the ODA is not directly delivering projects (such as the Olympic Village) it will expect its development partners to refer to this document and the ODA Inclusive Design Strategy in demonstrating how they intend to deliver inclusive design objectives.

Who should use this document?

The ODA Inclusive Design Standards are aimed at everyone engaged in the delivery of ODA projects, including its Delivery Partner CLM, designers, project managers, engineers, access consultants and cost consultants. Specific users will include:

- **ODA Access and Inclusion Advisors** – work within the ODA Design Team and are expected to advise and support ODA Project Sponsors and Directors in championing inclusive design. They are responsible for organising and managing consultation and technical forums and lead the liaison with subject specific external stakeholders (including disability groups, Government, specialist technical groups). The Advisors are also required to review the documentation produced for every ODA project to assess compliance with ODA standards and procedures, the quality/functionality of the design solutions proposed and the robustness of supporting cases. Advisors should review all Access Statements before they are submitted to the relevant Planning Authority.
- **ODA Project Sponsors** – are expected to refer to this document in project briefs and require design teams contracted to their projects to follow the procedures set out in it. Project Sponsors

should also explain to project teams what is expected of them and how to use this document. They are also expected to lead discussions with LOCOG and other partners in reaching combined physical, operational and management solutions.

- **CLM Design Managers** – are expected to implement the procedures set out in this document as part of the mainstream design management function (key elements of this are described in more detail in the next section). They will be expected to encourage, challenge and drive designers and contractors to meet the inclusive design standards described. They will also be expected to regularly report on the progress made by teams in meeting inclusive design objectives, including a monthly report to the Design and Town Planning Board, attendance at consultation and specialist panel meetings and the regular submission of Compliance Reports. Design managers will also be responsible for managing the production of Access Statements required for Town Planning and Building Regulation processes. CLM design managers and project managers will also be expected to participate in and in most cases lead discussions/negotiations with regulatory authorities.

- **Designers** – are expected to follow the procedures set out in this document and meet the standards of design described. In particular they are required to document and explain the approaches they have adopted, including alternative options considered. They are expected to follow the design management procedures adopted by CLM and together with other members of the project team produce the Conformance Reports, Access Statements and Consultation responses expected to support their design/delivery proposals. Design teams are also expected to present their proposals to the relevant consultation and technical forums.

Part II - Design management procedures

The ODA has established a rigorous design management and monitoring process aimed at delivering the highest standards of design and delivery across its programme of work. The procedures it uses are intended to provide a robust framework for designers and contractors to explain the choices they make and for the ODA to make informed decisions. They also help it meet its legal obligations.

As a public body the ODA is legally obliged to establish and promote its inclusive design monitoring and evaluation procedures. For this reason it is vitally important that teams are consistent and disciplined in following the processes and guidelines set out.

Set out below are a number of important components to the design management process that are specifically designed to help ensure the ODA Inclusive design objectives are achieved. The procedures the ODA and CLM have put in place are described according to the work stages projects will pass through.

Project brief and selection of design team

From the outset the **design brief** for each venue will set out a broad outline of the inclusive design requirements for that venue. Project teams must also be issued with the ODA Inclusive design Strategy and Standards documents.

When evaluating tender submissions for new designers and contractors' project teams should specifically seek to test bidders' understanding of the inclusive design principles set out in the brief. All large scale projects should also secure specialist inclusive design consultant advice as part of the design team. For smaller projects and in special cases the ODA may choose to use its own specialist advisors for this purpose.

On selection of the successful team the ODA/CLM project team should arrange a specific briefing on inclusive design objectives, explaining the ODA's expectations, procedures and how to use the Inclusive Design Strategy and Standards documents. It may be appropriate in some cases to insist that some teams also arrange specific training for members.

Client review

Inclusive design is an ODA priority theme specifically assessed by the ODA Client Review Process. The process is structured around the RIBA and ICE design work stages. Every ODA project is reviewed at each workstage, from initial brief through to construction drawings prepared by ODA contractor partners.

The outcome of each review is reported to the ODA Design and Town Planning Board with a

recommendation as to whether the project has sufficiently met ODA objectives to progress to the next stage of design. No project will be permitted to proceed to the next stage of design without the approval of this Board.

As part of the Review process end of stage reports submitted for review are assessed by (amongst others) the ODA Project Sponsor, ODA Project Director, ODA Principal Access Officer and other members of the ODA Design Team. They are also reviewed by the CLM Design Team (including the CLM Inclusive design lead) and LOCOG.

The ODA Inclusive Design Standards will be used to assist this assessment process. To help support this process:

- all design reports submitted for Client Review must contain a section on inclusive design, including reference to compliance with the ODA Inclusive Design Standards;
- design teams must work with the ODA Principal Access Officer (or their advisors) and respond promptly to inclusive design issues raised as part of the Client Review process.
- issues raised should be categorised by the ODA Principal Access Officer and recorded by the CLM Project design manager as either 'acceptable to be addressed in the next stage of design work' or 'requiring an immediate response before design work can be permitted to progress further'.
- CLM Project design managers must obtain the signature of approval of the ODA Principal Access Officer and CLM Inclusive design lead as part of the client 'sign-off' process, before a project is permitted to progress to the next stage of design.

Conformance reporting

As part of the ongoing design management process design teams are required to follow a compliance procedure using standardised Conformance Reports. The use of these reports is considered best practice in all major design projects and they allow the ODA to make informed decisions on whether it feels the level of inclusive design provision is acceptable.

The reports should be used by teams as a means of describing their approach to meeting the Inclusive Design Standards. They can open a dialogue between experts and external stakeholders and provide a reasoned, documented record of considerations and decisions made by designers and clients alike, throughout the design and construction processes. For this reason it is vitally important that every project team follows the design/delivery process.

Each project team's approach to meeting inclusive design objectives will depend on the nature of the project, operational/management proposals, budget availability and physical site conditions.

Within this context the Conformance Reports provide each project's designers with the opportunity to set out how they have sought to comply with standards, including the design options they have considered and the parallel operational and management assumptions they have made. Where standards have not been met project design teams are expected to set out the alternative physical, operational and management approaches they have adopted and/or mitigation measures pursued. The proposals described in these reports may differ from project to project due to the variance in scope, type of building/space, longevity of building use, physical conditions and proposed operational/management regime.

A Conformance Report proforma is contained in Appendix 1. Conformance reports must be completed and submitted to the ODA's Project Sponsor and to the ODA's Principal Access Officer. A report should be completed for each and every element of a design and should:

- explain how designs have met ODA guidelines and standards;
- set out the choices made and alternative approaches considered;
- highlight where designers have proposed alternative approaches with a description of the proposed approach and an explanation of the alternative proposed measures;
- demonstrate how elements where inclusive design principles are achieved using an alternative solution meet the Inclusive Design Strategy and the Inclusive Design Standards, demonstrating how this solution achieves the equivalent level of accessibility; and
- record the response of the ODA Responsible Director, ODA Project Sponsor and ODA Principal Access Officer.

At the end of each RIBA design stage Conformance Reports should be compiled to form the core basis of the inclusive design section of the design reports submitted for Client Review.

Town planning

The Olympic, Paralympic and Transformation Planning Permission granted in 2007 requires Design Teams to prepare Access Statements to be submitted as part of any reserved matter submission. They will also be required for any new planning permissions made.

ODA Design teams are also obliged to consult the ODA Built Environment Access Panel on the Access Statements before they are submitted. The Statements must contain a report of issues raised and design team responses.

Contents of the Access Statements need to be agreed with the ODA Planning Decisions Team (PDT) prior to submission. The ODA Principal Access advisor should be consulted in this process

and should have reviewed draft Access Statements before they are formally submitted. The Box overleaf provides a sample contents list for a typical Access Statement. In addition they are expected to contain:

- statement of compliance with the principles and guidance contained in the ODA Inclusive Design Strategy;
- philosophy and approach to inclusive design;
- key issues of the scheme and identified constraints;
- sources of advice and guidance;
- consultation with disabled people in the local community, including feedback and how this has been/ will be included into the design process;
- principles of inclusive design, maintenance and management;
- demonstration of inclusive access to site, facilities and utilities;
- plan and sections; and
- Inclusive design standards used, e.g. BS8300: 2001 and Inclusive Mobility (which includes outdoor pedestrian guidelines).

Building regulations and licensing

Part M of the Building Regulations 2000 recommends that Access Statements are submitted with any plans to facilitate the dialogue with Building Inspectors. Their use makes the approval process better informed and more efficient. All ODA/CLM project teams should therefore extend the Access Statements used for Planning purposes to accommodate additional information gathered to inform the Building Regulation process.

Pre-application discussions with Building Regulations teams should be conducted in a co-ordinated and informed manner. The CLM Inclusive Design Lead should work closely with all project teams to ensure lessons and alternative approaches learnt from other projects are widely understood. Before approaching the Building Regulation team the ODA/CLM project team should consult with the CLM Inclusive design Lead.

Consultation

In addition to the formal consultation process required for town planning purposes, the ODA has

established ongoing consultation processes. Project teams are expected to present their design proposals and report on progress to various Forums as part of this process. The three principle Forums are as follows:

- **ODA Built Environment Access Panel** – established to provide expert strategic and technical advice. Design Teams must formally consult the Panel as part of the town planning process. The Panel also review and agree the ODA Inclusive design guidelines and Standards. It is recommended that project teams regularly involve individuals and smaller groupings of members from this Panel in project design progression to give confidence that design proposals will be considered acceptable when formally consulted on. The ODA Built Environment Access Panel will meet monthly.
- **ODA Access and Inclusion Forum** – established as a consultation forum specifically focussed on inclusive design. It contains representatives of a wide variety of disability, gender, race and faith groups who can provide user and experiential feedback to design team proposals. Project teams must consult this forum as part of the pre-application consultation required for the town planning process. The ODA Access and Inclusion Forum will meet quarterly
- **ODA Technical Fora** – Technical Forum events are regularly held by the ODA to support the ongoing stakeholder consultation process. The Technical Forums bring together technical stakeholders to engage in the Reserved Matters Planning Programme, and to review and discuss plans for Olympic Projects in advance of planning submissions. Designers and supporting project teams will be expected to present their schemes at these forums and respond to comments raised in the Access Statements submitted as part of the town planning process.

Design teams should keep a record of the issues raised at these forums. They should describe how they have sought to address the comments made in the Access Statements submitted for town planning and Building Regulations purposes. The responses described in these documents should be discussed and agreed with the ODA Principal Access Officer before they are submitted. The Principal Access Officer can also advise teams on when they should consult on proposals.

Sample Access Statement

Introduction

- Summary of the venue and uses in Games and Legacy modes

Stakeholder Involvement/Consultation

Access for all – Local and regional policy context

- Relevant policies and brief requirements
- Future-proofing and Legacy conversion strategies
- Inclusive design standards
 - Demonstration of these being met (with reference to Compliance section above)
- Guidance followed

Inclusive design provision

- Site topography
- Park transport interface and parking provision
- Concourse venue interface
- External pedestrian routes, including seating
- Entrances and accreditation
- Circulation, including seating
- Spectator services for example (but not limited to):
 - Food courts/bars/restaurants
 - Concessions
- Signage and wayfinding strategies
- Communication aids
- Lighting
- Spectator seating (where applicable)
- Sanitary accommodation for example (but not limited to):
 - Toilets
 - Changing facilities
 - Shower/wash areas
 - Family rooms
- Back of house facilities, including provision's for VIPs, athletes, officials, Olympic Family, staff press and media
- Emergency egress
- Principles of inclusive maintenance and management
- Legacy conversion (but not limited to):
 - Changes to the public realm
 - Public car parking
 - Building fit-out

Plans and sections

Part III Inclusive design guidelines and standards

The aim of the ODA Inclusive Design Standards is to give design teams clarity on the standards of design the ODA expects them to strive to meet across the whole programme. They contain a mix of guidance and requirements generated from a large number of published guidance, best practice documents and to satisfy the bid book commitments. They also indicate the standards of inclusive design the ODA expects project teams to achieve. Source documents include

- Accessible Stadia, FLA, 2003
- Guide to Safety at Sports Grounds 'Green Guide', HMSO, 1997
- Access to and Use of Buildings Approved Document M (2004) Building Regulations
- BS 8300:2001 (incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001
- Inclusive Mobility, Department of Transport 2002
- Access for Disabled People, Sports England 2002 (this document is being revised and a new version is expected in 2008)

No distinction has been made between Games only facilities or legacy facilities when applying inclusive design principles as is required by the Disability Discrimination Act 1995.

In addition, some of the facilities described (such as outdoor seating, toilets or dog spending areas) might be provided as temporary elements to support the excessive visitor numbers generated by the Games. In general these will be provided by LOCOG. ODA design teams are required to understand the space/technical requirements to ensure sufficient space is allowed for in the public realm and buildings it is constructing.

The Standards are set out in six parts:

- External movement and inclusive design
- Internal movement and inclusive design
- Spectator seating requirements
- Sanitary and changing facilities including family provision
- Faith requirements including privacy and prayer
- Spectator facilities

In each section the design intent for each element is set out and particular design approaches are highlighted. Where appropriate an ODA standard is stated with reference to the best practice guidance document it is drawn from. In some cases illustrations are used to highlight how design measures can be accommodated. They do not mean they are the only form of provision.

It is important to note that the guidance and standards contained in this document represent one way of achieving inclusive design requirements. There may be equally satisfactory alternative physical or operational solutions that achieve the same outcomes. The ODA Conformance Reporting procedure allows project teams to describe these alternatives.

External movement and inclusive design

1	Graded routes												
Design intent													
<p>Changes in level generally cause problems for many disabled people particularly those people with mobility or visual impairments. Even a single step can prevent access for someone who has a mobility impairment and can present a trip hazard for all visitors to the Olympic Games and Paralympic Games.</p> <p>Mobility ranges vary enormously between individuals with age and disability, while factors such as weather, topography (gradients) and obstacles can also affect mobility ranges.¹</p> <p>Recent research found that 30 per cent of disabled people could manage no more than 50 metres without stopping or experiencing severe discomfort and further that 20 per cent of those surveyed could only manage between 50 and 200 metres without a rest.¹</p> <p>During the Olympic Games and Paralympic Games large bodies of people will be moving around the Park and it will, therefore, be important to ensure that everyone can move safely and quickly by minimising gradients wherever possible.</p>													
Inclusive design guidelines													
<p>The ODA aim is to achieve shallow gradients (approximately 1:60) across the Olympic Park wherever possible. The Approved Document to Part M of the Building Regulations defines 1:60 as level.</p> <p>Level breaks on routes steeper than this are important to ensure wheelchair users and others with mobility impairments can recover.</p> <p>Extrapolated from Approved Document M² and Inclusive Mobility¹ ranges the table below should be used as a guide to the frequency of 'level' areas.</p>													
<table border="1"> <thead> <tr> <th>Gradient</th> <th>Preferred footpath distance between level areas</th> </tr> </thead> <tbody> <tr> <td>1:60</td> <td>50m</td> </tr> <tr> <td>1:50</td> <td>40m</td> </tr> <tr> <td>1:40</td> <td>30m</td> </tr> <tr> <td>1:30</td> <td>20m</td> </tr> <tr> <td>1:21</td> <td>10.5</td> </tr> </tbody> </table>		Gradient	Preferred footpath distance between level areas	1:60	50m	1:50	40m	1:40	30m	1:30	20m	1:21	10.5
Gradient	Preferred footpath distance between level areas												
1:60	50m												
1:50	40m												
1:40	30m												
1:30	20m												
1:21	10.5												

External movement and inclusive design

On gentle gradients, where the gradient is 1:30 or shallower, the level areas may be set off the main pathway.

