

Access Control Systems and  
**Disability Discrimination**  
– A guide



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In particular, users of this guide should adhere to the legal requirements introduced, for example, by Acts of Parliament.

## Introduction

This guide is intended to assist purchasers, specifiers and designers of access control systems to take account of the needs of disabled people and the related legislation and Acts of Parliament. This guide is now at issue 3. The previous version covered the situation then applicable under which the Disability Discrimination Act (DDA) had a dominant role in this area. Since then the situation has become less straightforward and different, although similar, requirements apply in each country of the United Kingdom. This guide therefore outlines where to obtain further information and then gives an overview of some of the fundamental characteristics.

It is not possible, in a guide of this size, to provide all the necessary information but using this guide the reader should be able to determine where to find further design guidance.

It should be noted that many systems will need upgrading over time to ensure compliance with newer legislation.

Your organisation has to make a careful judgement about the security level that is required and the legal requirement to allow easy access for people with a disability. There are no hard and fast answers. Different access control systems will allow different levels of flexibility in providing the right balance.

### DOCUMENT CHANGE HISTORY

Issue	Date	Description
1	12/2004	First issue
2	01/2008	Updated following revision of Disability Discrimination Act
3	03/2015	Updated to reflect use of the Equality Act
3.1	10/2015	Updated to reflect section name change

## 1. Scope

These guidelines give advice and recommendations about the design of access control systems installed to improve the security of buildings whilst maintaining a level of convenience. Specifically the guidelines cover aspects of design related to ensuring that disabled persons do not suffer discrimination. In this context it means ensuring that the level of convenience for all users, disabled or not, is comparable.

This guide does not include access to vehicles.

## 2. Referenced Documents

### 2.1 Referenced Standards

The following standards are referenced in this document:

BS 7036 Series	Code of practice for safety at powered doors for pedestrian use. (Note this series is partially replaced by European Standards including BS EN 16005).
BS 8300: 2009	Design of buildings and their approaches to meet the needs of disabled people – Code of practice.
BS 9999:2008	Code of practice for fire safety in the design, management and use of buildings.

### 2.2 Regulations

The following regulations are mentioned in this document. Be aware that regulations may be changed at any time and that relevant laws may vary. This list is indicative and regulations will vary between countries.

Attention is particularly drawn to:

- Disability Discrimination Act 1995 and Disability Discrimination (NI) Order 2006 (DDO) [Applicable to Northern Ireland].
- Planning and Compulsory Purchase Act 2004.
- Equality Act 2010.
- The Building Regulations 2010 (2010 Statutory Instrument 2214).
- Building (Scotland) Regulations 2004.
- Building (Miscellaneous Amendments) (Scotland) Regulations 2013.
- Regulations (Northern Ireland) Order 1979 (as amended 1990 and 2009).
- Building Regulations (Northern Ireland) 2012.

Other documents including those typically referred to as “Building Regulations” of relevance to this document include:

- HM Government Building Regulations – Approved Document M, Access to and Use of Buildings, NBS (RIBA Enterprises).
- Planning and Building Advice Note (PAN) No. 78 “Inclusive Design”, The Scottish Building Standards Agency and the Planning Division of the Scottish Executive Development Department.
- Technical Booklet R “Access to and Use of Buildings” (October 2012), Department of Finance and Personnel (DFP) (Northern Ireland).
- Building Standards Technical Handbook – Domestic, Building Standards Division of the Scottish Government.
- Building Standards Technical Handbook – Non-Domestic, Building Standards Division of the Scottish Government.

## 2.3 BSIA Guides

The following BSIA documents are referenced:

- Guide to Security Turnstiles (Form 209).
- Specifier's Guide to Access Control Systems (Form 132).

## 3. Abbreviations

**DDA** Disability Discrimination Act

*NOTE: This Act remains in use only in Northern Ireland but the abbreviation has entered mainstream use as an indication of a characteristic of a feature that avoids discrimination against disabled persons. For example "DDA Compliant".*

## 4. Attention

Regulations that apply to disability discrimination will not only impact on the access control system but on significant aspects of a building's design. The design of the building and the access control system cannot be considered in isolation from each other and it is essential that their designs are co-ordinated.

It is also advisable for the design of the access control system to be considered at the earliest possible stage in the design process. Retrospectively changing the access control system or the associated parts of the building will almost certainly incur additional and possibly great expense and effort.

Checks should also be made prior to handover of the system to ensure that the system meets the design specification and fulfils all necessary obligations of any applicable regulations.

## 5. Standards and Regulations

### 5.1 Overview of Regulations

Disabled access and egress considerations should take into account the relevant regulations that apply in the country where the building is located. In addition the design of the building may be affected by other regulations. These will include building regulations and the need to obtain planning consent from applicable authorities. In addition to consent from a local authority, consent may be required because of location within certain areas (e.g. conservation areas) or, for example, in the case of heritage properties, listed building consent. The applicable regulations for these also vary from country to country. This guide does not cover all these aspects and expert advice should be sought.

Regulations and associated guidance described below should be read and considered thoroughly. This guide cannot duplicate all the information and a design feature of the access control system could be affected by other requirements. For example a pillar containing reader electronics might be incorrectly positioned with regard to other regulations concerning widths of access routes. In some cases there are no specific regulations for particular items but it may be possible to use guidance for similar circumstances to justify a decision.

## **5.2 Equality Act 2010**

### **5.2.1 General**

The Equality Act is the applicable Act of Parliament applying in England, Wales and Scotland (but not Northern Ireland). In those countries it replaces the Disability Discrimination Act 1995.

The Equality Act covers a large number of subjects many of which are not relevant to access control. Care should be taken in terms of discrimination on multiple grounds. An example of multiple grounds might be failing to provide facilities for disabled females in an educational establishment on the basis of the building being primarily intended for males.

Previous government acts covered features that would put disabled employees at a disadvantage but the Equality Act extends this so it is not just employees that are included. There has also been extension of the features covered to include those parts of buildings resulting from their design or construction or forming the access to the building (both approach to and exit from). It also now covers fixtures and fittings and any other physical element or quality of a feature (e.g. one that makes it difficult for a partially sighted person to use). The requirement now exists to take reasonable steps to provide an auxiliary aid where its absence would put a disabled person at a substantial disadvantage.

### **5.2.2 Disability**

According to the Act a person has a disability if they have a physical or mental impairment, and the impairment has a substantial and long-term adverse effect on their ability to carry out normal day-to-day activities (See Part 2, Chapter 1, Section 6). Schedule 1, Part 1 has further information regarding the criteria for disability.