Designs should where possible have a:

- maximum gradient of 1:21 across the main routes throughout the Olympic Park
- crossfall no steeper than 1:50³
- level landings that are a minimum of 1500mm long (3000mm preferred), clear of any obstructions¹

¹ Inclusive Mobility Department of Transport 2002

² Access to and Use of Buildings Approved Document M (2004) Building Regulations

³ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of Practice, 2001

External movement and inclusive design

2	Ramps																
Design Intent																	
<p>Changes in level generally cause problems for disabled people particularly those with mobility or visual impairments.</p> <p>Ramps are used to overcome localised changes in level, normally encountered at emergency exits, secondary entrances and within buildings.</p> <p>Ramps have gradients of 1:20 or steeper¹ and should not be designed on primary circulation routes around the Park.</p> <p>Steep ramps are trip, slip hazards in a crowd and often require excessive effort for some disabled people to access independently.</p>																	
Inclusive design guidelines																	
<p>Where changes in level cannot be avoided and ramps are required, they should be designed to be as shallow as possible and have appropriate handrails and surfaces. It should be noted that ramps are not always the ideal solution and can take up a great deal of space.</p> <p>Ramps should:</p> <ul style="list-style-type: none">• have gradients between 1:15 and 1:20 where possible¹• have a visually contrasting surface to indicate its presence³• have level breaks in ramps as follow¹ <table border="1"><thead><tr><th>Going of a flight</th><th>Maximum gradient</th><th>Maximum rise</th><th>Recommended PTV²</th></tr></thead><tbody><tr><td>10 m</td><td>1:20</td><td>500mm</td><td>45</td></tr><tr><td>5 m</td><td>1:15</td><td>333mm</td><td>46.7</td></tr><tr><td>2 m</td><td>1:12</td><td>166mm</td><td>48.3</td></tr></tbody></table> <p>Where ramps are required they will:</p> <ul style="list-style-type: none">• rise no more than 2m without an alternative means of access for wheelchair users¹		Going of a flight	Maximum gradient	Maximum rise	Recommended PTV ²	10 m	1:20	500mm	45	5 m	1:15	333mm	46.7	2 m	1:12	166mm	48.3
Going of a flight	Maximum gradient	Maximum rise	Recommended PTV ²														
10 m	1:20	500mm	45														
5 m	1:15	333mm	46.7														
2 m	1:12	166mm	48.3														

External movement and inclusive design

- be provided with adjacent stairs if over a 300mm rise, see Standard 14 - Steps
- have handrails¹ designed in accordance with Standard 15 - Handrails
- have illuminance at the top and bottom of each flight of the ramp of at least 100 lux³
- have suitable non-slip surfaces when wet and dry (CIRIA² recommend that pedestrian areas have a minimum pendulum test value (PTV) of 45 when wet)

The provisions of Approved Document M1 require that a ramp (including the required level landings) to overcome a level change of 1000mm would have an overall length of 19.5m at 1:12, 18m at 1:15 and 21.5m at 1:20. This highlights that 1:12 ramps are not effective in many situations.

Ramps steeper than 1:15 should be avoided when possible, however, it is recognised that they may be an appropriate solution in a localised area. The use of such gradients will be judged on a case by case basis.

¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations

² Safer surfaces to walk on –reducing the risk of slipping, CIRIA, 2006

³ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

External movement and inclusive design

3

Bridges for pedestrian use

Design Intent

Bridges around the Olympic Park will be accessible for all visitors, athletes etc and should be designed with gradients in accordance with the standards being applied to the circulation routes across the Olympic Park.

During the Olympic Games and Paralympic Games it will be important to ensure that crowds of people can move safely and quickly across bridges to their destination and it is therefore essential to keep bridge widths clear of obstructions such as seats at all times. In Legacy it may be appropriate to introduce rest areas and seating on longer bridges.

Inclusive design guidelines

Bridges should:

- have handrails on both sides of the footbridge when the gradient exceeds 1:30 where reasonable to do so
- additional handrails provided on particularly wide (exceeding 50m) and steep (exceeding 1:20) footbridges where they do not present a hazard as it is reasonable to do so
- have permanent bridge widths designed to accommodate appropriate seating in Legacy
- parapets should, where possible, offer viewing heights for people both standing and seated; this is not expected when health and safety would obviate such a provision
- comply with the gradient requirements of Standard 1 - Graded Routes, including level landings
- have adjacent seating areas at each end, during the Games

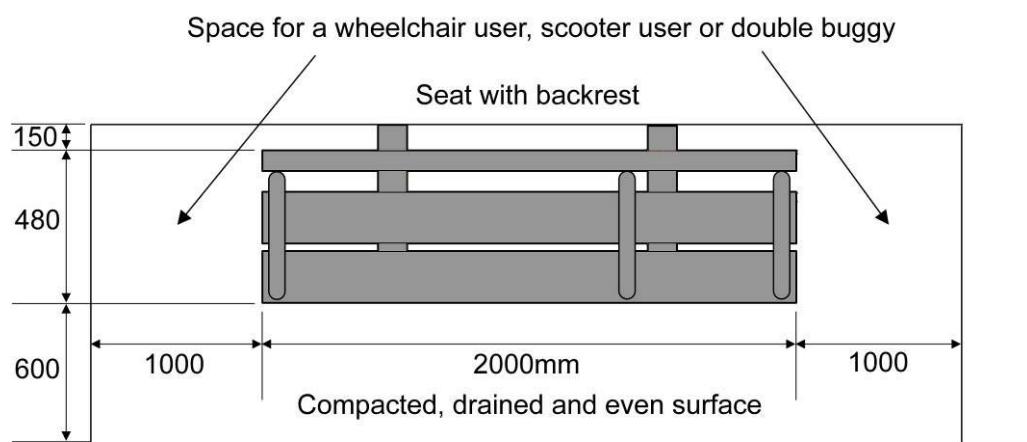
External movement and inclusive design

4	Seating/Rest points
Design Intent	
<p>Mobility ranges vary greatly between disabled people, while factors such as weather, topography (gradients) and obstacles can also affect mobility ranges (see Appendix 4). Resting places should therefore be provided on all circulation routes.</p> <p>Mobility impaired people need to rest and recover at reasonably frequent intervals, in commonly used pedestrian areas and the frequency of seating provision should consider the mobility ranges of disabled people as described in Standard 1 - Graded routes.</p>	
Inclusive design guidelines	
<p>Seating areas should provide a choice of different seat designs, for example single seats and benches and some seats should have backrests.</p> <p>As an alternative to standard seating, consideration should be given to the provision of perching seats, either fixed or pull-down, with and without backs, as casual rest places in longer circulation routes.</p> <p>When considering the design of seating designers should note that materials that are cold to the touch are best avoided.</p> <p>Seating should be located along, but not within, pedestrian routes and may be combined with/ associated with merchandising, toilet provision and other spectator support services within the Olympic Park.</p> <p>Seats may also be located on soft landscaping though this will require an associated accessible route.</p> <p>Seating provided in close proximity to each end of bridges</p> <p>The preferred distance on level ground between resting places is 50m¹, though this may not be a formal seat.</p> <p>Seating should:</p> <ul style="list-style-type: none">• have a seat height of between a height of 470mm – 480mm for seats and benches¹• have a seat height of 650 mm – 800 mm for perch seats²	

External movement and inclusive design

- be clearly identifiable against their surroundings²
- be sited on a suitable surface²
- designed to allow a wheelchair user or scooter user to sit alongside friends and family or in groups²
- armrests when provided at approximately 200mm above seat level¹

Diagram 1: Indicative seating layouts



¹ Inclusive Mobility Department of Transport 2002

² BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

External movement and inclusive design

5	Walking surfaces (external)
Design intent	
<p>Surface finishes can render an accessible route inaccessible. However, it is possible to improve the accessibility and provide valuable information for disabled people if the correct choice of materials is made. The choice of material and colour are important in determining this.</p> <p>The best type of surface is smooth, firm and slip resistant. Surfaces must be hard enough so that wheels and sticks do not sink into them, generally packed surfaces such as crushed rock, gravel, sand or grit surfaces are not suitable.</p>	
Inclusive design guidelines	
<p>Visual contrast is to be used to indicate level differences; it should not be used when it may confuse visually impaired people.</p> <p>When paths are used as a wayfinding tool they should have a consistent use of colour and surface.</p> <p>Footways and footpaths should:</p> <ul style="list-style-type: none">• be even, firm, well drained surface that is non-slip in both wet and dry weather conditions²• have a minimum pendulum test value (PTV) of 40¹• be installed with any necessary joints closed and flush to prevent small wheels, walking sticks and canes becoming trapped²• have a surface that is even and stable, with any variation of surface profile not exceeding $\pm 5\text{mm}$ (e.g. between paving, surface features or different surfaces)²• have well defined edge treatments such as planting, a change of textures or by the use of kerbs (minimum 25mm) used to indicate to visually impaired people the extent of the path³• have a visually contrasting surface to their surroundings³• have a cross fall no greater than 1:50³	

External movement and inclusive design

- be well lit³

Covers and gratings within walking areas are to:

- be flush and non-slip²
- have openings no greater than 13mm wide³
- gratings or 'slot' type drainage are not to be used in pedestrian areas and at pedestrian crossing points³
- integrated into the surrounding area, which includes tactile surfaces at controlled crossing points⁴

Footways and footpaths are not to use:

- busy patterned surfaces including stripes⁴
- highly reflective materials as they appear to be slippery even if they are not, and they cause reflective glare³

¹ Safer surfaces to walk on – reducing the risk of slipping, CIRA, 2006

² Access to and Use of Buildings Approved Document M (2004) Building Regulations

³ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

⁴ Guidance on the use of Tactile Paving Surfaces, DfT, 1998

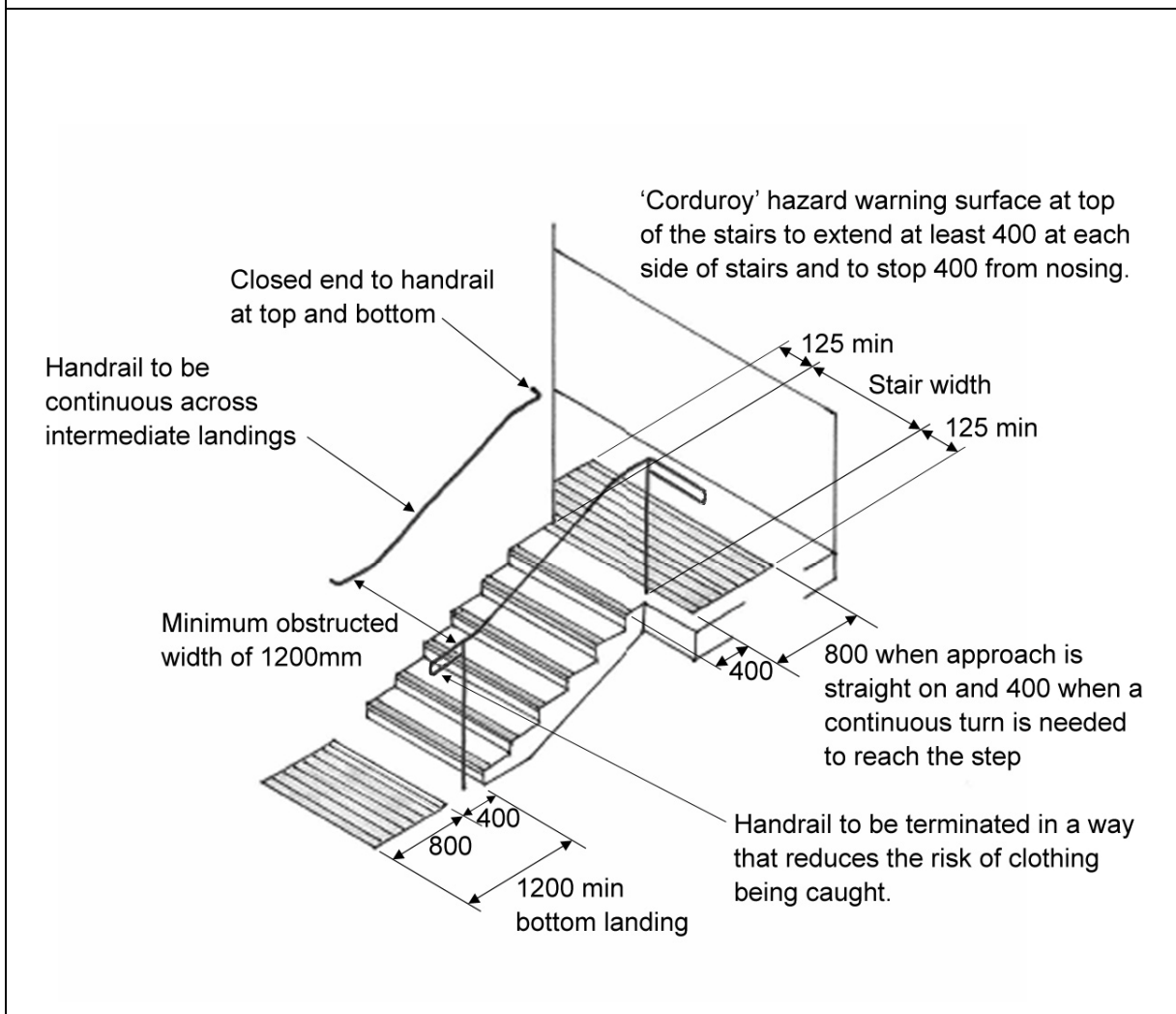
External movement and inclusive design

6	Tactile paving
Design intent	
<p>Tactile paving is used to warn visually impaired people of hazards in the environment.</p> <p>The main use of tactile paving within the Olympic Park and venues will be to identify steps and stairs. Guidance is given in this standard on the correct application of corduroy tactile paving.</p> <p>For visually impaired people the provision underfoot of a timely warning that there is a change in level is essential. They risk tripping or losing their balance if they are not made aware of changes in level, steps or a flight of stairs. The greatest risk of tripping is at the head of a flight of steps or stairs. It is essential to ensure that people are aware that they are approaching a change in level.</p> <p>External steps along a route without warning or in an unexpected position may cause a person to trip or fall. Designers need to be aware of the potential risk of having steps directly in line with an access route and therefore where this is provided the steps must be clearly identifiable to visually impaired people.</p> <p>The excessive use of tactile surface can cause confusion; it is therefore recommended that that care is taken to avoid conflicting and confusing information particularly in spaces likely to be used by crowds of people.</p>	
Inclusive design guidelines	
<p>It is not reasonable to require a hazard warning surface at the head of internal stairs since there is no recognised warning surface for use internally which can be guaranteed not to constitute a trip hazard when used alongside flooring surfaces with different frictional resistance characteristics.¹</p> <p>A corduroy hazard warning surface is only required for an internal stair that is directly in line with an access route. Where it is unavoidable the frictional resistance characteristic of the warning surface must be comparable with its surface used for the flooring and the stairs.¹</p> <p>Application:</p>	

External movement and inclusive design

- a ribbed corduroy paving strip needs to indicate the approach to the head and foot of external steps or stairway¹ in accordance with Diagram 2
- the surface to be laid so that the bars run transversely across the direction of pedestrian travel¹
- extend across the full width plus 125 mm each side of stairs at top and bottom¹
- be 800mm deep¹

Diagram 2: Corduroy paving at top and bottom of external steps



¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations

External movement and inclusive design

7	Street furniture
Design Intent	
<p>The ODA will work closely with LOCOG, LDA and other partners to determine the location and use of street furniture in Games and Legacy. In planning the Common Domain of the Olympic Park the ODA needs to ensure suitable space and appropriate locations are identified for the greatly increased amount of street furniture likely to be required during the Olympic Games and Paralympic Games</p> <p>The organisation and language that is expressed in the landscaping, pathways and street furniture will be a key factor to ensuring a safe and accessible Olympic Park design.</p> <p>Street furniture, planters, litter bins and signposts are all intended to improve the environment however, they are hazardous if not carefully designed and positioned, even when projecting from a building.</p> <p>Permanent fixtures are to be located where they are appropriate for the legacy development, for example on the permanent sections of bridges.</p> <p>During the Olympic Games and Paralympic Games standard height bollards will not be seen by people in dense crowds, and this can cause accidents. It should be noted that bollards at recently completed football stadia have been designed to be significantly higher than standard height bollards, for example at the Emirates Stadium which has bollards at 2.2m high.</p>	
Inclusive Design Guideline	
<ul style="list-style-type: none">• permanent street furniture to be placed in areas that will not obstruct or create a dangerous situation for disabled people, especially people who can not see the obstruction¹• street furniture, planters, litter bins and signposts are to have smooth rounded edges to reduce the possibility of injury in case of impact¹• warnings underfoot or furniture that can be detected by the sweep of a cane will reduce the risk of colliding with items located along access routes¹• lighting columns, signposts, litter bins, trees, bollards and seats to be located at or beyond the boundaries of pedestrian routes²	

External movement and inclusive design

- furniture to be visually contrasting with the surroundings and be apparent in all lighting conditions¹
- a minimum of width between bollards of 1000mm is required ²
- each free-standing post or column within a circulation area will incorporate a 150mm wide visually contrasting band whose bottom edge is between 1400mm – 1600mm above ground level²

¹ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

² Inclusive Mobility, Department for Transport, 2002

External movement and inclusive design

8	Signage
Design Intent	
<p>A visit to the Olympic Games and Paralympic Games is likely to be a once in a lifetime event for most people and the signage used should reflect this.</p> <p>The signage strategy adopted around the Olympic Park will be critical in ensuring that everyone can easily navigate their way around the site. It is imperative that all signage, permanent and temporary, around the Olympic Park and venues is accessible for as wide a range of visitors as possible, including both front and back of house signage.</p> <p>The system of signage should be complementary to the environment and be consistent throughout the park and venues during the Olympic Games and Paralympic Games and in Legacy. thus providing a simple consistent method for people to find their way.</p> <p>Signage is a very important access tool for people who are Deaf, deafened or hard of hearing. Visually impaired people and people with language and learning difficulties require signs to be designed in specific ways. By addressing the needs of disabled people the signage system will becomes more accessible to everyone.</p> <p>The Access Statement for the Olympic, Paralympic and Legacy Transformation Planning Applications February 2007 states that all signage from the approaches to and within the Olympic Park will be designed to an inclusive signage strategy.</p>	
Inclusive design guidelines	
<p>Wayfinding used to navigate unfamiliar environments should not rely exclusively on text-based signage, but utilise more information systems, for example:</p> <ul style="list-style-type: none">• colour• architectural elements such as for example the wind turbine, the aquatics centre• identification and confirmation as well as directional information• simple symbols• careful language <p>This design standard is to support the LOCOG inclusive wayfinding strategy as it is developed. Further guidance will be discussed with LOCOG.</p>	

External movement and inclusive design

9	Lighting
Design Intent	
<p>The lighting for the Olympic Games and Paralympic Games will be very different from that required in Legacy. The ODA will work with LOCOG to develop the lighting strategy across the Olympic Park.</p>	
<p>During the Games the Olympic Park will be used late into the evening as well as during the day. Lighting will be important at both low level to indicate pathways/routes and at a higher level to allow peoples faces to be clearly lit and identified.</p>	
<p>Appropriate lighting conditions are important for Deaf, deafened and hard of hearing people who rely on lip reading to communicate and for partially sighted people to maximise their field of vision. Lighting also has security implications, in particular, where CCTV cameras are used.</p>	
<p>Lighting around the Olympic Park will be critical to the success of the Olympic Park both during the Games and in Legacy.</p>	
Natural Light	
<p>Bright sunlight can make it harder for people to detect and avoid potential hazards, especially those with poor contrast with their backgrounds, for example, structural glass.</p>	
<p>Reflections can cause visual confusion and reflected glare can dazzle a person. This may cause them to move to avoid an 'object' which could potentially see them unwittingly bump into another.</p>	
Artificial light	
<p>Particular attention should be paid to main circulation routes, venue and amenity entrance/exit points and places where people may be expected to interact with others, manoeuvre or may change pace.</p>	
<p>The level and source of lighting is important to people who need to lip read.</p>	
<p>Lighting must illuminate both the horizontal and vertical plane to facilitate lip reading and the reading of signs,</p>	

External movement and inclusive design

The use of lighting for effect must be balanced with the need to maintain a safe environment, particularly for visually impaired people.

Inclusive design guidelines

Artificial lighting requirements

- lighting is needed to illuminate routes, avoiding glare, confusing reflections or shadows¹
- transitional lighting to be provided between areas of lighting level changes to allow peoples eyes to adapt to the different levels²
- any information points, kiosks, counters found around the Olympic Park are to be lit to allow lip reading²
- down lighters are to be carefully located so that they do not create shadows across people's faces making lip-reading difficult³
- up lighters are not to be provided on pedestrian routes²
- see also guidance on emergency lighting in Standard 20 - Emergency egress

¹ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

² Access to and Use of Buildings Approved Document M (2004) Building Regulations

³ Inclusive Mobility, Department for Transport, 2002

External movement and inclusive design

10	Parking
Design intent	
<p>No private vehicles will be permitted within the Olympic Park during the Olympic Games and Paralympic Games.</p> <p>Public parking for disabled people will be provided in the Northern and Southern Transport Malls. The guidance on Blue Badge bays is to be followed for all of these areas.</p> <p>Where car parking is provided for the Olympic Family, including officials, staff, media representatives and so forth, this guidance is to be applied.</p> <p>People who qualify for a blue badge include people who are blind or cannot walk a distance of up to 50 metres without severe pain. This should be borne in mind when deciding where to site vehicle parking spaces for disabled people for the Olympic family and in the legacy developments.</p> <p>Appropriate provision should also be made for bus/coach parking/drop-off and pick-up areas, taxi drop-off/collection and any interlinking transport systems.</p>	
Inclusive design guidelines	
<p>Blue Badge parking bays will:</p> <ul style="list-style-type: none">• be in accordance with Diagram 3 below¹• have dimensions of 2.4 x 4.8m³• have a 1.2m access zone between bays³• have a 1.2m safety zone for boot access³• have the international symbol of disability painted on the surface of the bay and additional signage on a post sited at one end to indicate the bays are reserved for use by Blue Badge holders³ <p>Car parking spaces will meet the following criteria:</p> <ul style="list-style-type: none">• Blue Badge bays to be within 50m of building entrances in legacy¹	

External movement and inclusive design

The ratio of Blue Badge bays provided:

- minimum one space for each employee who is a disabled motorist plus
 - 6% of the total capacity for visiting disabled motorists³ or
 - 8% for sports facilities and for 50m swimming pool²
- walking surfaces will conform to Standard 5 - Walking surfaces (external)
- the maximum acceptable height of vehicle is shown on the approach to the car park³
- directional signage to the accessible parking bays will be provided from the car park entrance¹
- where there is a pavement between the parking bays and the access route, a dropped kerb is to be provided alongside the bays and it should preferably be set off from the line of pedestrian travel¹

If it is not possible to locate accessible spaces within 50m of a principal accessible entrance or accessible transport link then suitable seating with arms and backrests should be provided to create resting areas every 50 metres.⁴

In Legacy a drop-off/pick-up bay must be provided. This should be sheltered where possible and immediately adjacent to the main entrance of buildings.¹

Consideration to be given to making provision for people 'driving from wheelchair'. Commonly these drivers access and egress their vehicles via a side or tail lift or ramp and require up to 2 more metres clearance to be able to drive on/off their ramps.

Multi-storey car parks:

- designated parking spaces to be clearly sign-posted and at the same level as the principal, or alternative, accessible entrance to the building or the main access route to and from the car park
- travel distances from parking spaces to the exit (or lift if not on the exit floor) to be no greater than 50m³
- a suitable passenger lift to be provided, between levels (see Standard 16 - Lifts)³
- signage to be provided, indicating the accessible route to accessible ticket machine(s), to the lift(s), to the storey and final exits³

External movement and inclusive design

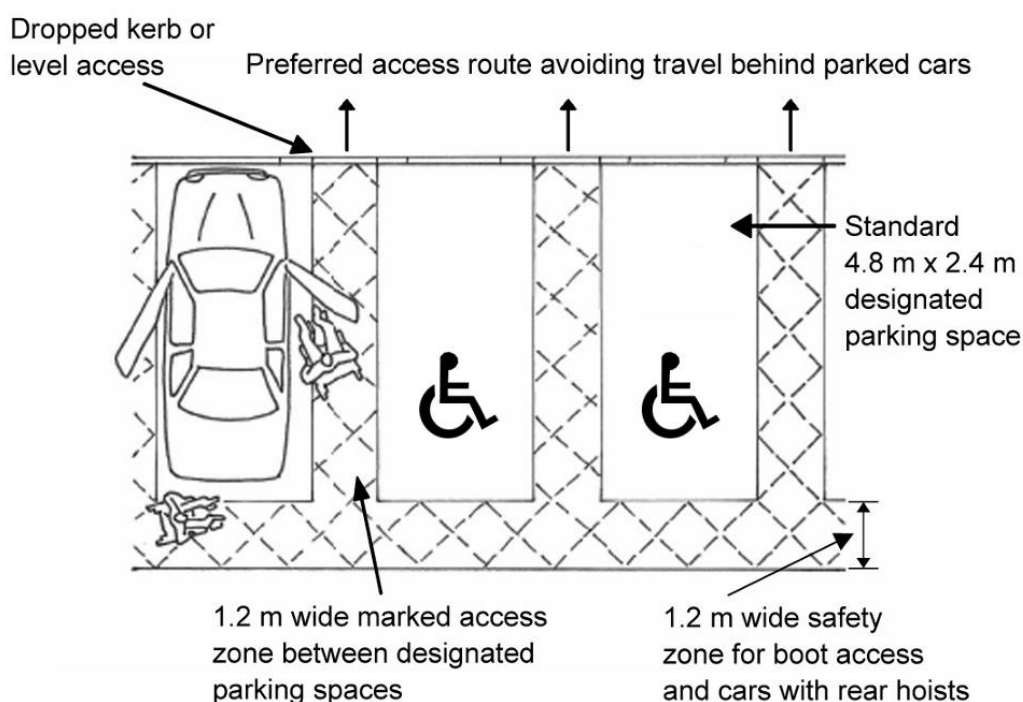
Some disabled motorists use vans or high-top cars, others use cars with their wheelchair stowed on top of the vehicle, making the height of a route to, from and at an accessible car parking space critical.

- the minimum vertical clearance, from carriageway to designated parking bays to be 2600mm⁴
- it is essential that the maximum vertical clearance for vehicles is shown on the approach to the car park before any likely queue can form into the car park

Cycle racks

- provide space for adapted cycles and tandems

Diagram 3 Accessible parking bay layout



- ¹ BS 8300:2001 (incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001
- ² Access for Disabled People, Sport England, 2002
- ³ Access to and Use of Buildings Approved Document M (2004) Building Regulations
- ⁴ Inclusive Mobility, Department for Transport, 2002

External movement and inclusive design

11	Assistance dog spending areas
Design Intent	
<p>Some disabled people visiting the Olympic Park will need to bring an assistance dog with them. While primarily people with sensory impairments require an assistance dog, people with mobility impairments and wheelchair users may also have an assistance dog.</p> <p>The visit times to the Olympic Park and venues have been estimated as between 5 and 14 hours. It will be essential to provide areas for assistance dogs to be watered and so forth, these spaces are known as dog spending areas.</p> <p>It will also be important to provide appropriate facilities for assistance dog owners at these areas, such as signage and seats.</p> <p>In legacy spending areas should be located in reasonable proximity of the permanent venues and the entrances, while during the Olympic Games and Paralympic Games it is recommended that at least three locations are identified, in the central, north and south areas of the Olympic Park.</p>	
ODA Design guidelines	
<p>Assistance dog spending areas criteria:</p> <ul style="list-style-type: none">• they should be a secure area of minimum 3m x 4m, with a boundary fence/wall at a minimum height of 1200mm• 50% grass surface and 50% hard-standing• slight gradient to assist drainage• entrance gate to be accessible to wheelchair users and have a minimum area of 1500 x 1500mm to allow wheelchair users to turn round• a water supply and hose should be provided• include seats	

Internal movement and inclusive design

12	Entrances
Design Intent	
<p>During the Olympic Games and Paralympic Games spectators will be visiting venues for the first time and will not understand their layout. It is important that buildings are easily understandable to ensure smooth crowd flow movement.</p> <p>Entrances should therefore have a logical relationship within the routes that serve them and be clearly identifiable to avoid nugatory travel for disabled people approaching the venue or facility.</p>	
Inclusive design guidelines	
<p>Entrance doors should be:</p> <ul style="list-style-type: none">• easily distinguishable from the façade¹• provided with canopies as protection from bad weather¹• the approach to any door entry controls to be clear of obstructions and away from any projecting columns or return walls¹• door entry systems need to be<ul style="list-style-type: none">○ accessible to people who are Deaf, deafened or hard of hearing and people who cannot speak²○ accessible for people with visual impairments, be clearly identifiable and have tactile features²○ easy and intuitive to be accessible to people with cognitive impairments○ positioned and adjusted so that the door starts to open when a person is no closer than 1400mm from the leading edge of the door when open at 90°¹• thresholds to be flush (a maximum change in level of 15mm is permissible if they are clearly visible and chamfered and the floor finishes are graded to provide a flush junction)²	

¹ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

² Access to and Use of Buildings Approved Document M (2004) Building Regulations

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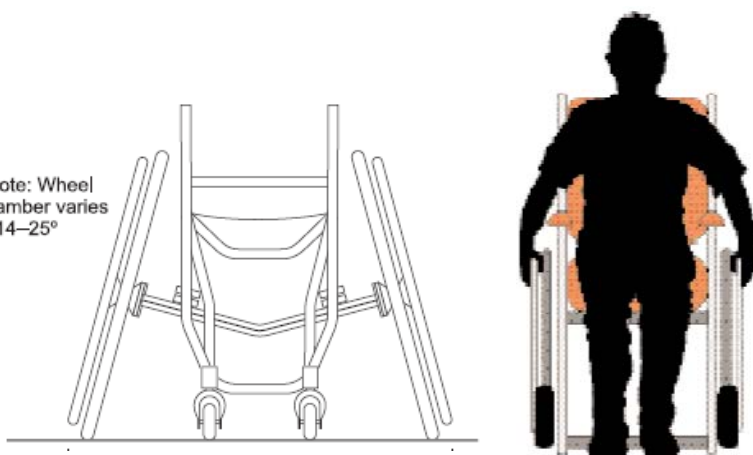
13 Doors

Design Intent

The nature of Olympic and Paralympic Sports make it essential that all doors to rooms, spaces and along corridors in venues be designed to provide at least the minimum effective clear door opening appropriate to the type and scale of the facility (e.g. a suitable width to accommodate sports wheelchairs where appropriate).

This is an essential factor to consider where athletes who are competing or where there may be a change over of teams. E.g. Wheelchair Basketball where the standard wheel base of the chair is wider.

Note: Wheel
camber varies
c14–25°



Inclusive design guidelines

Revolving doors with adjacent pass doors are not considered inclusive and therefore should not be used.¹

Keep the number of internal doors to a minimum as they can restrict progress.

Automatic sliding doors are preferred wherever their installation is possible².

Ensure all external and internal door widths (front and back of house) are wide enough for Games and Legacy use (i.e. sports facilities and sports wheelchairs in public circulation routes as well as back of house areas allowing other teams to spectate during tournaments).

Effective clear openings for doors to range from 825mm to 1200mm depending on the activity, in accordance with Sport England Guidance³.

Internal movement and inclusive design

Design criteria for door is:

- entrance doors to have a minimum effective clear opening width of 1000mm⁴
- all internal doors to rooms (not plant) or along corridors to be designed to provide at least the minimum effective clear door opening appropriate to the type and scale of the facility, a minimum effective clear width range of 800mm up to 825mm depending on the angle of approach to the doorway and the corridor width⁴
- double doors must have at least one leaf that provides the minimum clear opening appropriate to the type and scale of the facility⁴
- locate all doors so that there is clear wall space of at least 300mm⁴ to the leading edge side, for doors to be used by sports wheelchair users this is to be increased to 500mm³.
- all doors are to be designed and located so that they can swing to at least 90°
- bi-fold and manual sliding doors are not to be used
- where privacy is not required doors should incorporate visibility glazing from a height of 500 -1500mm⁴
- the opening force on manually operated doors, when measured at the leading edge of the door, is to be not more than 30N from 0° (the door in the closed position) to 30° open, and not more than 22.5N from 30° to 60° of the opening cycle⁴
- where fitted with a latch, the door opening furniture can be operated with one hand using a closed fist, e.g. a lever handle
- the leading edge of any door that is not self-closing, or is likely to be held open, contrasts visually with the door surfaces and its surroundings
- all door opening furniture contrasts visually with the surface of the door⁴
- the door frames contrast visually with the surrounding wall⁴

See also Standard 17 - Circulation corridors

¹ Designing for Accessibility, CAE and RIBA Enterprises, 2004

² BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

³ Access for Disabled People, Sports England 2002

⁴ Access to and Use of Buildings Approved Document M (2004) Building Regulations

Internal movement and inclusive design

14	Steps
Design Intent	
<p>Steps represent barriers to movement for a large proportion of people, including people with impaired vision, people with children and mobility impairments. These people are generally unable to manage incorrectly designed flights of stairs.</p> <p>Wheelchair users are unable to use steps, however some ambulant disabled people have difficulty using ramps, for example people who cannot flex their knees or ankles. Therefore even where ramps are provided steps are also necessary to ensure suitable access is available for all people.</p>	
Inclusive design guidelines	
<p>Steps are also to be provided where there are ramps or lifts.</p> <p>The preferred number of steps is 12 in a flight as recommended in the Approved Document M¹. 16 risers are only permissible in small premises where the plan area is restricted.</p> <p>To help ensure a free flow of people and avoid crowd pressures building up, the head of each stairway should be designed so that the flow onto the stairway is uniform across its width.²</p> <p>In areas of spectator accommodation, any approach from directly behind a stairway (that is, from higher up the seating deck or standing area) should be controlled using the same methods as recommended for vomitories.²</p> <p>Where steps are provided they will:</p> <ul style="list-style-type: none">• have no winders or be tapered²• be no less than two risers in each flight³• have no open risers⁴• have a minimum unobstructed width of 1200mm¹• have uniform risers and goings in accordance with the Approved Document to Part M of the Building Regulations• have riser with a recess of no less than 60°¹• have slip resistant treads in accordance with BS 5395-1	

Internal movement and inclusive design

- have visually contrasting nosings extending the full width of the stair at the recommended depth of 55mm in both the tread and the riser, which will be particularly important for visually impaired people¹
- have suitable warning at the top of stairs for visually impaired people. This might be through the combined use of visual contrast and surface materials or through tactile paving where appropriate (see Standard 12 - Entrances)²
- have a depth of each landing, at the head and foot of stairways, and between flights, of not less than the width of the channel of the flight, with the unobstructed length of each landing (clear of any door swings) not less than 1200mm but 1800mm preferred
- have handrails on both sides¹ and on intermediate landings as in Standard 15 - Handrails
- have additional handrails where the width of stairway is greater than 1800mm to give people extra support¹
- be clearly identifiable and contrast visually with their surroundings
- be well lit in accordance with the CIBSE standards⁵
- not be constructed from materials that are highly reflective
- have open areas under stairs that are free from injury hazards by providing guarding or being closed off

Escape stairs should be designed to the same standard as general circulation stairs, including contrasting nosings.

¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations

² 'Green Guide' Guide to Safety at Sports Grounds

³ Inclusive Mobility: A guide to best practice on access to pedestrian and transport infrastructure, Mobility and Inclusion Unit, Department for Transport, 2002

⁴ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

⁵ Code for Lighting, Chartered Institution of Building Services Engineers (CIBSE), 2000

Internal movement and inclusive design

15	Handrails
Design Intent	
<p>Handrails give support to people as they cope with changes of level, therefore they must be securely fixed.</p> <p>The horizontal extension of a handrail beyond the first and last steps allows an individual to steady or brace themselves before ascending or descending. Visually impaired people recognise the change in slope of the handrail and its return into a wall as a signal that they have reached the start or finish of a flight.</p> <p>The requirement for handrails that are not cold to touch is to be considered, particularly for rails that will continue to be used in Legacy, however, long-term maintenance and the need to provide sustainable materials are equally important.</p>	
Inclusive design guidelines	
<p>Handrails are to:</p> <ul style="list-style-type: none">• be continuous at each side of steps and ramps¹• be at a height between 900 - 1000mm above the pitch line to top of the handrail²• 1100mm high when acting as a balustrade• extend 300mm horizontally past top and bottom of first and last step before returning to ground/wall/ finishing in positive end¹• be round with a 40-50mm diameter or elliptical and 50mm wide and 38 deep²• stand off any wall/obstacle between 50-60mm²• be 50mm above any fixing bracket²• not project into the minimum clear width of the stair, ramp or corridor²	

¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations

² BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

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16	Lifts
Design Intent	
<p>It is important that disabled people are able to access all facilities and venues. Changes in level generally cause problems for many people particularly disabled people with mobility or visual impairments.</p> <p>A passenger lift is the most suitable means of vertical access¹ to get to facilities within a suitable timescale and in comfort.</p> <p>The number of lifts provided and their sizes will need to accommodate the expected people flow in public spaces between events within venues that are unique to the Olympic Games and Paralympic Games.</p>	
Inclusive design guidelines	
<p>Lifts play a vital role in vertical circulation where level changes exceed 2m¹.</p> <p>It should be noted that while such changes in level can be overcome via a ramp the additional travel distance makes it an inaccessible option for circulation routes in all but emergency situations.</p> <p>Facilities and venues should have a passenger lift serving all storeys as required by the Building Regulations¹</p> <p>Approved Document M states that passenger lifts are to be provided in new buildings and that platform lifts and wheelchair stair lifts should not be used¹.</p> <p>Lifts are to:</p> <ul style="list-style-type: none">• conform to the requirements of BS EN 81-1 and BS EN 81-2 and BS EN 81-70¹• be sufficiently sized to accommodate the expected visitor numbers and to meet acceptable waiting times for spectators entering and leaving venues between events. (N.B. During the Games mobility scooter users will require access throughout venues)• be easy to find and have lift doors that contrast visually with the adjoining wall¹• be located adjacent or close to any circulation steps or ramps provided¹• have suitable door opening widths, ranging from 900 to 1100mm depending on the	

Internal movement and inclusive design

sporting activity of the venue²

- have a audible and visual signalling system to provide the user with a warning that the lift has arrived³
- lighting within the lift car should not cause glare, reflection, confusing shadows or pools of light and dark and be a minimum LUX of 100 at floor level
- have a floor with a high Light Reflection Value that is firm and slip resistant³
- have a mirror that does not cause visual confusion and provides views at high and low level for a wheelchair user to see behind them when reversing³
- glass lifts to have adequate visual contrast between floor, walls, handrails and so forth³
- on all glass doors and walls there should be permanent manifestations at two levels, within 850mm to 1000mm from the floor and within 1400mm to 1600mm from the floor¹
- the control system shall allow for the door dwell time to be adjustable to suit the conditions where the lift is installed³, the recommended dwell time is 5 seconds⁴
- have controls available at each entrance point where the lift has two entry/exit points above first floor level⁴
- have visual and voice indication of floor levels and, possibly, the facilities available on each floor³
- have controls that have an embossed legend on the face of the control button, or adjacent to the button
- have emergency two-way intercom fitted with an inductive coupler³
- have a 'Help Coming' sign to be illuminate when the alarm is answered³

See also Standard 20 - Emergency evacuation for information on evacuation lifts

¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations

² Access for Disabled People, Sport England, 2002

³ BS EN 81 70: Safety rules for the construction and installations of lifts — Particular applications for passenger and good passengers lifts — Part 70: Accessibility to lifts for persons including persons with disability

⁴ Inclusive Mobility, Department for Transport, 2002

Internal movement and inclusive design

17

Circulation corridors

Design Intent

Corridors must be wide enough to allow wheelchair users to approach and gain easy access through doors off the corridor. Designers need to consider the unique demands of the Olympic Games and Paralympic Games, in particular the flow of wheelchair user athletes back of house and the high percentage of wheelchair user visitors during both the Olympic Games and Paralympic Games.

Corridors and passageways need to be wide enough to allow wheelchair users to manoeuvre, for other wheelchair users to pass and, where necessary, to turn through 180°.

Stadia circulation routes are to be planned to minimise travel distances from entrances to seats, and from seats to refuges, evacuation lifts, toilets and refreshments.

During the Olympic Games and Paralympic Games there will be a requirement for disabled people to pass each other in corridors that will be much busier than they will be in legacy.

Designs should take account of crowds where the visibility of wheelchair users or others of short stature is impeded and where reversing or turning around in a wheelchair in a confined width would cause great disruption to people flows and will also cause frustration to disabled people and non-disabled people alike.

BS8300⁴ gives some examples of the space required by individuals to move freely and also clearly indicates the minimum required space for two wheelchair users to pass.

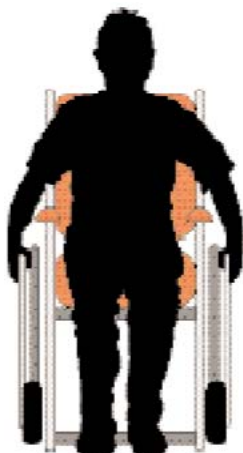
A blind person using a long cane requires a width of 1200mm as does someone using crutches. It also indicates that an ambulant person passing a wheelchair user will require a width of 1500mm.

Two wheelchair users using '**standard**' width wheelchairs one can see each other approaching will require a minimum corridor of 1800mm. This measurement takes no account of crowds where the visibility of wheelchair users is impeded and where reversing or turning around in a wheelchair in a confined width would cause great disruption to disabled people and non-disabled people alike.

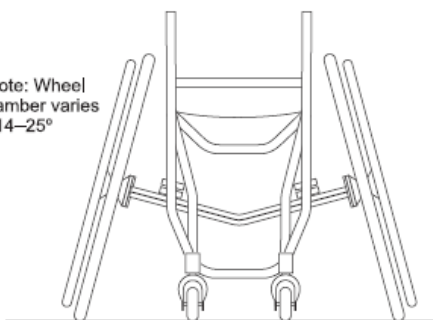
Further this minimum width takes no account of athletes using wider wheel based wheelchairs such as those used for sporting activities.

Internal movement and inclusive design

This is an essential factor to consider where athletes who are competing or where there may be a change over of teams. E.g. Wheelchair basketball where the standard wheel base is wider.



Note: Wheel
camber varies
c14–25°



In addition as clearly shown the width of the 'standard' manual wheelchair is increased by the user's hands. Wheelchair users often wrap their knuckles when passing through a narrowed space.

The width should then be increased to take into account the additional anticipated usage of related facilities. Experience shows that this usage may be greater than is often expected.²

Inclusive design guidelines

The ODA requires that the designs meet the requirements of the Green Guide and Sport England Guidance where appropriate.

Corridors are to be unobstructed. Fire extinguishers, radiators, and so on are not to project into the clear corridor width to ensure they do not present a hazard to children, wheelchair users or visually impaired people.¹

Concourses should be designed to allow for the smooth, unimpeded passage of people through the ingress and egress routes. In addition, careful design should ensure that during periods of peak use circulation is not impeded.²

N.B The Green Guide defines a concourse as a circulation area that provides direct access to and from viewing accommodation, via stairways, ramps, vomitories or level passageways, and which serves as a milling area for spectators for the purposes of refreshment and entertainment. It may also provide access to toilets.

Internal movement and inclusive design

In larger facilities or in those areas where it can be anticipated that there will be large numbers of wheelchair and scooter users, the corridor width is to be increased to 2000mm to allow wheelchair users to pass each other freely along main routes.³

Provide splayed or radius corners wherever possible.⁴

It will be particularly important during the Olympic Games and Paralympic Games to ensure that in venues where athletes may be using sports wheelchairs that corridors are sufficiently wide to ensure access. Sport England³ recommends a corridor width of 2000mm in such locations.

A minimum corridor width for main circulation routes of 1.8m should be provided for two wheelchairs to pass, with an unobstructed minimum width of 1.0m at short localised restrictions.⁵

Secondary corridors to have a minimum width of 1200mm with passing places at least 1800mm long and with an unobstructed width of at least 1800mm at reasonable intervals.⁶

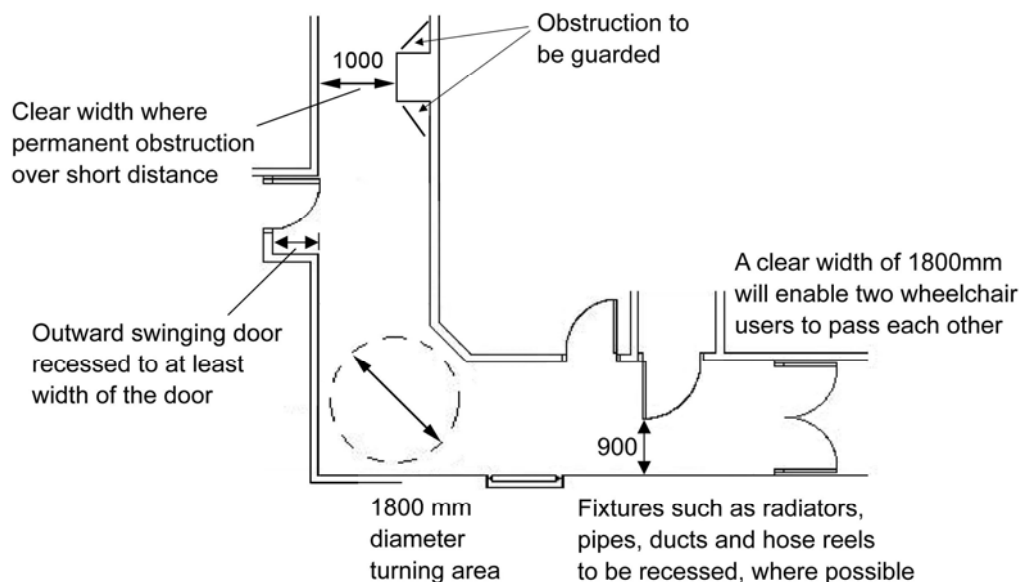
Doors, other than those for accessible toilets, must not open out into corridors.⁶

All parts of the building to which the public have access are to have a minimum headroom of 2.1m (Wherever possible, this should be raised to 2.4m in circulation routes and viewing areas, particularly the rear of covered seated areas).²



Internal movement and inclusive design

Diagram 4: Preferred minimum corridors dimensions



¹ Access to and the Use of Buildings Approved Document M 2004 of the Building Regulations 2000

² Guide to Safety at Sports Grounds 'Green Guide' HMSO 1997

³ Access for Disabled People, Sport England, 2002

⁴ BS 8300:2001 (incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

⁵ Accessible Stadia FLA 2003

⁶ Access to and the Use of Buildings Approved Document M 2004 of the Building Regulations 2000

Internal movement and inclusive design

18	Floor surfaces (internal)
Design Intent	
<p>The flooring system used needs to ensure that all people can travel horizontally within the venues and facilities conveniently, safely and without discomfort.</p> <p>In wet areas adequate heating is essential and drainage falls must be provided to keep the floor as dry as possible.</p> <p>Glossy or highly polished materials are not to be used as they appear to be slippery (even if they are not) and they cause reflective glare that will confuse visually impaired people.</p>	
Inclusive design guidelines	
<p>At entrances with heavy pedestrian traffic, entrance matting systems deeper than the minimum 1500mm are likely to be required.</p> <p>Matting and carpets must have a shallow, dense, non-directional pile.</p> <p>Glossy or highly polished materials are not to be used.</p> <p>As external surfaces with the further requirements:</p> <ul style="list-style-type: none">• at entrance points a floor surface that removes water to be provided, ensuring that floors remains dry and slip resistant• firm, fixed and flush with surrounding levels• a minimum depth of 1500mm¹• mat wells depths designed to ensure that the mat is level with adjacent floors• coir type matting is not to be used <p>In areas that may become wet, such as the building entrance, changing and shower areas or poolside anti-slip surfaces or safety flooring to be used that accords to HSE guidance:</p> <ul style="list-style-type: none">• wet flooring should have a minimum pendulum test value (PTV) of 65²• water wet pedestrian areas are also required to have a 20 +µm Rz surface roughness	

Internal movement and inclusive design



Highly reflective floor surfaces often appear wet and are a barrier to many disabled people

- ¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations
- ² Assessing the slip resistance of flooring: A technical information sheet, Health and Safety Executive, 2007

Internal movement and inclusive design

19	Structural glazing
Design Intent	
<p>Poorly designed structural glazing can be a hazard and a barrier to many people, especially those with visual impairments.</p> <p>It is important that designs and glazing types take cognisance of the need to avoid glare from the sun and reflections during hours of darkness.</p>	
Inclusive design guidelines	
<ul style="list-style-type: none">• glazed doors and associated side panels not to incorporate fully glazed frameless entrance doors¹• full height glazing must be clearly identified by visually contrasting manifestations (contrasting visually with what they are seen against) at 1400mm and 1600mm above floor level)²• repeat manifestations at low level (850–1000mm)²• all glass doors must be clearly distinguishable from any adjacent glazing from both sides³• all glass doors must be clearly distinguishable from their surroundings¹	

¹ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

² Access to and Use of Buildings Approved Document M (2004) Building Regulations

³ Glazing - safety in relation to impact, opening and cleaning Approved Document N (1998) Building Regulations

Internal movement and inclusive design

20	Emergency egress
Design Intent	
<p>Well designed facilities should reduce the need to rely on high levels of stewarding during an emergency.</p> <p>Evacuation strategies for disabled people are to be provided for all venues and facilities¹. These strategies will need to consider the high number of disabled people in the field of play/back of house during the Paralympic Games.</p> <p>It should also be noted that the recently revised Olympic Transport Plan (October 2007) identifies that during the Paralympics that between 20%-25% spectators are expected to have access requirements.</p> <p>Safety procedures should be developed to avoid confusion and conflict between disabled spectators and non-disabled spectators during the course of both normal egress and emergency evacuation.</p>	
Inclusive design guidelines	
<p>Escape routes</p> <ul style="list-style-type: none">• escape routes for athletes to be adequately sized to allow free passage of sports wheelchair users in permanent venues and those being used during the Paralympics <p>Horizontal egress</p> <ul style="list-style-type: none">• horizontal travel routes should be free from obstacles, such as steps or raised thresholds. Where such obstacles cannot be removed, a ramp should be provided. (Notices or contrasting floor finishes are required to provide a warning) <p>Vertical egress</p> <ul style="list-style-type: none">• the use of evac chairs is deemed inappropriate by many disabled people and emergency evacuation must be provided by lift. Other emergency egress solutions should be justified in the access statement <p>Evacuation (fire protected) lifts</p> <p>An evacuation lift should:</p>	

Internal movement and inclusive design

- comply with Standard 16 - Lifts and BS 5588 Part 8²
- have the fire resistance of a protected stairway
- be clearly marked and signposted adjacent to an associated refuge
- have two independent power supplies
- have controls that can be isolated
- have any electrical boards, generators, hydraulic pumps protected by fire-resisting enclosure

Stairs and ramps

- the standards for ramps and steps must be met, Standards 2 - Ramps and 14 - Steps
- handrails on escape stairs and ramps to be continuous

Refuges

- must comply with BS 5588 Part 8
- for permanent venues, and those used by the Paralympic Games, suitable enlarged areas of relative safety must be provided to accommodate the estimated number of disabled people (spectators, athletes and staff)
- the use of refuges is not ideal and should be used to support phased evacuation towards evacuation lifts wherever possible
- provide information at refuges outlining the evacuation procedures
- for people unable to use stairs without assistance, one or more refuge points must be provided on each level offering a place of relative safety until assistance arrives
- a two way communication device must be provided at all refuge points, in accordance with BS 5588 Part 8
- the minimum area of a refuge point should be 1400mm x 900mm and should not restrict the escape width
- where a refuge is located in a lobby or stairway, a sign must be displayed 'Refuge – Keep Clear'

Refuges should be located:

- on all floors, except the exit floor(s)
- inside a compartment or protected lobby/staircase/stairway

Internal movement and inclusive design

- in open areas such as balconies, flat roof or podiums that have their own means of escape

Refuges should not be positioned in storeys solely used for plant.