### **5.2.3 Discrimination**

A non-disabled person is not discriminated against by favourable measures introduced to help persons with a disability (See Part 2, Chapter 2, Section 13).

Discrimination occurs if a person treats another unfavourably because of something arising in consequence of their disability and it cannot be shown that the treatment is a proportionate means of achieving a legitimate aim. This does not apply if it can be shown that the person did not know, and could not reasonably have been expected to know, the other had the disability (See Part 2, Chapter 2, Section 15).

Indirect discrimination occurs when a provision, criterion or practice is put in place which discriminates against a characteristic of a disabled person. In the case of access control this would apply if the access control measures applied to non-disabled persons or puts a disabled person at a disadvantage and cannot be shown to be a proportionate means of achieving a legitimate aim (See Part 2, Chapter 2, Section 19).

The major relevant concern is that a disabled person should not be put at a disproportionate disadvantage. In the case of access control this applies to the physical methods, the methods of operation and the provision of information (e.g. signs and instructions for the visually impaired).

### **5.2.4 Duty and Reasonable Adjustments**

There is a duty to make adjustments to prevent discrimination against disabled persons (See Part 2, Chapter 2, Section 20). The requirement is to "to take such steps as it is reasonable to have to take to avoid the disadvantage". Where the Act applies a person with a disability cannot be required to pay for this.

Steps to be taken include removing or altering physical features or providing a reasonable means of avoiding them. A physical feature is:

- a. A feature arising from the design or construction of a building,
- b. A feature of an approach to, exit from or access to a building,
- c. A fixture or fitting, or furniture, furnishings, materials, equipment or other chattels, in or on premises, or
- d. Any other physical element or quality.

There are exceptions to this as given in parts of the act specific to types of property. The Equality Act does not apply in some circumstances (see Part 14).

The Act is not clear with regard to what "Reasonable Adjustments" are and these are highly dependent on both the building, the activity in the building and either specific persons or anticipated persons with a disability.

Examples of reasonable adjustments could include:

- Improving accessibility (e.g. using barriers instead of traditional turnstiles; adding handrails, ramps or lifts).
- Using audio announcements or voice-recognition to overcome visual impairments.
- Keyboards suitable for users with arthritis.
- Repositioning displays or readers

In deciding whether an adjustment is reasonable the following may be considered.

- Will it overcome the disadvantage?
- Is it practical?
- How much disruption would be caused
- The financial impact
- The possibility of financial or other assistance (e.g. grants)

### **5.2.5 Service Providers**

The Act specifically applies to providers of services (e.g. transport services) and public functions (See Part 3 and Schedule 2). This does not vary the basic requirements as they relate to access control.

### **5.2.6 Premises**

The Act applies to premises in general (See Part 4 and Schedule 4) but Part 4 does not apply if the provision is generally for the purpose of short stays by individuals who live elsewhere.

The Act has requirements for premises that are let (See Part 4 section 36) however there are restrictions to what is reasonable (See Schedule 4). For example it is not considered reasonable to remove or alter a physical feature. There are exceptions to what is considered a physical feature and in the context of access control this excludes signs, door handles and door entry systems (i.e. it is considered reasonable to change door entry systems).

The Equality Act also covers other "Improvements to let dwellings" (See Part 13, Section 190) but this subject is not covered by this guide.

### **5.2.7 Places of Work**

For places of work the Act applies (See Part 5 and Schedule 8). In general terms the Act applies to applicants for work and employees although in respect of access control the latter are more relevant.

### **5.2.8 Places of Education**

The Act applies to Schools (See Part 6, Chapter 1 and Schedules 10 and 13) and places of Further and Higher Education (See Part 6, Chapter 2 and Schedule 13). The Act allows a reasonable time for changes to be made but schools should have a plan for "improving the physical environment of the school for the purpose of increasing the extent to which disabled pupils are able to take advantage of education and benefits, facilities or services provided".

### **5.2.9 Associations**

The Act applies to Associations with at least 25 members (See Part 7 and Schedule 15) with some exceptions. Not-for-profit organisations are included in the category of associations. Discrimination must not occur against potential members, members, associates or guests.

### **5.2.10 Leased premises or common ownership**

Schedule 21 of the Act has information about the situation where the person obliged to meet the requirements of the Act does not have sole control of the premises (e.g. it is let or necessary changes would affect common parts of the building). Details of the judicial method of resolving such issues are given.

### **5.2.11 Equality Act 2010 (Disability) Regulations 2010**

This is a statutory instrument that should be read in conjunction with the Equality Act 2010.

These regulations:

- a. Limit the scope of disability (for example removing kleptomaniacs and tattooed persons).
- b. Covers Auxiliary aids (which in the context of this guide includes door handles, door entry systems, etc)
- c. Describes "Reasonable Adjustments" in the context of design standards. For example it says:

*"It is not reasonable for a provider of services, a public authority carrying out its functions or an association to have to remove or alter a physical feature where the feature concerned –*

- (a) was provided in or in connection with a building for the purpose of assisting people to have access to the building or to use facilities provided in the building; and*
- (b) satisfies the relevant design standard."*

- d. Revokes a series of older disability discrimination regulations (from 1996 to 2006).
- e. Includes Regulation 9(3) which defines the "relevant design standards" to apply in England and Wales and in Scotland. (i.e. Part M of the Building Regulations or "Technical Handbooks for non-domestic buildings" issued by the Scottish Ministers - see below). Some other design standards may be suitable. There is a proviso that the feature must have been provided within a certain time (approximately ten years).

## **5.3 England**

### **5.3.1 Equality Act, 2010**

The Equality Act applies in England.

### **5.3.2 Building Regulations**

#### **5.3.2.1 General**

For the latest information refer to:

[www.planningportal.gov.uk/buildingregulations/approveddocuments](http://www.planningportal.gov.uk/buildingregulations/approveddocuments)

The Building Regulations 2010 (2010 Statutory Instrument 2214) applies.

HM Government Building Regulations – Approved Document M (or more commonly “Part M”) – Access to and Use of Buildings – applies in England. At the time of writing the latest version is the 2010 version with 2013 amendment.

This covers four subjects:

- M1** Access and Use
- M2** Access to Extensions to Buildings other than Dwellings
- M3** Sanitary Conveniences in Extensions to Buildings other than Dwellings
- M4** Sanitary Conveniences in Dwellings

For the purposes of Access Control the first two subjects are most relevant but the other parts should not be ignored.

Part K of the Building Regulations – Protection from Falling, Collision and Impact – may also influence design of areas surrounding entrances with access control and therefore have an impact on design (e.g. handrail positioning might conflict with an access control reader).

Part M of the Building Regulations clearly states that simply complying with the regulations “does not necessarily equate to compliance with the obligations and duties” of the Equality Act.

#### **5.3.2.2 Part M Contents**

Your attention is drawn to the explanation of the “10 Year Exemption for Service Providers, Local Authorities and Associations” given in Part M.

Part M does not contain specific requirements related to every aspect of building design but in the context of Access Control systems does have some requirements or statements that can be usefully employed elsewhere. Refer to 5.8 for more information.

Part M should be read to find the exact meaning of the items listed in 5.8 and other requirements.

## **5.4 Wales**

### **5.4.1 Equality Act, 2010**

The Equality Act applies in Wales (as the subject matter of equal opportunities was not devolved to the Welsh Assembly).

### **5.4.2 Building Regulations**

For the latest information refer to:

<http://wales.gov.uk/topics/planning/buildingregs/publications/?!lang=en>

HM Government Building Regulations – Approved Document M (or more commonly “Part M”) – Access to and Use of Buildings – applies in Wales (as in England). However at the time of writing the latest version from the wales.gov.uk website is the 2010 version without the 2013 amendments.

Refer to 5.8 for more information.

## **5.5 Scotland**

### **5.5.1 Equality Act, 2010**

The Equality Act applies in Scotland (after receiving consent by the Scottish Parliament on 28 January 2010).

### **5.5.2 Building Regulations**

#### **5.5.2.1 General**

For the latest information refer to:

[www.scotland.gov.uk/Topics/Built-Environment/Building/Building-standards](http://www.scotland.gov.uk/Topics/Built-Environment/Building/Building-standards)

Building Regulations in Scotland are included in “Building (Scotland) Regulations 2004” and the applicable information in the form of practical guidance to the regulations is contained within two handbooks:

- Technical Handbook – Domestic
- Technical Handbook – Non-domestic

The most stringent regulations apply as applicable and a single building may need reference to both. The domestic handbook applies for any domestic situation (e.g. a caretaker’s flat in an office building).

In both cases the majority of relevant requirements are within Section 4: Safety.

The Scottish Building Standards Agency and the Planning Division of the Scottish Executive Development Department have produced a Planning and Building Advice Note (PAN) No. 78 “Inclusive Design”.

The use of BS 8300 is recommended.

#### **5.5.2.2 Content**

The Introduction to Section 4 of the Technical Handbooks includes reference to consideration of accessibility, inclusive design, the benefit of access statements and the need to consider security of the building.

It is stated:

“Every building must be designed and constructed in such a way that all occupants and visitors are provided with safe, convenient and unassisted means of access to the building.”

But:

“There is no requirement to provide access for a wheelchair user to:

- a. a house, between either the point of access to or from any car parking within the curtilage of a building and an entrance to the house where it is not reasonably practicable to do so, or
- b. a common entrance of a domestic building not served by a lift, where there are no dwellings entered from a common area on the entrance storey.”

The Technical Handbooks have some requirements or statements that can be usefully employed elsewhere in the context of Access Control. Refer to 5.8 for more information.

The Technical Handbooks should be read to find the exact meaning of the items in 5.8 and other requirements.

## **5.6 Northern Ireland**

### **5.6.1 Disability Discrimination Act 1995**

The Equality Act does not apply in Northern Ireland. Instead the previous UK wide Disability Discrimination Act 1995 (as amended) is still in force.

### **5.6.2 Building Regulations**

#### **5.6.2.1 General**

In Northern Ireland the building regulations are covered by “Building Regulations (Northern Ireland) Order 1979 (as amended 1990 and 2009)”, “Building Regulations (Northern Ireland) 2012” and a number of amendments.

The “Building Regulations (Northern Ireland) 2012” list a number of exemptions from the regulations for particular types of building and for storeys of buildings in some circumstances.

Advice on how to avoid disability discrimination is given in the Department of Finance and Personnel (DFP) Technical Booklet R “Access to and Use of Buildings” (October 2012).

#### **5.6.2.2 Content**

Technical Booklet R contains a variety of useful guidance. It is not mandatory to follow it but doing so would help with claims concerned with meeting the regulations. The use of BS 8300 could be an alternative. Refer to 5.8 for more information.

The Technical Booklet R should be read to find the exact meaning of the items listed in 5.8 and other requirements.

## 5.7 Standard – BS 8300

*BS 8300:2009 + Amendment 2010 Design of buildings and their approaches to meet the needs of disabled people – Code of Practice*

British Standard BS 8300, last updated in 2010, gives recommendations for the design of new buildings and their approaches to meet the needs of disabled people. It applies to all aspects of a building's design although mainly concentrating on access. Recommendations about means of escape are given in BS 9999. The standard is not specific to access control systems but does mention aspects of design that affect access control equipment and location.

The standard does not apply to individual dwellings and it does not apply to buildings specifically designed to meet disabled needs.

It should be noted that the requirements given in national regulations (e.g. Part M of the English Building Regulations) do not match those given in BS 8300 which can be confusing. BS 8300 does provide useful information but where this differs from the national regulations the latter should take precedence.

Care must be taken to ensure that locking devices provide the necessary security but can still be used by those with disabilities.

## 5.8 Common Recommendations / Requirements in Building Regulations

The following table gives some of the recommendations and requirements that are reasonably common in the constituent countries of the UK. Significant differences are noted in the comments column. This is only an indication and readers should refer to the documents described above for full information.

The items listed below could be considered as good practice even when not given as a requirement.

Ref.	Requirement	Comments E = England NI = Northern Ireland S = Scotland W = Wales
1	Accessible entrances should be clearly sign-posted and easily recognisable.	E W
2	Door opening furniture should contrast with the door and not be cold to the touch.	E W
3	Visually impaired people should be in no doubt as to the location of glass entrance doors. This includes the closed and open condition if it can be held open.	E W NI
4	Where a visual contrast is expected between surfaces (e.g. so that a control panel is visible) guidance is given that the Light Reflectance Value should exceed 30.	NI
5	Manual controls should contrast visually with the surface on which they are mounted.	E W S NI