Fire/evacuation alarm signals and lighting

- audio alarm systems should also incorporate the use of flashing lights (flashing lights that do not stimulate photosensitive epilepsy)
- paging/vibrating units to alert Deaf, deafened and hard of hearing staff and frequent venue users should be considered

N.B visual alarms are more appropriate than pagers in water activity areas.

- directional sound evacuation systems should be considered

Management

- emergency evacuation strategies to take account of the needs of disabled people in the building
- trained staff to support the emergency evacuation plan

¹ Fire risk assessment supplementary guide: Means of Escape for Disabled People, Department for Communities and Local Government, 2007

² BS 5588-8:1999 (Incorporating Amendment No.1) Fire precautions in the design, construction and use of buildings —Part 8: Code of practice for means of escape for disabled people

Seating requirements

21	Spectator seating (general)
Design Intent	
<p>Wheelchair user viewing areas and amenity seating are required to ensure that venues are accessible to disabled people.</p> <p>As not all disabled people require amenity seating or wheelchair user accessible viewing areas. It will therefore be important to ensure an appropriate level of accessibility for seating within the venues.</p> <p>Sightlines from seating are important to allow everyone to comfortably watch and enjoy the event and therefore will need to be considered carefully for each individual activity planned both during the Olympic and Paralympic events and in Legacy for the permanent venues.</p>	
Inclusive design guidelines	
<p>A viewing standard that is appropriate for the nature of the venue (Olympic and Paralympic and Legacy modes) is to be provided. Designers should refer to Accessible Stadia and their own access specialist for advice on the relevant viewing standard.</p> <p>Barriers, balustrades, handrails and columns should not obstruct sight lines in venues this is particularly important for people who may not be able to change their position due to their impairment.</p> <p>Seating should contrast visually with the surrounding surfaces.²</p> <p>Prefabricated, temporary or demountable seating all need to satisfy the same criteria.¹</p> <p>The Green Guide recommends a maximum acceptable viewing distance to any part of the pitch for any spectator is 190m.¹</p> <p>All seating will:</p> <ul style="list-style-type: none">• seat height between 450 mm and 475 mm²• the minimum 760mm row depth¹, however greater row depth is recommended for amenity seating with a minimum clearway of 650mm³• some seats are to be located so that an assistance/guide dog can accompany its owner and rest in front of (see Standard 22 - Amenity seating), or under the seat⁴	

Seating requirements

-
- ¹ Accessible Stadia, FLA, 2003
 - ² BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001
 - ³ Access for Disabled People, Sport England 2002
 - ⁴ Access to and Use of Buildings Approved Document M (2004) Building Regulations

Seating requirements

22	Amenity seating
Design Intent	
<p>Amenity seating is required in order need to provide accessible seating for people who have visual impairments or those that have limited movement.</p> <p>Many people with an ambulant impairment are unable to stand easily and therefore need to have reasonable sightlines when seated this is particularly important for people who may not be able to change their position.</p> <p>Additional legroom may be required by mobility impaired users and to allow for an assistance/guide dog to rest in front of or under, the seat.</p> <p>Careful design needs to be given for users of mobility aids and the need for safe storage of these when people are seated.</p>	
Inclusive design guidelines	
<p>Ambulant disabled spectators should have a choice of seating positions and not only in areas that are available for wheelchair users and their companions. They can be accommodated in the standard seating at a variety of locations at all level.</p> <ul style="list-style-type: none">• amenity seating should be located where there are as few as possible steps to negotiate• handrails or other forms of support are recommended where access to amenity seating involves using steps• where amenity seating is accessed via steps these are to be in accordance with Standard 14 - Steps• arm rests give additional support and help disabled people when sitting and standing. If some seats have fold down arms, the needs of a greater number of people will be met. <p>Amenity seating should also be in accordance with Accessible Stadia¹ which states that:</p> <ul style="list-style-type: none">• they are to be dispersed throughout the stadium to provide a variety of locations at different levels• they are to be located close to wheelchair and scooter storage space• some to be provided where the rake of the seating tier is not more than 20 degrees	

Seating requirements

- they are to have armrests to aid spectators
- the seat width (measured from centre of seat to centre of seat) is at least 500mm²

Seats also need to be provided at a suitable height for people with mobility impairments in accordance with BS8300³ which states between 450 mm and 475 mm is suitable.

¹ Accessible Stadia, FLA, 2003

² Accessible Stadia, FLA, 2003 and 'Green Guide' Guide to Safety at Sports Grounds

³ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

Seating requirements

23

Wheelchair user accessible viewing areas

Design Intent

Wheelchair user accessible viewing areas are to be provided in a variety of positions to give all spectators a suitable range and choice of viewing options¹. The uniqueness of the Olympic Games and Paralympic Games will attract a far higher number of wheelchair users and therefore detailed consideration should be given to the design of suitable viewing areas.

The location and the design of the wheelchair user accessible viewing areas need to be designed to be flexible and to ensure ease of increasing the percentage of accessible viewing areas during the Paralympics.

NB During the Olympic Games and Paralympic Games and in Legacy wheelchair users spaces will need to accommodate mobility scooters which are larger and less manoeuvrable than manual or electric wheelchairs.

Inclusive design guidelines

Wheelchair user accessible viewing area and circulation routes, for instance behind the viewing areas, need to be designed first to ensure that at concourse level there is sufficient width to provide flexible accessible seating without impacting on crowd movement. This will allow a flexible design to cater for a single wheelchair user or an entire group of wheelchair users.



Seating requirements

- wheelchair users and family members must have access to each of the facilities offered within a venue
- wheelchair user spaces designed to offer the ability to sit next to disabled or non-disabled companions, including providing space for family members
- clear sightlines are important for some wheelchair users who cannot lean forwards or to the side in order to get a better view
- suitable space for assistance dogs to rest adjacent to their owners needs to be provided¹
- wheelchair user accessible viewing area design to ensure sightlines of both disabled and non-disabled spectators are not compromised¹
- mixture of fixed and removable seats should be provided to accommodate adaptable seating layouts and numbers of disabled people

Wheelchair user accessible viewing areas to be in accordance with Accessible Stadia¹ which states:

- accessible viewing areas are to be designed so that they can be used independently
- spectators who are wheelchair users must not be located in areas that may make them feel isolated from other spectators in the main body of the stand(s)
- wheelchair users must be able to manoeuvre easily to a space that allows them a clear view of the event
- wheelchair user accessible viewing areas are to be dispersed throughout the stadium to provide a variety of locations at different levels
- wheelchair user accessible viewing areas viewing areas to be included in any 'family' areas within a venue
- each wheelchair user position to occupy a minimum area of 1400mm by 900mm wide and be level
- viewing areas are to have an accessible toilet within 40m
- sightlines of wheelchair users should not be impeded when other spectators stand up¹
- riser height where used to be 1200mm minimum

To ensure provision for the greater number of wheelchair users expected to attend the Olympic and Paralympic Game, it may prove essential to design rows of wheelchair user accessible viewing areas together. Therefore to ensure that suitable circulation space is provided:

Seating requirements

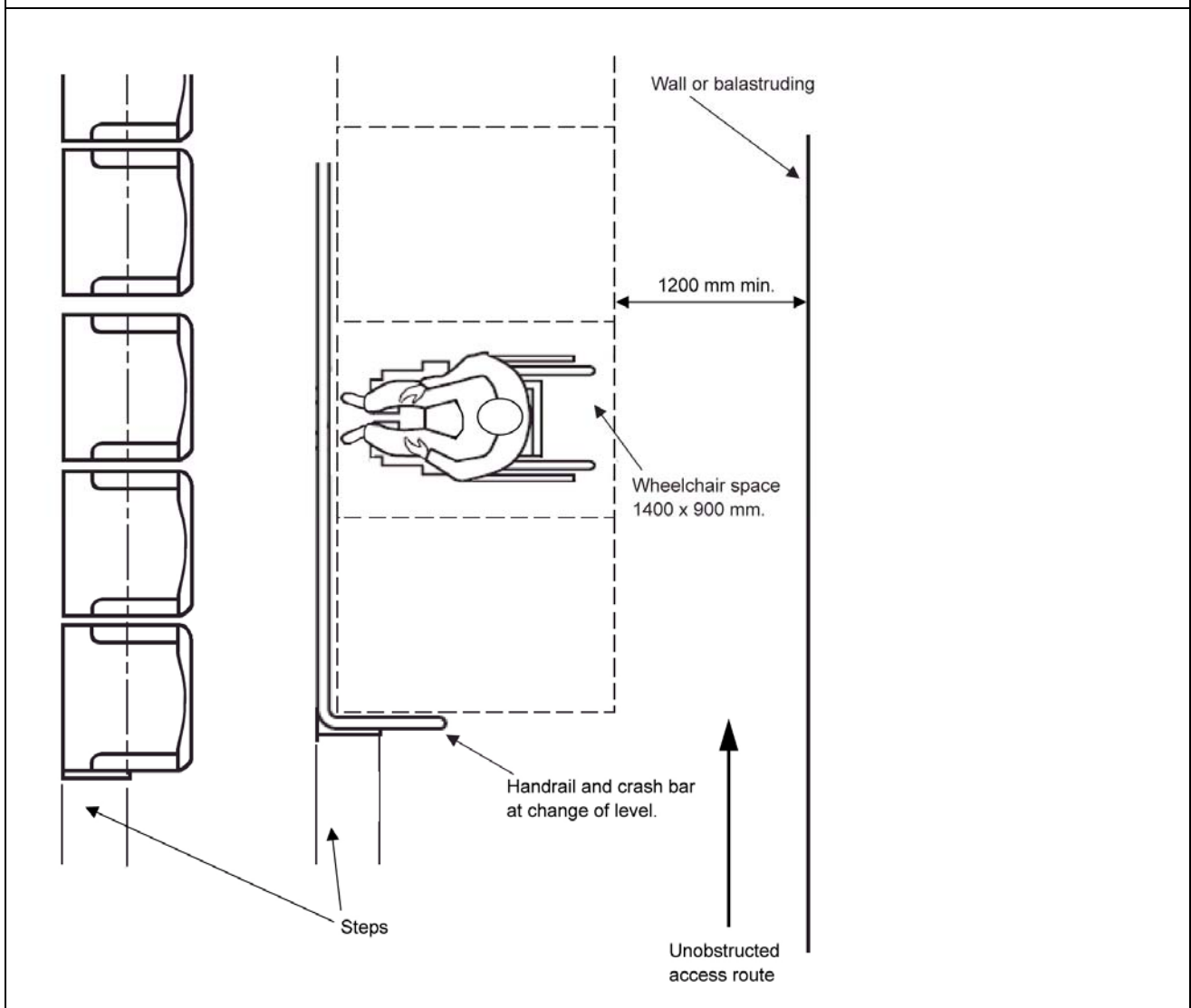
- where rows accommodating multiple wheelchair user viewing areas are a 1200mm clear circulation zone is provided to the rear of the position to allow two wheelchairs to pass²
- in locations where only two wheelchair user viewing areas are provided a 900mm minimum clear circulation zone to be provided



Picture showing poor circulation space provided for wheelchair users, restricting access to exits and toilet facilities

Seating requirements

Diagram 5: Recommended minimum dimensions for a row of multiple wheelchair user accessible viewing area³



¹ Accessible Stadia, FLA, 2003

² BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

³ Based on BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001 figures The requirement for 900mm is based on Figure 67 — Location of wheelchair spaces at a “seatway”, and Figure 35 — Spaces for wheelchair users in a general seating layout.

Sanitary and changing facilities including family provision

24	Sanitary provision (general)
Design Intent	
<p>Accessible toilet provisions should as a minimum be located together with standard toilet provision around the Olympic Park and within venues.</p> <p>Due to the temporary nature of the Olympic Games and Paralympic Games much of the sanitary provision will be temporary and will be the responsibility of LOCOG.</p> <p>The Building Regulations require that accessible WCs are no more the 40m travel distance from any location in a building.¹ Though this may be extended up to 100m in exceptional circumstance where no obstructions such as doors or lifts are along the route.</p> <p>The majority of disabled people do not require wheelchair accessible toilets; many disabled people who are ambulant prefer to use ambulant cubicles or enhanced cubicles.</p> <p>During the Olympic Games and Paralympic Games and in legacy the toilet facilities provided should also address the requirements of broad range of faith groups who may be attending the Games.</p> <p>Additionally there is a requirement to have single sex wheelchair user accessible toilets provided as some faith groups will not use a unisex provision.</p> <p>Adult changing facilities should be provided in consultation with the ODA Principle Access Officer.</p> <p>Family facilities including family toilets and baby/child changing facilities may also be required.</p> <p>Accessible toilets are often designed to be clinical or institutional, in order to meet the ODA priority of access and inclusion it is essential that the facilities have a similar finish to standards provision.</p>	

Sanitary and changing facilities including family provision

Inclusive design guidelines				
Comparison of toilet requirements				
	ODA Inclusive Design Standards	Approved Document M	Good Loo Design Guide²	Circumstances when this should be included
Wheelchair accessible unisex	Yes	Yes	Yes	All
Wheelchair accessible cubicle in single sex toilet	Yes	Where provided to accord with standard unisex facility	No	All
Ambulant cubicle	Minimum one, 10% recommended	Minimum one in each block	Minimum one	All
Enhanced	Not required as wheelchair accessible cubicle provided	Minimum one where 4 or more cubicles provided	Minimum one where 4 or more cubicles provided	Not required
Ambulant urinal	One every four (when four or more urinals provided)	If block includes male accessible toilet and there is more than one urinal	Yes	Required only when there are four or more urinals
Lower height wheelchair accessible urinal	Yes	No	Yes	In consultation with the ODA Principle Access Officer
Adult changing facility	Yes	No	Yes	In consultation with the ODA Principle Access Officer
Family facilities	Yes, separate wheelchair accessible accommodation to be provided	Baby changing facilities not to be provided in wheelchair accessible	Separate wheelchair accessible baby changing facilities to be	In consultation with the ODA Principle Access Officer baby change

Sanitary and changing facilities including family provision

		toilets	provided	should be accessible
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All toilet provision criteria:

- routes to be accessible, free from obstacles, well lit and clearly signed
- provide adequate manoeuvring space for disabled people
- fixtures and equipment should require a minimal operation force no greater than 10N
- fixtures and equipment should be operable by people with restricted movement preferably, operable with one hand
- timed lighting systems should **not** be used
- cubicles are to have a minimum width of 800mm
- have 10% of the cubicles (with a minimum of one) designed to be accessible for someone who is ambulant and has a mobility impairment.
- 10-15% of toilets pans and urinals not to align with Mecca
- one urinal suitable for a disabled person who is ambulant to be provided for every four urinals (with handrails rather than privacy screens).³
- have a wheelchair user accessible cubicle provided in each single sex toilet block in addition to unisex wheelchair user accessible toilets
- wheelchair user accessible cubicles to be handed the opposite way to adjacent unisex facility
- clothes hooks to be sited at 1050mm and 1400mm high
- have good visual contrast between the main features, equipment and controls.
- taps to require hand not arm movement (example lever)
- heating pipes and heating equipment must be carefully located and fitted with thermostatic controls
- water should be delivered at no more that 41° Centigrade
- toilets within venues to be located as close as possible to the wheelchair user accessible viewing area, seating not exceed 40m horizontal travel distance

¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations

Sanitary and changing facilities including family provision

² Good Loo Design Guide, CAE and RIBA Enterprises, 2004

³ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

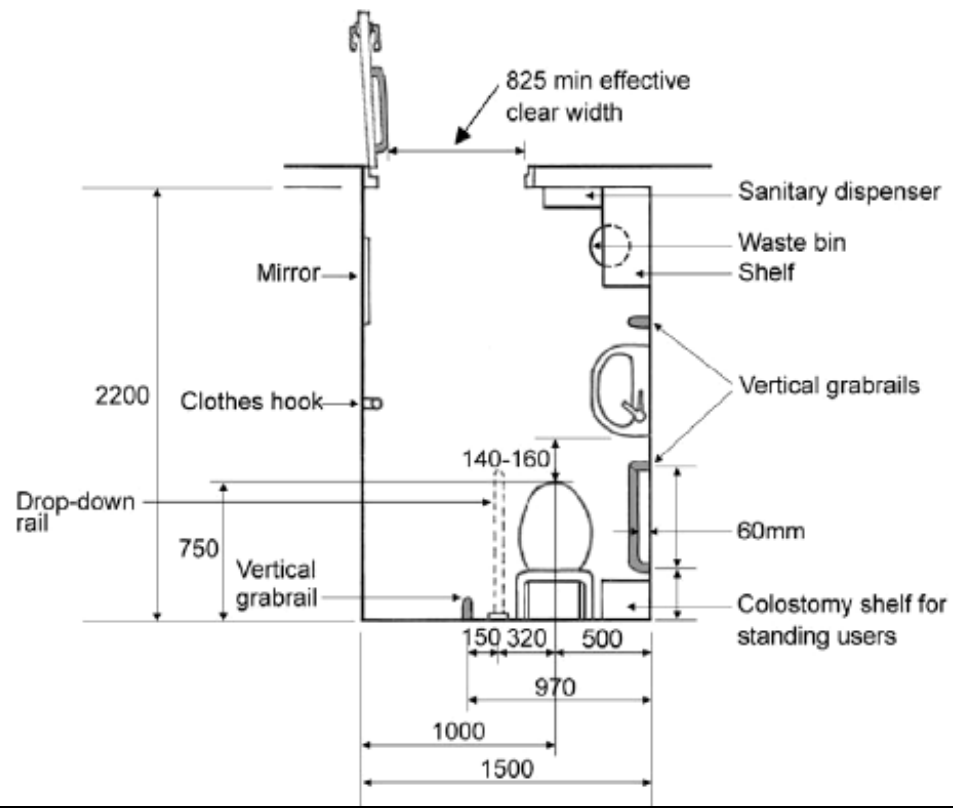
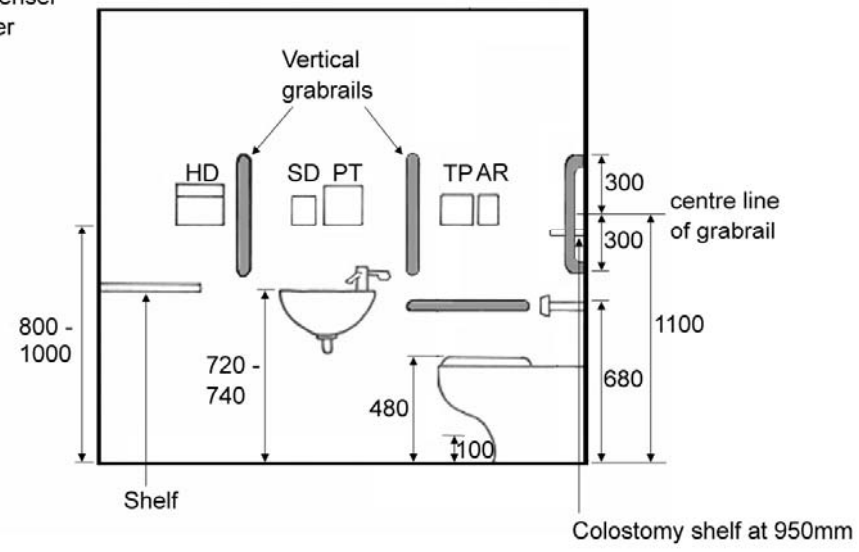
Sanitary and changing facilities including family provision

25	Wheelchair user accessible toilets
Design Intent	
<p>Wheelchair users and others disabled people who will use a wheelchair user accessible toilet often move more slowly than non-disabled people. In addition they may need to rest along a route. This then extends the time it will take to reach a facility and therefore wheelchair user accessible toilet will be required within a reasonable distance of the disabled person's location within a venue.</p> <p>The travel distance to be no more than 40m on the same floor, unless a greater distance can be justified in the Access Statement required for each venue and facility.¹ NB The ODA will require such a proposal to be justified in a conformance report.</p> <p>Wheelchair user accessible toilets should be located to ensure that disabled people have access to the facility via the shortest available direct route.</p> <p>Unisex wheelchair accessible toilets should always be available adjacent to standard male and female toilets.</p>	
Inclusive design guidelines	
<ul style="list-style-type: none">• a minimum finished dimension of 1500 x 2200mm with no services obstructing or reducing these overall finished dimensions¹• design to ensure that the transfer space can be kept clear at all times• in locations where there is more than one unisex toilet layouts should be suitable for left or right-hand transfer²• the flush lever is to be placed on the side of the toilet adjacent to the transfer space• the provisions and relative locations of all fixtures, fittings and equipment to follow Diagram 6• toilets are to be fitted with an alarm and reset button (close to the toilet pan) that is registered at a security point (the use of an accessible alarm push strip mounted around the perimeter of the toilet at an appropriate height is the recommended solution)• riser seats attachments should be provided in accessible toilets	

Sanitary and changing facilities including family provision

Diagram 6: Wheelchair user accessible cubicle

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



Sanitary and changing facilities including family provision

¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations

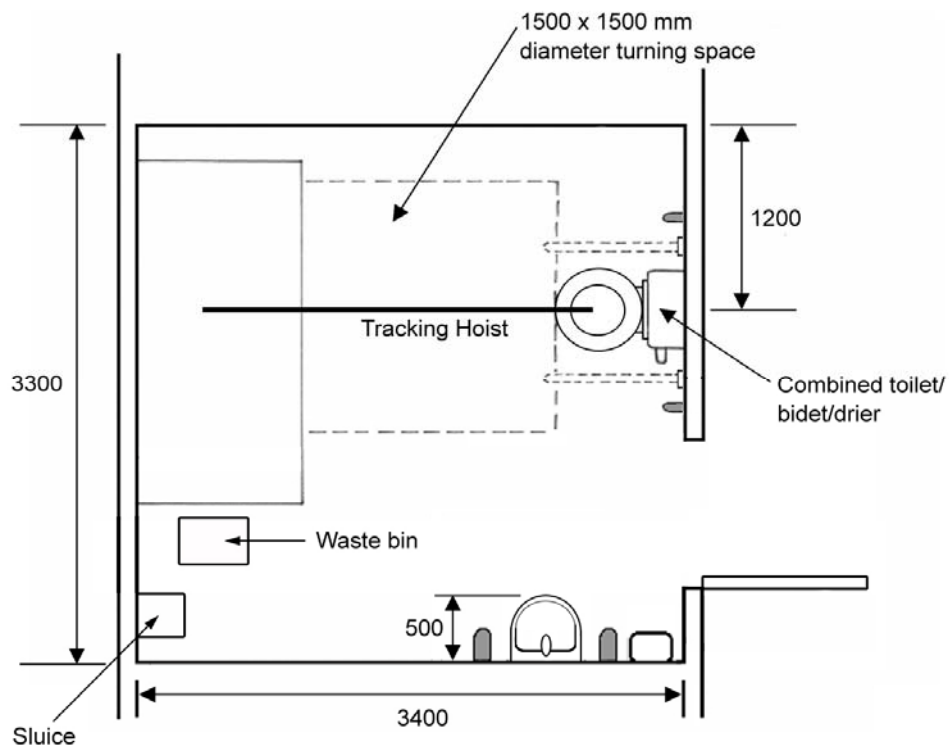
² BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

Sanitary and changing facilities including family provision

26	Peninsular toilet with adult changing
Design Intent	
<p>The lack of suitable changing facilities for those who need them is one of the most restrictive problems disabled people encounter.</p> <p>A peninsular toilet layout is necessary for disabled people that require personal skilled assistance. There should be appropriate provision of unisex accessible peninsular toilets for assisted use in both venues and the Olympic Park.</p>	
Inclusive design guidelines	
<p>Unisex accessible peninsular toilet for assisted use and adult changing facilities should have:</p> <ul style="list-style-type: none">• minimum dimensions of 3300 x 3400mm• fixed track hoist is to be installed with a selection of appropriate slings• peninsular toilet to allow space for a personal assistant on either side• have an automatic combined toilet/bidet/drier• the provisions and relative locations of all fixtures, fittings and equipment to follow Diagram 7• screen/curtain-to allow privacy for a personal assistant to use the toilet	

Sanitary and changing facilities including family provision

Diagram 7: Peninsular toilet for assisted use with adult changing ¹



Minimum dimensions for a fixed tracking hoist

¹ Based on Changing Places guidance website: www.changing-places.org

Sanitary and changing facilities including family provision

27	Ambulant accessible cubicles
Design Intent	
<p>The Olympic Transport Plan highlights that at least 8% of the visitors to the Games will have a mobility impairment.</p> <p>There should be appropriate provision of toilets designed to meet the needs of disabled people who are ambulant as required by Approved Document M (2004) of the Building Regulations.</p>	
Inclusive design guidelines	
<p>At least 10% of the cubicles (with a minimum of one) to meet the needs of disabled people who are ambulant in each single sex toilet</p> <p>Ambulant accessible cubicles will be in accordance with the Approved Document M¹.</p> <ul style="list-style-type: none">• 800mm wide• where a wider space is used it is essential that a drop down rail is installed• toilet seat 480mm above floor level	

¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations

Sanitary and changing facilities including family provision

28	Changing facilities
Design Intent	
<p>During the Paralympic Games there will be a need for accessible changing facilities in all Paralympic and Legacy venues.</p> <p>Changing facilities are to be designed so that they are flexible enough to cater for Olympic, Paralympic and Legacy requirements.</p> <p>The design and quality of accessible changing facilities is to be of a similar standard to all other changing facilities.</p>	
Inclusive design guidelines	
<p>Main changing areas, provide:</p> <ul style="list-style-type: none">• sufficient manoeuvring space, to cater for Paralympic teams• direct access between changing and shower• space to allow a wheelchair user to transfer to a shower seat• a ceiling track hoist in wet changing areas to aid transfer to a shower• toilet provision in very close proximity to the changing area• a self contained changing area accessible to wheelchair users in the main changing rooms in addition to separate unisex facilities (these changing cubicles are to be provided for legacy and to include a shower and toilet)• benches at a depth of 500mm and a height of between 450mm and 475mm• alternate coat hooks are to be located at 1400mm and 1050mm above floor level to accommodate all users• a grooming station is to be provided for standing and seated users• appropriately designed lockable wheelchair spaces (for 'day' chairs) within changing areas or an equivalent relevant location. <p>All shower areas are to be usable by everyone and provide:</p> <ul style="list-style-type: none">• heating pipes and heating equipment that are carefully located and fitted with	

Sanitary and changing facilities including family provision

thermostatic controls

- adjustable height detachable shower heads are required by wheelchair users
- wet flooring should have a minimum pendulum test value (PTV) of 65¹
- fold out seating to be provided for shower areas
- all shower controls that are lever operated and located at a height of between 750mm and 1000mm
- an adjustable and detachable shower head to be provided between 1200mm and 1400mm
- showers that are thermostatically controlled with a maximum temperature of 41°C
- floor finishes must be slip resistant even when wet

The shower area must be designed so that a wheelchair user can transfer to a seat easily within the wet area without getting their wheelchair wet and do not use upstands to separate wet and dry areas

Unisex accessible changing rooms should include:

- separate accessible changing facility including a shower and toilet
- a level floor and slip resistant when wet or dry

Locker provision²

- lockers in changing areas are to provide adequate manoeuvring space in front to should allow disabled people, including wheelchair users, easy access.
- proportionate number of accessible lockers are to be provided
- Sport England recommends that 10 percent changing lockers are accessible
- lockers to accommodate mobility aids, at least 300mm wide and 600mm deep maximum.
- mounted to provide a recess under a locker to be between 400mm and 800mm high
- locks for lockers should be located no higher than 1150mm and be easy to use

Privacy²

- privacy is essential for some faith groups and open plan changing, showering areas

Sanitary and changing facilities including family provision

and communal toilet facilities are unacceptable

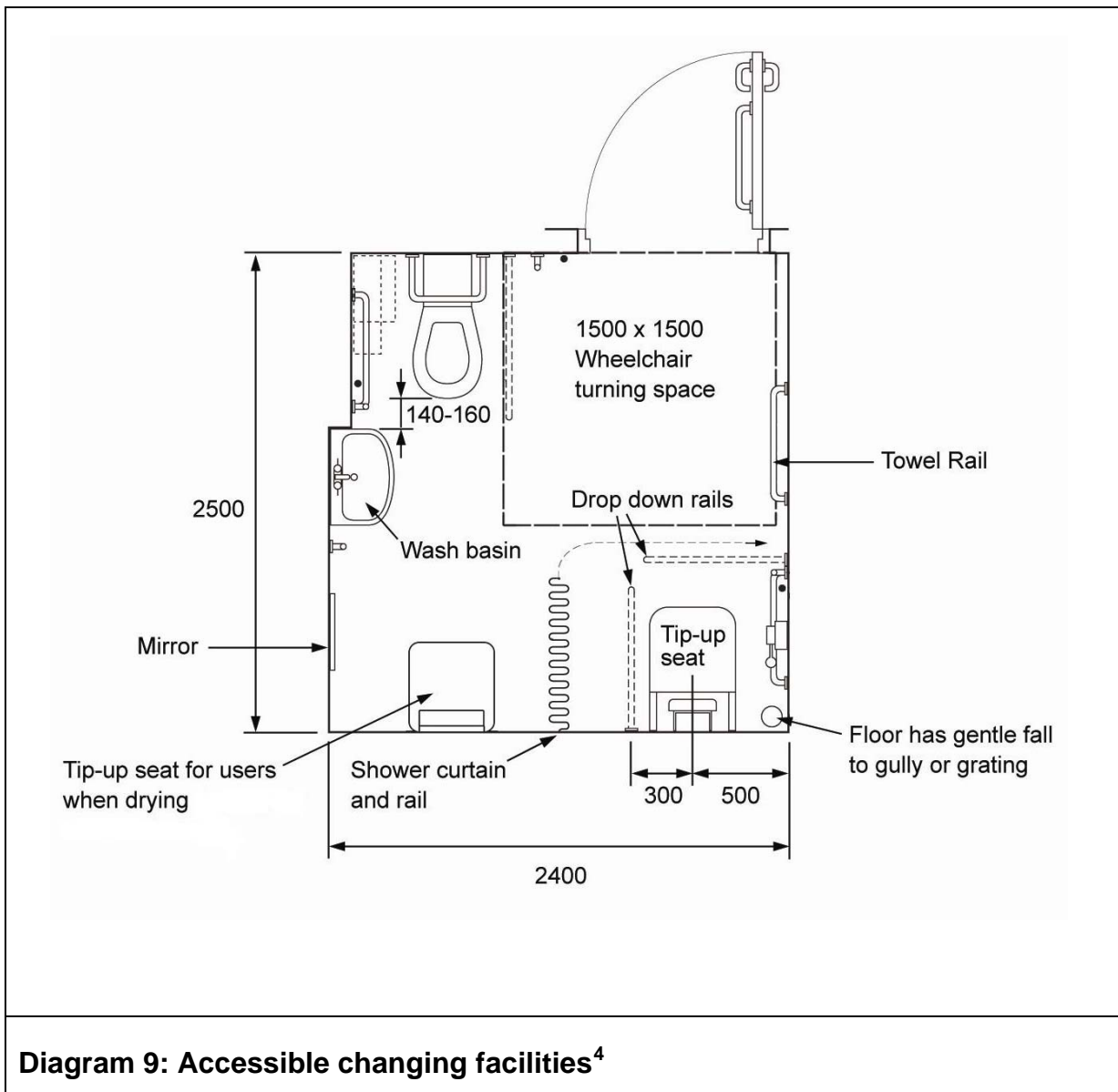
- unisex changing facilities, in addition to those provided for wheelchair users, are to be provided