Ref.	Requirement	Comments E = England NI = Northern Ireland S = Scotland W = Wales
6	Manual controls should be located so that a person, having used the control, does not need to move to avoid contact with the door as it opens.	S NI (EW similar).
7	Thresholds should be level or, if a raised threshold is unavoidable, should have a total height of not more than 15mm with a minimum number of upstands and slopes, with any upstands higher than 5mm chamfered or rounded.	E W NI (S similar).
8	Any door entry systems should be accessible to deaf and hard of hearing people and people who cannot speak.	E W
9	Weather protection should be provided at manual non-powered doors.	E W
10	Doors with self-closing devices are not recommended. Powered doors with automatic or manual control are preferred. Sliding doors are noted as having advantages.	E W recommendation S & NI permit door closers, see below.
11	Doors fitted with a door closing device should be operable with an opening force of not more than 30N (for first 30° of opening) and 22.5N (for the remainder) measured at the leading edge of the door leaf. If it is not a powered door it should have an unobstructed space to the opening face of the door, next to the leading edge, of at least 300mm.	N I (S has additional requirement, see below).
12	For non-domestic properties if a closer (see item 11 above) will not ensure a fire door is kept shut then a latch is required to hold the door shut.	Additional to above for S.
13	Doors should be wide enough for access by wheelchair users; people with luggage, with assistance dogs, with pushchairs, with children. It is noted that double child buggies are wider than wheelchairs.	E W
14	Where fitted with a latch, door opening furniture can be operated with one hand using a closed fist (e.g. a lever handle).	E W
15	Common entrances to domestic properties should have a door entry system. With controls positioned between 900mm and 1.2m above floor level. It should include an inductive coupler compatible with the 'T' setting on a personal hearing aid, together with a visual indicator that a call made has been received. Controls should contrast visually with surrounding surfaces and any numeric keypad should follow the 12-button telephone convention, with an embossed locator to the central '5' digit.	S
16	Revolving doors used alone are not considered accessible and should be complemented by an adjacent door meeting the regulations.	E W S NI Additionally in S the adjacent door should be powered.
17	Powered doors should be controlled by either an automatic sensor or a manual activation device.	S

Ref.	Requirement	Comments E = England NI = Northern Ireland S = Scotland W = Wales
18	Manual door controls should be located at a height of between 750mm and 1.0m above ground level.	E W S NI
19	Any manual control should be located at a height of between 750mm and 1.0m above ground level and at least 1.4m from the plane of the door or, if the door opens towards the direction of approach, 1.4m from the front edge of the open door leaf.	S E W NI have similar recommendations but differently worded.
20	Manual controls for powered doors should be operable with a closed fist.	E
21	Door controls (e.g. door entry systems, readers) should be mounted less than 1200mm from the floor (and above 750mm). Controls that require a user to read a display should be mounted between 1200mm and 1400mm from the floor.	NI [Note this appears to potentially be a contradictory requirement.]
22	Open doors should not project into any adjacent access route.	E W
23	Fire doors held open by electro-magnetic devices should close when activated by smoke detectors, fire alarms, or if the power supply fails or by a hand operated switch.	E W
24	In a corridor double doors with unequal width doors should always have the wider door on the same side.	E W
25	Car park ticket machines for use by wheelchair users (i.e. not in a car) should have controls between 750mm and 1200mm above the ground and a plinth that does not project in front of the face of the machine.	E W
<b>Powered Doors:</b>		
26	Power operated entrance doors should have a sliding, swinging or folding action activated manually by a push pad, electronic card, coded entry, or by remote activation; or automatically (e.g. by a motion detector). In the latter case the leading edge of the detection zone should be 1400mm away from the nearest point of the door to the user (i.e. perpendicular from the closed position if the door opens away and from the leading edge when open if it opens towards).	NI
27	Powered doors should have signs to identify means of activation and warn of operation.	S
28	Powered doors should have guarding to prevent collision with, or entrapment by a door leaf, (except where such guarding would prevent access to the door).	S
29	Powered opening doors should take account of people who cannot react quickly to their opening.	E W
30	Powered doors should have sensors to ensure doors open swiftly enough and remain open long enough to permit safe passage.	S

Ref.	Requirement	Comments E = England NI = Northern Ireland S = Scotland W = Wales
31	Powered doors should have sensors to avoid the door striking a person passing through (e.g. a safety stop).	E W S
32	Swing doors should have identification of any opening vertical edge using visual contrast.	S
33	Swing doors opening towards people should have visual and audible warnings of their opening and closing.	E W
34	Powered doors on an escape route, or as part of a lobby arrangement (where the inner door is also powered or lockable) should, to prevent entrapment during a power failure, either fail 'open' or have a break-out facility permitting doors to be opened in direction of escape.	S (E W NI similar) In E W it is stated that a manual means of opening the door may be provided but the suitability of this would depend on its operability by disabled person.
35	Reference is made to BS 7036 series – Code of practice for safety at powered doors for pedestrian use'.	S
<b>Lifts:</b>		
36	Lift call buttons (outside the lift) should be between 900mm and 1100mm from the floor.	E W S NI
37	Lift call buttons (outside the lift) should be at least 500mm from any return wall.	E W NI (400mm in S)
38	Lift car controls should be between 900mm and 1100mm from the floor.	E W S NI In E W 1100mm is preferred but up to 1200mm is permitted.
39	Lift car controls should be at least 400mm from any return wall.	E W S (500mm in NI)
40	Call buttons should facilitate tactile reading (either on the button itself or next to it).	E W S NI
41	Lift doors, handrails and controls should contrast visually with surrounding surfaces.	S

The above is merely a summary of the applicable contents. Refer to the actual documents for full information:

- England and Wales: Approved Document M
- Scotland: Section 4 of the Technical Handbooks for Domestic and Non-domestic Buildings
- Northern Ireland: Technical Booklet R.

## 6. Assistance with making changes

A government funded scheme called "Access to Work" can help employers with some costs involved in making adjustments for disabled workers.

Information can be found at:

[www.gov.uk/access-to-work](http://www.gov.uk/access-to-work)

## 7. General Guidance

### 7.1 Doors and Access Control - General

This section outlines the typical characteristics of access control features and associated doors and turnstiles that help to facilitate access by all parties without discrimination. Following this guidance will not necessarily ensure compliance with the building regulations described above or suit particular situations. Reference to the applicable regulations, technical documents or BS 8300 is recommended.

Access doors should be designed so as to permit operation by one person in an easy to understand manner without great effort. If possible a single motion should enable opening and closing of doors.

For disabled persons, power operated doors are recommended with automatic operation by sensors or using controls that are within easy reach.

Access control readers should be positioned in a similar manner to powered door controls with care to ensure that the method of operation is suitable. For example the use of a magnetic swipe reader by persons in wheelchairs might require difficult arm movements.

Consideration of disabilities should not be limited to wheelchair users. People who can walk with ease may have limited use of their arms or be visually impaired.

Entrances should be clearly signposted and the doors easily identifiable as being distinct from surrounding panels. Visual identification is a particular problem with fully glazed panels which are not recommended.