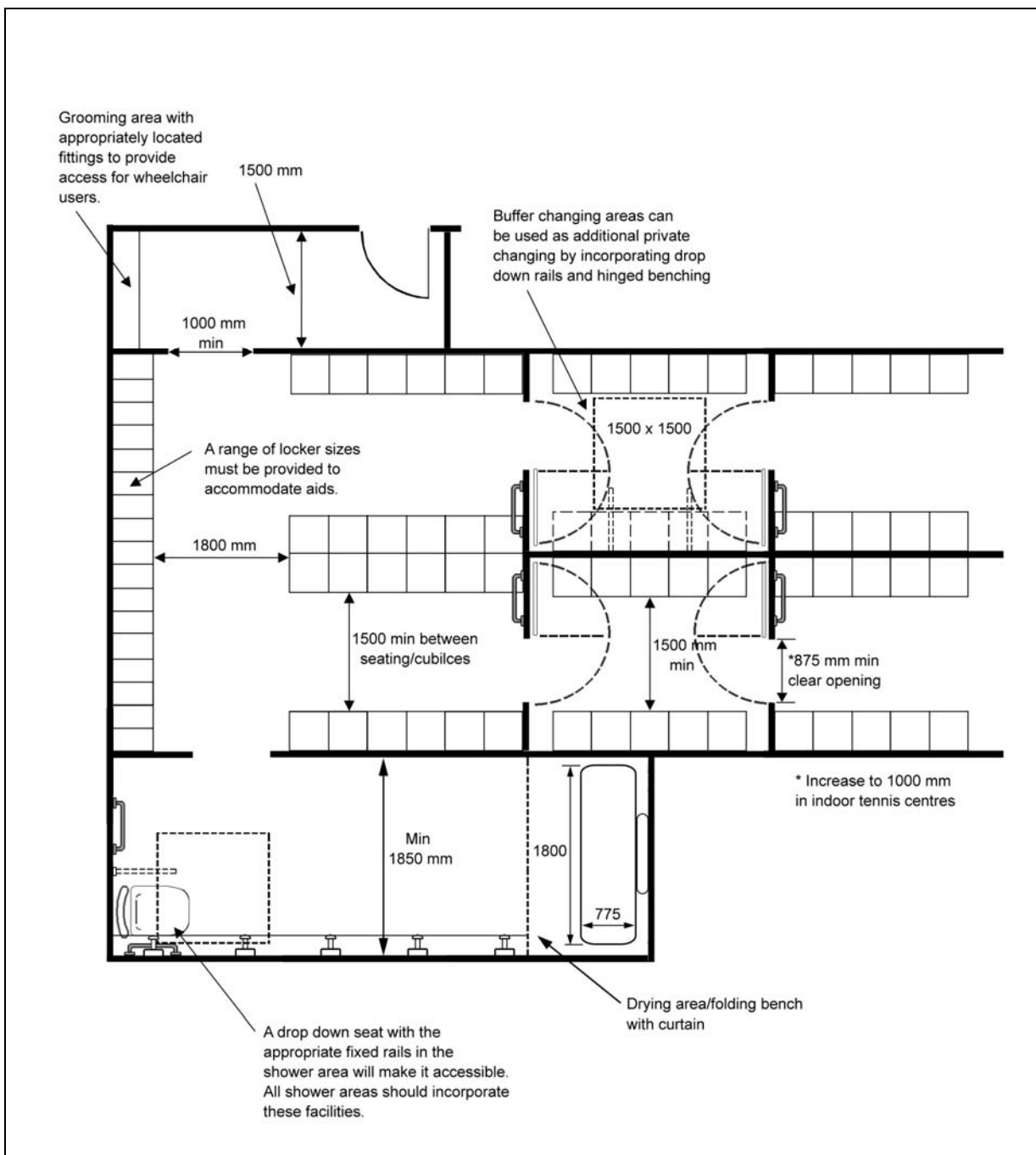
Accessible Lockers

Diagram 8: Wheelchair accessible changing cubicle with toilet and shower³

Sanitary and changing facilities including family provision



Sanitary and changing facilities including family provision



- 1 Assessing the slip resistance of flooring: A technical information sheet, Health and Safety Executive, 2007
- 2 Changing Rooms and Lockers, Sport England
- 3 Access to and Use of Buildings Approved Document M (2004) Building Regulation^s
- 4 Diagram developed in conjunction with Sport England

Sanitary and changing facilities including family provision

29	Family facilities
Design Intent	
<p>Baby/child changing facilities will not be sited within the accessible toilet provision detailed in Sections 24, 25 and 26, as this can increase the time disabled people may have to wait.</p> <p>Baby feeding areas should not be located in general toilet provision.</p> <p>Separate wheelchair user accessible family facilities should be available for families with babies and children.</p>	
Inclusive design guidelines	
<p>Provision should include separate wheelchair user accessible private baby-feeding areas restricted to parents and their children, with enough space for a chair, double buggy and nappy-changing facilities.</p> <ul style="list-style-type: none">• where toilets are provided there should be a children's toilets integrated within adult toilet cubicles, with at minimum one wheelchair user accessible cubicle with an integrated children's toilet. See Appendix 5 <p>Baby/child-changing facilities</p> <p>A separate unisex wheelchair user accessible area for nappy-changing facilities will have:</p> <ul style="list-style-type: none">• baby/child changing facilities suitable for those standing or seated, including an adjustable height changing table (that can be situated at heights between 800 and 1200mm) that can be used with minimum effort and does not require skilled hand movement. See Appendix 5• have accessible routes free from obstacles, well lit and clearly signed• have good visual contrast between the main features, equipment and controls inside a cubicle and their background, including door handle and lock, handrails, toilet seat, flush, taps, push buttons, sink basins, hand dryers and controls¹• a safe, hygienic surface• paper roll dispenser for lining the table and cleaning babies that can be used with one hand	

Sanitary and changing facilities including family provision

- shelf space for belongings and cleaning materials
- warm water
- disposal bin
- the changing unit needs to accommodate older children who still wear nappies
- provide a drop-down seat for small children

¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations

Faith requirements including privacy and prayer

30	Multi-faith prayer facilities
Design Intent	
<p>In the adjoining 5 boroughs to the Olympic Park faith groups, who ritually wash before prayer, make up at least 23% of the population. Prayers are said by different faith groups a number of times of the day and in some of these faith groups washing is a part of the prayer ritual. It is recommended that permanent non-dwelling facilities be provided with a multi-faith prayer facility.</p> <p>Separate prayer facilities are to be provided for both front and back of house areas, for use by staff, athletes, Olympic and Paralympic Family members and spectators.</p>	
Inclusive design guidelines	
<p>The facility criteria are:</p> <ul style="list-style-type: none">• either two rooms, or a room divided into two areas with two entrances to provide single sex prayer facilities• an informal room giving aural and visual privacy without a closed in environment• the facilities for ablutions are either to be provided within in the toilet accommodation or within single sex communal wash facilities and therefore the prayer facilities are to be conveniently close to these• the interior design of the room is to be designed to be conducive to quiet contemplation• if it is to be utilised by followers of more than one faith, there should be no religious pictures/symbols or images in the room• an 'engaged' sign is to be provided to indicate when the room is in use• the direction of prayer to be indicated within the room	

Faith requirements including privacy and prayer

31	Wash cubicles
Design Intent	
<p>In the adjoining 5 boroughs to the Olympic Park faith groups, who ritually wash before prayer, make up at least 23% of the population. Prayers are said by different faith groups at various times of the day and in a number of the faith groups washing is a part of the prayer ritual.</p>	
Inclusive design standard	
<p>Wash cubicles are preferable in compartments, not cubicles (that is not thin partitions or gaps at floor level). See Appendix 5</p> <p>A wash cubicle:</p> <ul style="list-style-type: none">• has a non-fixed adjustable height seat with arm rests• includes a horizontal grab rail adjacent to the seat• a drop-down horizontal grab rail on the rear wall• there is to be an adjustable/detachable shower head for face, arm and feet washing• sunken trough/footbath• a low shelf for dry storage of clothes• has good visual contrast between the main features, equipment and controls. <p>Alternatively communal (single sex) wash rooms can be provided.</p>	

Spectator facilities

32	First aid facilities (public)
Design Intent	
First aid facilities will need to be provided for spectators. It is important that such facilities are designed to meet the diverse needs of those attending.	
Inclusive design guidelines	
It will meet the following requirements: <ul style="list-style-type: none">• the room is to be large enough to contain an adjustable height couch or people to walk around with sufficient space for a wheelchair user to manoeuvre• preferably adjacent adult changing facilities, see Standard 26 - Peninsular toilet with adult changing• be clearly signposted throughout the ground and clearly identified• include an area in close proximity where patients, relatives and friends can be seated while waiting with:<ul style="list-style-type: none">○ a mixture of seating with and without armrests, see Standard 4 - Seating/Rest points○ space for a wheelchair user to pull up alongside a seated companion• have an area for treating sitting casualties• have a doorway large enough to allow access for a stretcher or a wheelchair user¹• have good visual contrast between the main features, equipment and controls.• consideration needs to be given to the provision of emergency medical aid to and individual evacuation from all designated seating areas including wheelchair user accessible areas	

¹ 'Purple Guide' The event safety guide: A guide to health, safety and welfare at music and similar events, 1993

Spectator facilities

33	Audio reinforcement
Design Intent	
<p>Poor acoustics cause confusion and make it difficult to use sound as a navigational aid.</p> <p>Audio reinforcement systems are also to be provided:</p> <ul style="list-style-type: none">• at reception counters• in meeting rooms• areas where information is exchanged• retail counters• community facilities, fitness suites and other Legacy provisions	
Inclusive design guidelines	
<p>Audio reinforcement systems should be designed to following criteria:</p> <ul style="list-style-type: none">• where spectator provision includes a public address system, this must be supplemented with an audio reinforcement system¹• provide commentaries to assist people with visual impairment in venues²• be accompanied with a system making the same information available in written text for deaf people who cannot hear (clearly audible public address system must be supplemented by visual information¹)• to relay commentary to any person equipped with a necessary earpiece or receiver (this can be achieved by placing headphone sockets at specific locations or by using an infrared communications system)• a hard wired built in loop system• have no overspill or interference• hearing reinforcement system to be installed in rooms and spaces designed for meetings, and at service or reception counters• the presence of an induction loop or infrared hearing reinforcement system to be indicated by the standard symbols	

Spectator facilities

Acoustics

- provide noise reduction where communication will be important
- provide adequate sound insulation to minimise intrusive noise, both from outside and within the building
- separate quiet and noisy areas of buildings with a buffer zone
- avoid too many hard surfaces in areas where communication will be important
- sports facilities tend to be cavernous facilities with many hard surfaces, to avoid long reverberation times acoustic linings are required within these facilities

¹ Access to and Use of Buildings Approved Document M (2004) Building Regulations

² Accessible Stadia, FLA, 2003

Spectator facilities

34	Spectators services
Design Intent	
<p>Temporary concession, reception, information, retail and servery areas will be provided as part of the overlay to cater for the large numbers of staff athletes and spectators.</p> <p>It is important that space planning for these areas consider the diverse needs of staff and users from the outset and they are integrated in the designs.</p> <p>Legacy design in permanent venues also needs to take into account these factors.</p>	
Inclusive design guidelines	
<p>Refreshment areas should include adjacent adequate toilet provision, including accessible toilets.</p> <p>Refreshment facilities to include kitchens for the preparation of kosher or halal food.</p> <p>Concession, reception, information, retail and servery areas to be accessible for staff, athletes and users.</p> <p>Layout</p> <ul style="list-style-type: none">• gangways in areas between tables to have at least 1200mm clear width• furniture is to be placed in a regular layout rather than in a random pattern• circulation routes and open floor space to be wide enough to allow wheelchair users access to tables and general seating areas (inside and out). These routes should also permit wheelchair users to pass each other and, where necessary, turn through 180° <p>Furniture</p> <ul style="list-style-type: none">• tables must have a clear under top height of at least 700–750mm to allow a wheelchair to be drawn in¹• seating in dining areas and so forth to be planned so that wheelchair users can sit alongside their companion(s)• rounded corners to furniture to be provided to prevent injury from sharp corners• seating to be provided wherever people might need to wait and arranged to allow wheelchair users to sit alongside others without obstructing the general circulation routes	

Spectator facilities

- seating is to be provided with and without armrests, with backs and a seat height of between 450mm and 500mm from finished floor level
- furniture to contrast visually with the surrounding surfaces

Counters

- counters to be a minimum 700mm deep where a seated staff member and visitor are facing each other and one is a wheelchair user
- provide a section lowered to 750 – 800mm above the floor with a clear space of 700 – 750mm underneath
- audio reinforcement systems such as an induction loop to be fitted at counters, see Standard 33 - Audio reinforcement
- lighting must aid people's ability to lip-read
- where tray slides are used, they must be continuous to the till
- food displays must be viewable by wheelchair users and people of short stature

¹ BS 8300:2001(incorporating Amendment no 1) Design of buildings and their approaches to meet the needs of disabled people - Code of practice, 2001

Appendix 1

Report number

Inclusive Design Conformance Report

This report should be completed for all aspects of a design that is covered by the ODA Inclusive Design Standards. Each applicable building element should be described briefly, and the reason it complies or not with the standards. When standard is achieved using an alternative solution to the one given in the Inclusive Design Standards this should be described in full including how this solution achieves the equivalent level of accessibility.

Where the design fails to meet the standard and fails to offer the equivalent level of accessibility this must be described and justification given.

Completed form should be sent, together with drawings showing the proposed design, to the ODA Project Sponsor and ODA Principal Access Officer.

N.B. A report is required when failure to achieve a standard occurs throughout all stages of the design process, during and at the completion of a work stage.

Inclusive Design Standard			
Venue and Location			
Reported by		Drawing must be attached	Please confirm format

Description

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Explanation/Justification

--

ODA Project Sponsor	Remarks
Not* Approved / conditioned* Delete as appropriate	Principal Access Officer Signature
Condition if required	

Appendix 2 Planning obligations 2007

Condition OD.0.12 Inclusive Access Standard

Before 30 September 2008, an Inclusive Access Strategy, which sets out arrangements to implement, monitor and review the commitments to inclusive access shall have been prepared, in consultation with the Access and Inclusion Forum, and submitted to the Local Planning Authority for approval.

Reason

To ensure that the inclusive access commitments are met.

Schedule 7

Inclusive Access – London 2012 Games Construction, Games and Legacy transformation phases (ODA) and Legacy phases (LDA)

Part A - Protocol between ODA and Local Planning Authority

1. Throughout the Olympic Construction, Games and Legacy Transformation Phases the ODA shall ensure that the principles of inclusive design will inform and be integrated into the detailed design of the Olympic development and the notified Legacy Modification Works as designs and applications for approval of reserved matters come forward including by:-
 - 1.1.1 ensuring that standards of Best Practice in inclusive design (as opposed to minimum Standards) inform and advise design, such standards to be agreed by the ODA Built Environment Access Panel and then taken to the ODA Access and Inclusion Forum for consultation;
 - 1.1.2 The Access and Inclusion Forum and the ODA Built Environment Access Panel shall meet regularly and at least quarterly with terms of reference such that they can advise, comment and influence the ODA's Implementation of inclusive access;
 - 1.1.3 Development designers and users working together to deliver the best reasonably practicable solutions for achieving inclusive access within the Development;
 - 1.1.4 The preparation of individual access plans for each Games Venue and Legacy venue and consultation on the same with the ODA Built Environment Access Panel and the said plans then being submitted to the Local Planning Authority when submitting reserved matters details in respect of each Games Venue and Legacy Venue;
 - 1.1.5 The ODA working with key stakeholders providing expert advice through the ODA Built Environment Access Panel and the ODA Accessible Transport Panel;
 - 1.1.6 The production, implementation and effectiveness of the approach specified in this Schedule to be monitored and reviewed at least annually through the ODA Built Environment Access Panel until the end of the Legacy Transformation Phases
 - 1.1.7 The Principal Access Officer will ensure the issues of inclusive design will inform the considerations and recommendations of the Design Review Panel.