### 7.2 Door types

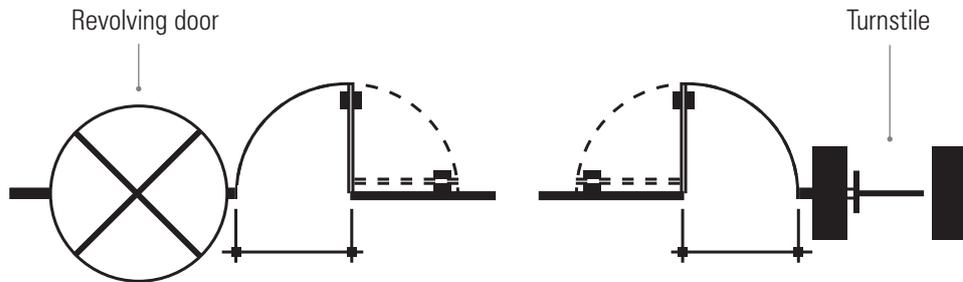
The following door and turnstile types are listed in descending order of preference:

- a. Powered sliding doors
- b. Powered swing doors
- c. Low effort swing doors
- d. Swing Doors
- e. Self-closing swing doors
- f. Revolving doors
- g. Turnstiles

Very large slow, continually revolving doors may be acceptable for wheelchair users but may not be suitable for others.

Door types that are not preferred can be combined with preferred types providing use of the preferred type does not disadvantage the user (e.g. by requiring a lengthy detour).

**Figure 1 – Adjacent alternative styles of door to enable ease of access**



Non-preferred self-closing doors are often used to hold doors shut against environmental conditions (e.g. wind). It may be possible to alleviate problems by the use of a lobby area or other structural arrangements.

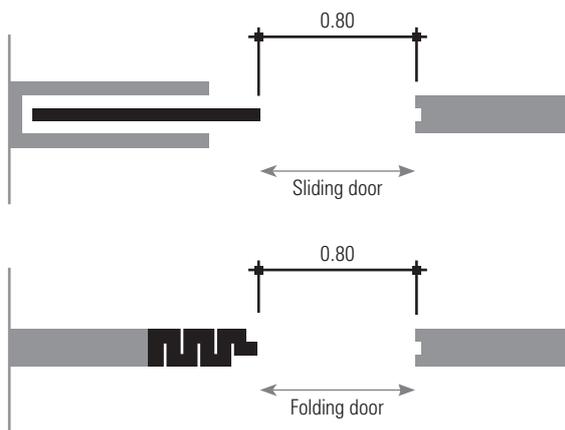
Doors should include glazing arrangements (vision panels) that permit users to see others approaching the door. Examples are given in clause 6.4.3 of BS 8300. This basically requires a minimum width of glazing of 100mm and that in the region from 500mm above the floor to 1500mm above the floor at least 650mm of glazing is provided. (See figure 4).

Fully glazed doors should also have areas to alert others to the presence of the glass (e.g. frosted areas) within two bands at 850mm to 1000mm and 1400mm to 1600mm from the floor. See clause 6.4.4 of BS 8300.

Pivoted doors should, where possible, swing away from the direction of travel.

Doors should allow a minimum width of access of 800mm (See BS 8300 Clause 6.4.2) for internal doors and 1000mm for external doors. The measurement should take into account the actual useable gap rather than the opening space so if the open door blocks the gap or adjacent walls hinder movement then the opening should be wider to enable wheelchairs to negotiate the doorway. Similarly emergency push to open bars should not reduce the gap below the recommended limits.

**Figure 2 – Width of doors (Sliding and Folding)**



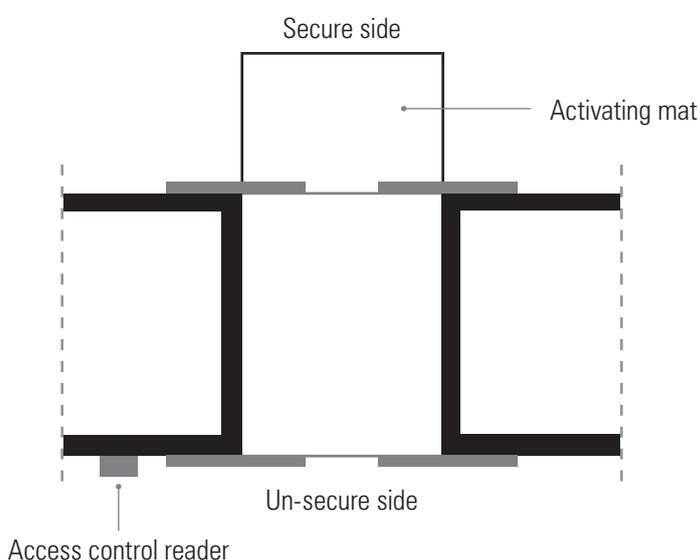
## 7.3 Entrance arrangements

Passers-by and Users of doors should be protected by guardrails to avoid the likelihood that they might walk into open doors or be trapped by doors.

When doors are used in combination to provide a lobby it should be of sufficient size to allow ease of use and controls placed in a convenient position that does not disadvantage users (e.g. a wheelchair user with assistant should not have to negotiate around one door to operate the second).

The same examples of lobby size are given with diagrams in Section 2 of Approved Document 'M' and Figure 10 of BS 8300.

### Figure 3 – Typical entrance arrangement



#### 7.3.1 Door Furniture

Operational devices on doors, such as handles, pulls, latches and locks, should be easy to grasp with one hand.

##### 7.3.1.1 Handles

Lever-type handles, push plates or pull handles are recommended for swinging doors because they are easy to open. Round knobs are not recommended.

Door handles should be located at a comfortable height (figure 4).

##### 7.3.1.2 Access Control Readers

Readers on entrance doors should be mounted at a comfortable height. Readers should be easy to operate; hands-free readers being recommended. See figure 5. Typically they should be close to the latch edge of the door within 200mm of the door (except see figure 7 for approaches to swing doors) and between 900mm and 1050mm from the floor. See section 5.8 for different height recommendations applicable in different locations.

### 7.3.1.3 Pull handles

Pull handles are not recommended on the push side of a door.

Pull handles should have a diameter of between 19 and 35mm and have a gap between the handle and the door of at least 45mm.

Although doors fitted with spring closers are not recommended in some parts of the UK, if used, doors should be equipped with an extra pull handle. Horizontal pull handles are recommended to be approximately 0.30m in length, located between 0.20m and 0.30m from the hinged side of the door and mounted between 0.90m and 1.10m from the floor.