Appendix 3 Glossary

adequate	with respect to means of access and facilities, means that they are designed for use by people regardless of age, impairment, ethnicity, faith or gender
effective clear width	available width measured at 90° to the plane of the doorway for passage through a door opening, clear of all obstructions, such as handles on the face of a door, when such a door is opened through 90° or more, or when a sliding or folding door is opened to its fullest extent
contrast visually	used to indicate the visual perception of one element or fitting against another. It means that the difference in light reflectance value between the two surfaces is greater than 30 points
level	a maximum gradient along the direction of travel of 1:60
principal entrance	entrance to a building which a visitor would normally expect to approach
ramp	an inclined plane 1:20 or steeper from the horizontal or a series of such planes with intermediate landings
unisex	facility designed for use by either sex with or without assistance by people of the same or opposite sex

Appendix 4 Mobility ranges

US regulations note that on distances over 100 feet (30m) disabled people are apt to rest frequently. These regulations suggest that to estimate travel times over longer distances, allowance should be made for two minutes rest time every 30 metres.

Research based on a follow-up study to the London Area Travel Survey¹ found that of the disabled people who were able to walk approximately 30 per cent could manage no more than 50 metres without stopping or experiencing severe discomfort and a further 20 per cent could only manage between 50 and 200 metres.

Mobility ranges vary enormously between individuals with age and impairment, while factors such as weather, topography (gradients) and obstacles can also affect mobility ranges.

Where gradients exist the target mobility distances should be reduced. Conversely, the provision of seating and resting places can extend the mobility distance.

Standing is difficult and painful for some disabled people, particularly those with arthritis, rheumatism and back problems. In the same study mentioned above, nine per cent of the survey respondents could only stand for less than a minute without discomfort, 24 per cent could manage between one and five minutes.

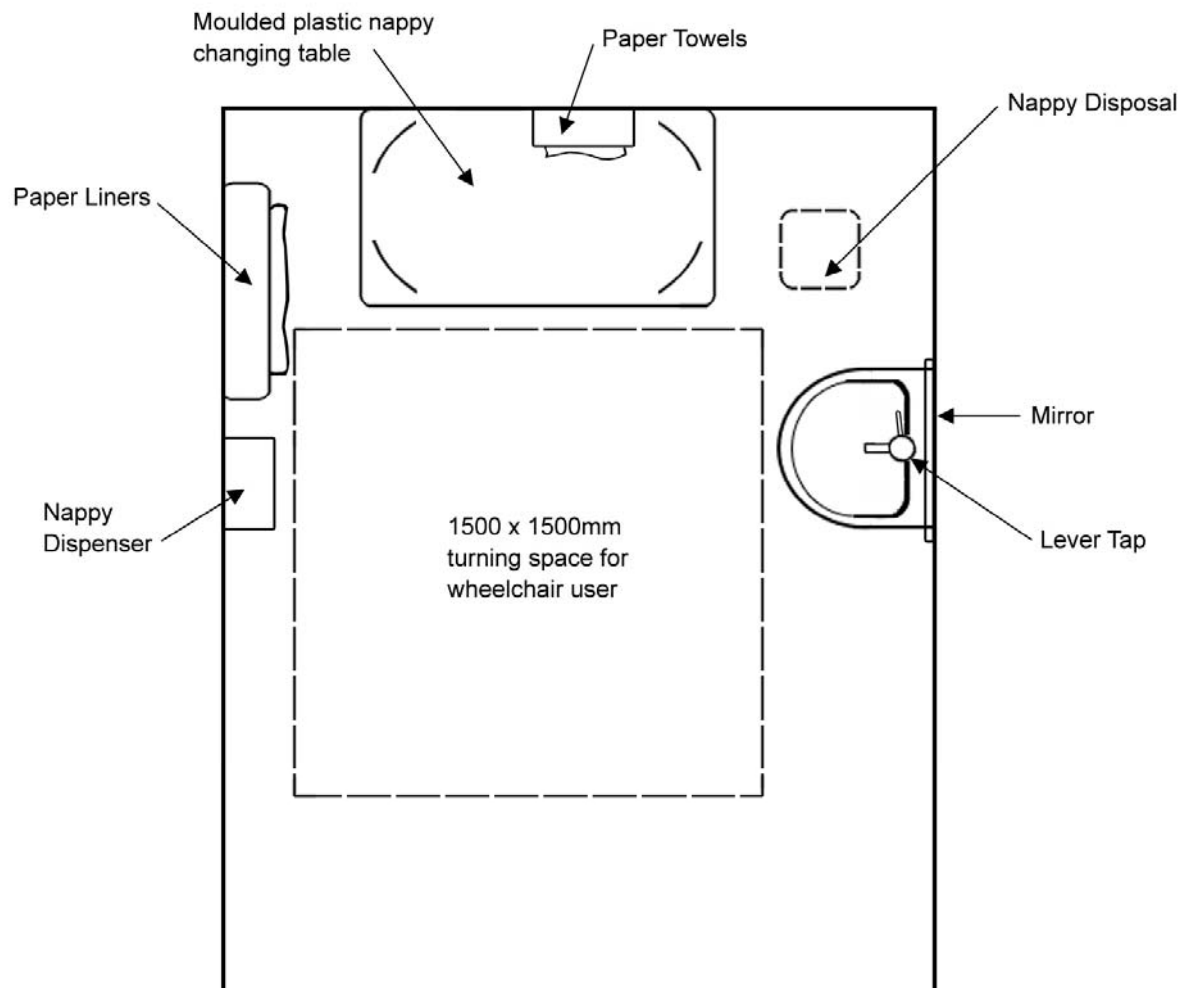
These findings make it clear that in order to provide an inclusive environment it is important to provide plenty of appropriately placed and designed seating at places where people may have to wait and along pedestrian routes.²

¹ Disability and Mobility in London: A follow-up to the London Area Travel Survey, Technical Report, Transport Research Laboratory, Crowthorne, Berks, 1994.

² Based on extracts from the Department for Transport publication 'Inclusive Mobility'

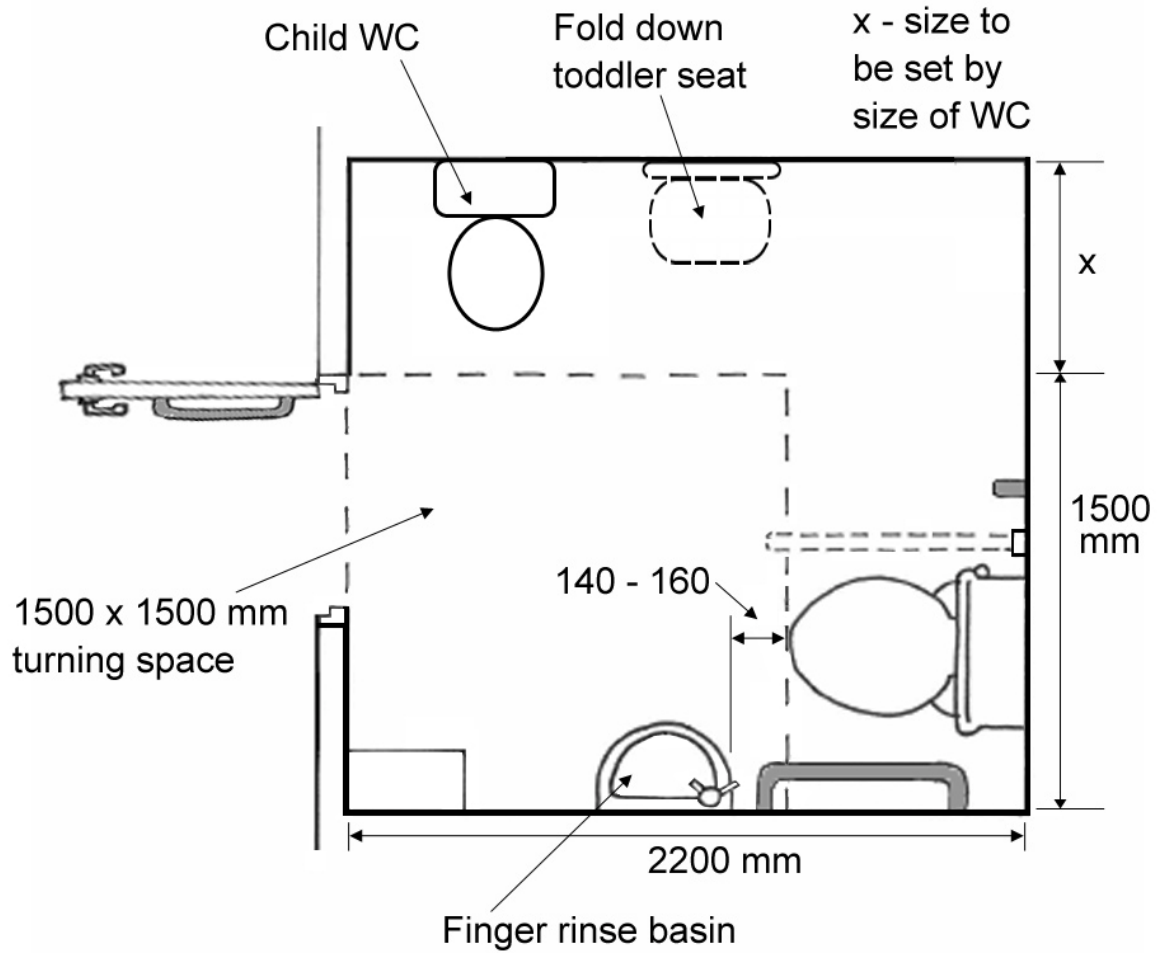
Appendix 5 Example diagrams

Family - Baby Change



Appendix 5 Example diagrams

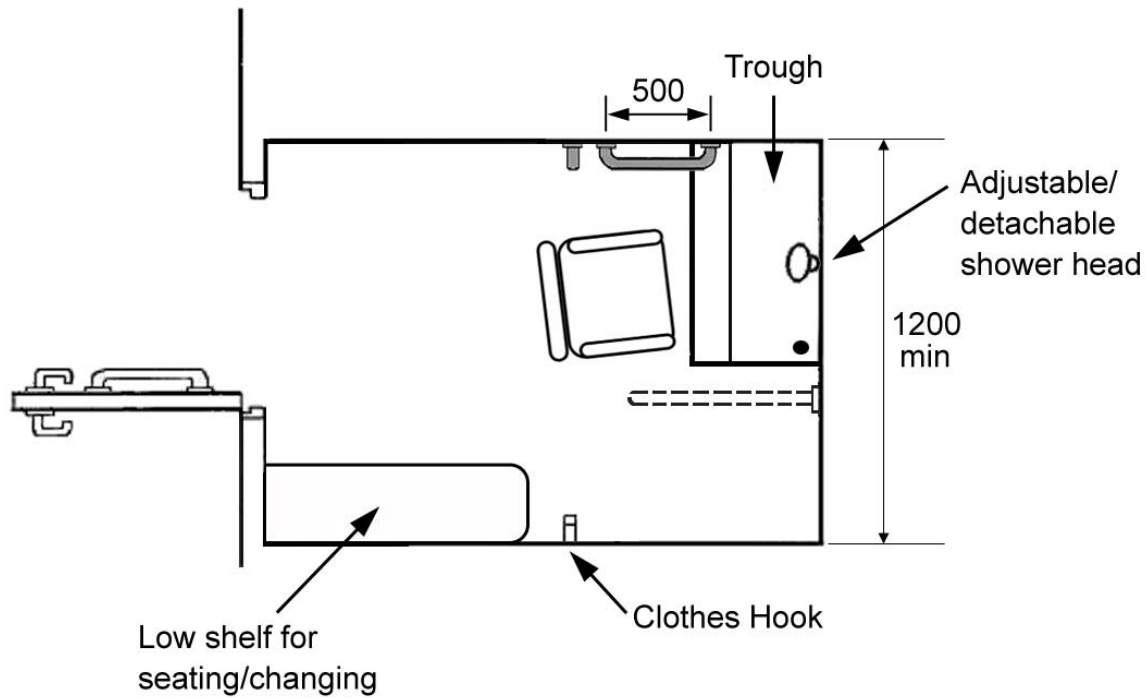
Children's toilet integrated within a unisex accessible adult toilet



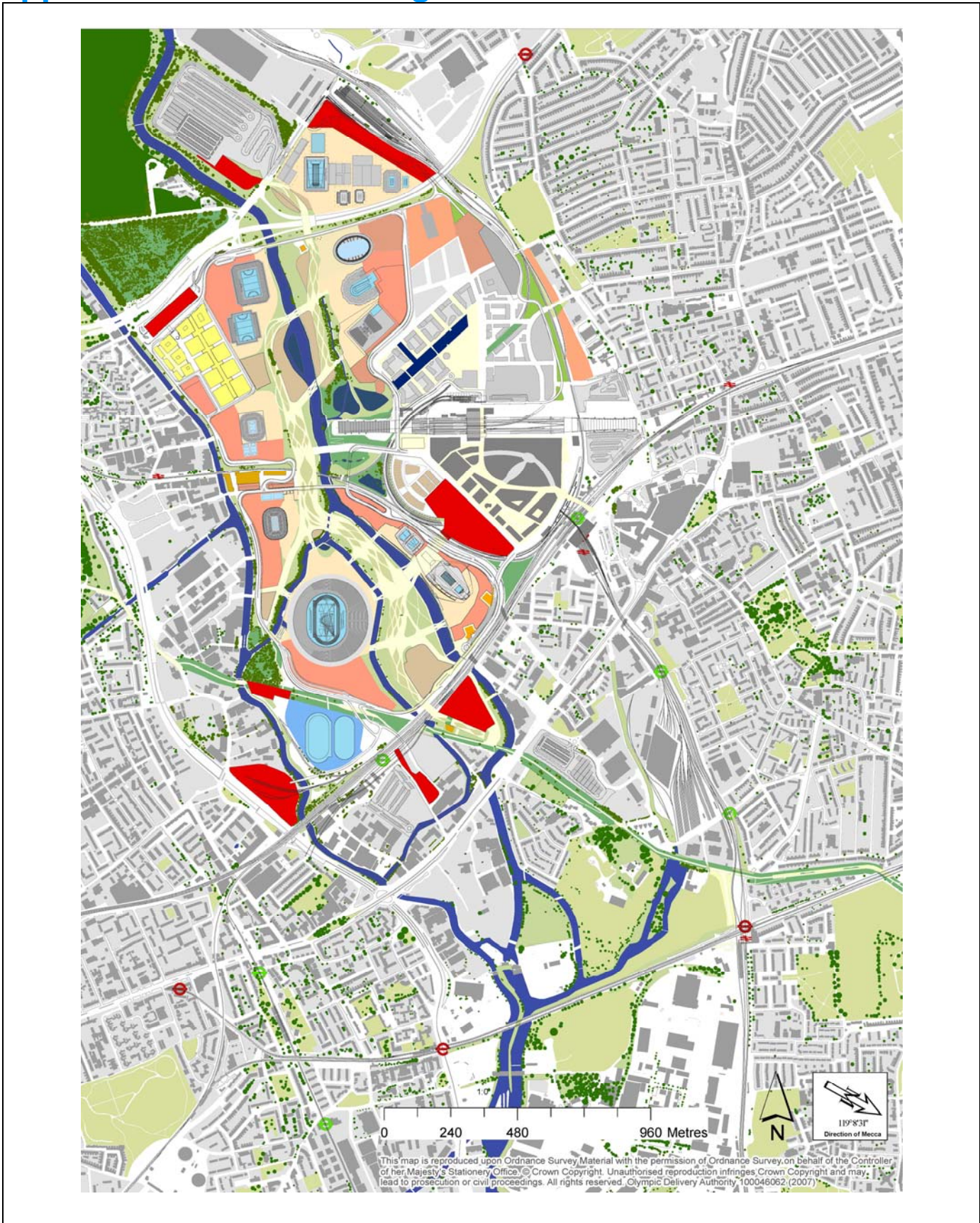
Left hand transfer layout

Appendix 5 Example diagrams

Wash cubicle



Appendix 6 Plan indicating the direction of Mecca



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