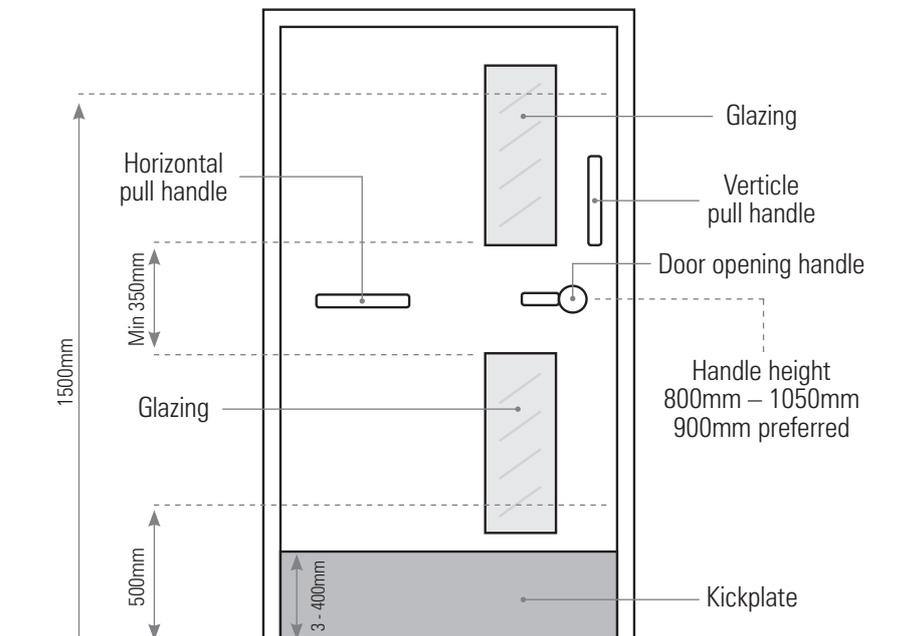
Vertical pull handles should be at least 300mm in height and reach to at least 1300mm above the floor. It is recommended that the bottom of the handle is between 700mm and 1000mm from the floor.

See figure 4.

### 7.3.1.4 Kick plates

Kick plates are useful to protect the finish on the lower part of the door. Kick plates should be between 0.30m and 0.40m in height (see figure 4).

**Figure 4 – Door Furniture**



### **7.3.1.5 Door Viewers (Peepholes)**

For doors such as hotel guest rooms where glazed panels are not suitable it may be useful to provide door viewers (peepholes) which contain a lens that allows a wide view from inside of the corridor outside but hardly any visibility from outside looking in. These viewers require the user to be close to the lens and this is only possible if the viewer height matches the ability of the person.

Whilst it is not a requirement to provide such viewers they are frequently requested by customers. For rooms intended for wheelchair users it may be advisable to fit two peepholes – one at a standing height and one at a wheelchair accessible height.

It should be noted that there is no one ideal height for the wheelchair user peephole because the best position depends greatly on the ability of the user to lean close to the door and the resulting height of their eyes.

The recommended heights for peepholes are:

Wheelchair height: 1000mm to 1200mm

Standing height: 1400mm to 1500mm

*(Secured by Design recommend a viewer meeting the Door and Hardware Federation's TS-002 specification and fitted between 1200 to 1500mm)*

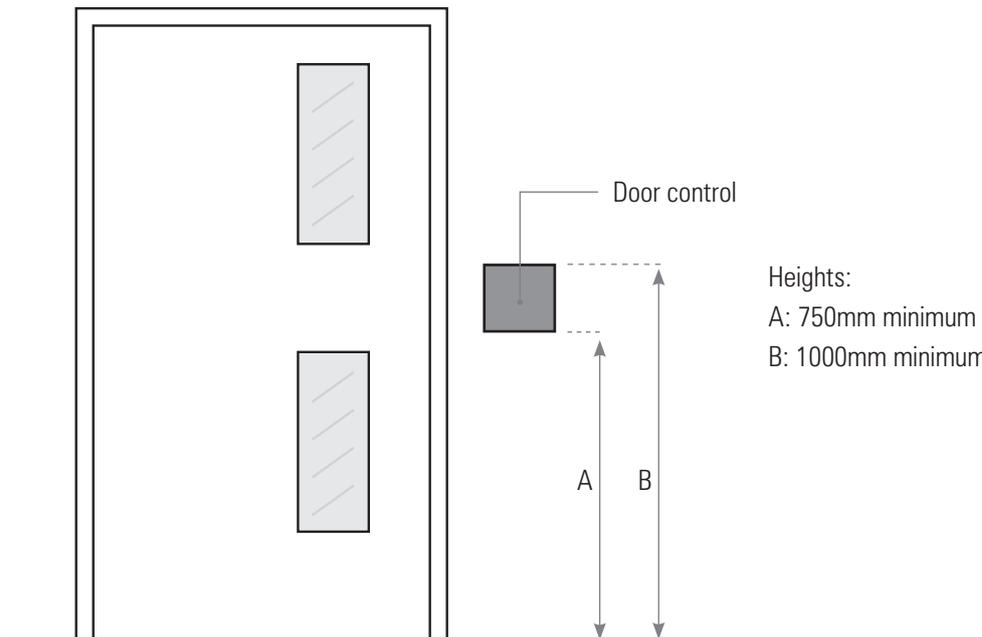
It is also possible to use viewers that use prisms. These types allow a view into the corridor while the user is further away so only one viewer may be necessary. A further alternative may be to use an electronic camera and screen arrangement (similar to a door entry system).

### **7.3.2 Powered door hardware**

Powered doors can be activated by:

- (a) Push buttons located at a comfortable height (See section 5.8 for height recommendations).
- (b) Activating mats, which can also serve as a location cue (see figures 3 and 7).
- (c) Access Control Readers on entrance doors should be mounted at a comfortable height. Readers should be easy to operate; hands-free readers being recommended. See figure 5. Typically they should be close to the latch edge of the door within 200mm (except see figure 7 for approaches to swing doors) of the door and between 900mm and 1050mm from the floor. See section 5.8 for different height recommendations applicable in different locations.
- (d) Remote control.

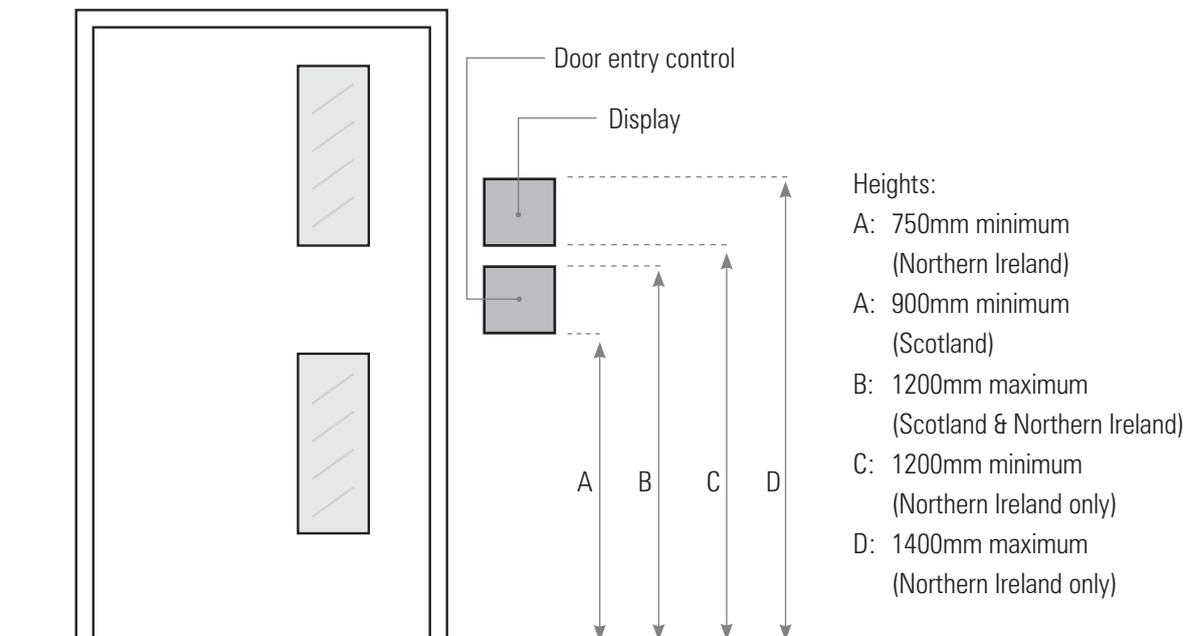
**Figure 5 – Height of Manual Door Controls for Powered Doors**



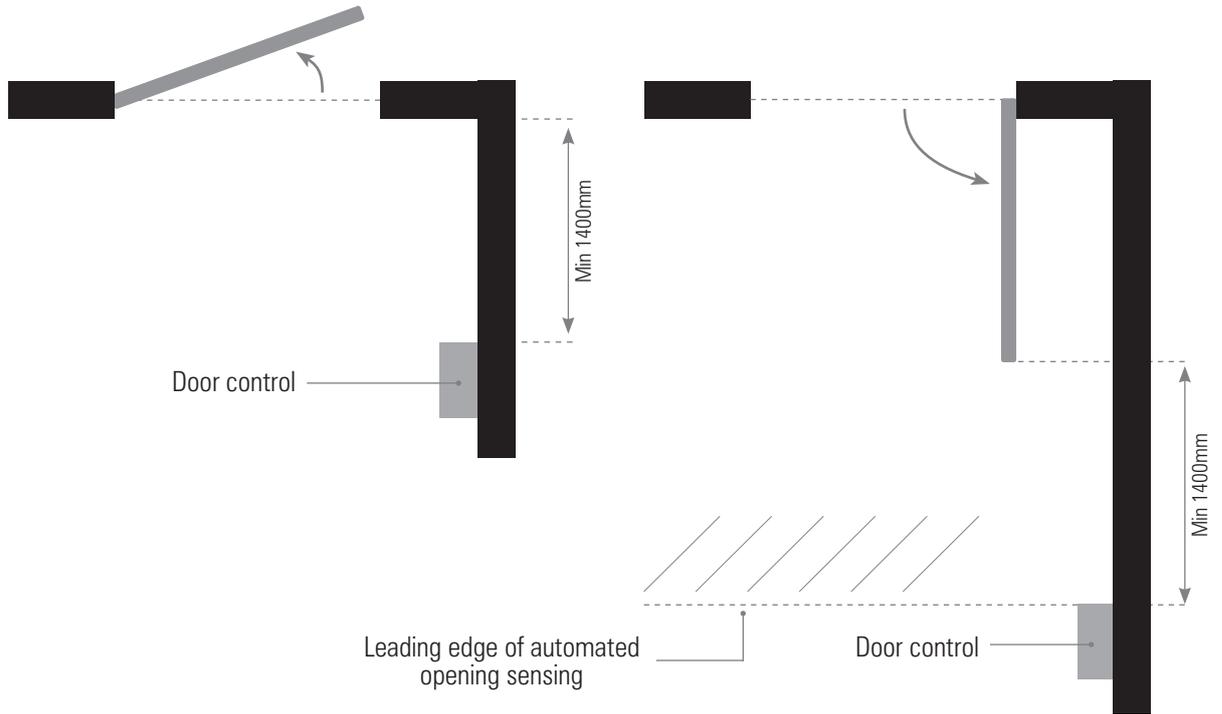
### 7.3.3 Door Entry Systems

Recommended heights of door entry system controls and associated displays are shown in Figure 6. In England and Wales no heights are specified for door entry systems and heights given for manual door controls are recommended.

**Figure 6 – Height of Door Entry System Controls (Scotland & NI)**



**Figure 7 – Position of Door Controls on Approach to Swing Doors**



## 7.4 Turnstiles

For further information refer to the BSIA's Guide to Security Turnstiles (Form 209). The following table is an excerpt from the guide and includes information related to avoiding discrimination against persons with disabilities ("DDA").

**Table 1 – Comparison of Turnstiles (See BSIA Form 209).**

Turnstile Type	DDA Compliant <sup>1</sup>	Physical Security Level <sup>2</sup>	Typical Appearance	Speed <sup>3</sup>	Ease Of Use	Typical Cost	Emergency Egress <sup>4</sup>
 DDA Passgate	Yes	🔒	Low- Medium	Fast 60	Easy	£	Unhindered
 Tripod	No	🔒🔒🔒	Prominent	Slow 15-25	Medium	£	Hindered
 Optical only	Yes	🔒🔒	Low Key	Fast 60	Easy	££	Unhindered
 Rising Arm	Yes	🔒🔒🔒	Low – Medium	Fast 60	Easy	£££	Unhindered
 Sliding barrier	Yes	🔒🔒🔒	Low - Medium	Fast 60	Easy	£££	Unhindered
 Sweeping Barrier	Yes	🔒🔒🔒	Low – Medium	Fast 60	Easy	£££	Unhindered
 Rotating barrier	No	🔒🔒🔒	Medium	Slow 15-25	Easy	££	Hindered
 Rotating full height	No	🔒🔒🔒🔒	High	Slow 6-10	Awkward	££	Hindered
 Airlock	Yes/No <sup>5</sup>	🔒🔒🔒🔒🔒	High	Slow 6-10	Awkward	££££	Unhindered
 Security Rotating Door	No	🔒🔒🔒🔒	High	Medium 20	Easy	££££	Hindered

Key:

<sup>1</sup> Indicates whether a product of this type is typically DDA compliant. Products vary and compliance can be dependent on other circumstances

<sup>2</sup> Level of physical security in comparison with other types

<sup>3</sup> Speed measured in persons per minute

<sup>4</sup> Level of emergency access for this type of product

<sup>5</sup> DDA access possible depending on diameter

## **7.5 Signs**

Clear signs should be used to assist all users of a building. Where possible these should adopt international conventions. Each building will have its own design considerations and signs may need to be located in various positions. For example a sign with additional Braille messages would need to be positioned for easy access whereas overhead signs should be positioned to prevent head injuries.

Clause 9.2 of BS 8300 provides guidance on provision of signs.

It is recommended that signs are positioned adjacent to doors instead of on the doors.

## **7.6 Access control identification technologies**

*For further information refer to the BSIA's Specifier's Guide to Access Control Systems (Form 132).*

### **7.6.1 Contact technologies**

These technologies require the card or tag to make positive contact with the reader. This could be a problem for a person with a disability as the contact must be made in exactly the required manner and position.

Examples of contact technology devices are magnetic stripe readers and card insertion readers.

Because the user must make a positive contact between their card and the reader it may be necessary to provide a second reader at a lower level to provide ready access to a disabled person. Consider also the effectiveness of indicator LEDs and beepers to assist sight and hearing impaired users.

### **7.6.2 Short range technologies – Proximity devices**

Short-range technologies require the card or tag to be placed within approximately 100mm of the reader. To all intents, the card or tag must touch the reader. The orientation of the card or tag is not usually critical however a card placed "edge-on" against the reader may not be read properly.

Examples of short-range technologies are smartcard proximity (13.56MHz) and standard proximity (125kHz). Short-range cards and tags are usually powered from the reader so the cards do not require internal battery power.

As for contact technologies described above, a second reader should be considered for use by disabled persons.

### **7.6.3 Long range technologies**

Long-range technologies allow cards to be read several metres away from the reader. These technologies tend to be more costly. A version of long-range technology allows a short or medium range card or tag to be placed in a special holder, which then transmits the data to the reader. This effectively extends the range of the short or medium range technology.

Long-range cards and tags typically have a battery built into them to provide the long-range coverage, however there are products available that do not require batteries. Any long-range device that has a battery may have a limited "life" as the battery will discharge in time. Battery life should be checked with the manufacturer.

Long-range technologies are less sensitive to the way in which the card or tag is presented at the reader so generally a single reader will accommodate all users at an entrance. The provision of LED and beeper to indicate access granted or denied should still be considered to accommodate sight and hearing impaired users.

#### **7.6.4 Biometric technology**

Biometric technologies “read” an aspect of the user’s body. The data is translated into a unique code, which is read by the access control system. There are several technologies in the market with new ones being developed all the time. The process of reading and comparing data in biometric recognition systems are all similar. Once enrolled in an access control system, when a user requires access, the biometric scan is compared with the information stored in the system. If the match is recognised, access is allowed.

There are two main data storage formats in use: one stores the biometric template in a central database and the other stores the information on an access card (eliminating centrally stored personal information). Note that in the case of the latter system, the user must present their card as well as allow the biometric scan.

With biometric technologies, the need for a positive link between the reader and the person varies, depending on the technology. As a general statement, biometric technologies require “contact” between the person and the reader but as the technologies advance, iris and facial recognition systems in particular are becoming less sensitive to the position of the users relative to the reader. A second reader should be considered where necessary.

Some examples are:

##### **a) Finger**

The user places their finger (as used during enrolment) on the reader. The print is scanned. The user must place their finger in the correct position for a valid read.

##### **b) Palm/Hand**

Palm and hand readers fall into two categories. One is a hand geometry reader, which measures critical points on the user’s hand. The second measures vein location and uses this data to validate access. Both systems require the user to place their hand on a reader. The reader usually has metal guide pins on the surface to ensure the hand is correctly positioned.

##### **c) Iris recognition**

These systems require the user to look into the reader with their eye position correctly positioned. The reader then scans the iris to check for a valid match. Again, the position of the eyes is critical to get a good read.

##### **d) Facial recognition**

Facial recognition systems usually rely on a video camera image from which the facial recognition data is obtained. With some systems, the position of the person is not critical, providing the image of the person’s head is in the video frame, however some systems require accurate position to ensure verification of the user.

### **7.6.5 Alternative methods, i.e. pull cords, pressure mats etc**

One should not discount the use of “assisted access” for disabled entry in place of an access reader. If access is required for a disabled person on a casual basis only, then the provision of a call switch or an intercom station may be adequate for the person to summon assistance and then the assistant manages the access requirements. Note that the position of the door intercom unit needs to be considered in terms of the necessary recommendations.

### **7.7 Exit methods (Egress)**

In some cases users will be allowed to freely exit a building (i.e. not using an access control system). In other cases exit will be controlled. The considerations described elsewhere in this document apply but care should be taken that the design allows for ease of use and that the entry and exit route do not disadvantage users.

It is recommended that the same entry and exit route can be used where possible to avoid confusion. If this is not possible and a different route is necessary then it should be clearly identified.

In some cases enabling ease of use of a building may result in the need to provide different entrances and exits. For example whereas a powered sliding door may be equally suitable for use in both directions by a wheelchair user a swing door may not. If different entrance and exit routes are necessitated then these should not inconvenience users.

Push button “request to exit” switches should be positioned to suit both able and disabled users.

This document was created by the Access and Asset Protection Section (formerly Access Control Section) of the British Security Industry Association (BSIA).

The British Security Industry Association is the trade association for the private security industry in the UK. Our members provide over 70% of UK security products and services and adhere to strict quality standards.

Access control provides the ability to control, monitor and restrict the movement of people, assets or vehicles in, out and around a building or site. Products range from token based systems and digital keypads, through to biometric identification systems and the associated hardware.

Access control products are subject to fast-moving technological development. A major focus of the BSIA Access Control Committee is to raise awareness amongst end-users and specifiers of the different types of equipment that is available and the most appropriate environments for using them.

BSIA membership will raise your company profile and ensure that your business is at the heart of influencing the future of the security industry. You will become part of a unique group of high quality and professional companies which are well-respected and well-represented to government, end users, specifiers, standards and legislative bodies. For more information contact the BSIA.



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