

ISO 21542:2011-12 (E)

Building construction - Accessibility and usability of the built environment

Contents		Page
Foreword		viii
Introduction		ix
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	General design considerations	9
4.1	General	9
4.2	Design requirements according to human abilities	9
4.3	Key accessibility issues	9
5	Approach to the building	12
5.1	Arrival by motor vehicle	12
5.2	Principal entrance	12
6	Designated accessible parking space	13
6.1	Location	13
6.2	Number of designated accessible parking spaces	13
6.3	Car parking	13
6.4	Van parking with auxiliary movable ramps	14
6.5	Signage	15
6.6	Surface	15
6.7	Kerb ramp from parking space to an adjacent higher pedestrian path	15
6.8	Indoor parking	16
6.9	Parking control	16
7	Paths to the building	16
7.1	General	16
7.2	Wayfinding, guided path and other physical support of information	17
7.3	Path	18
7.4	Width of the path	19
7.5	Passing space for wheelchair users	19
7.6	Turning space for wheelchair users on landings	20
7.7	Path construction	20
7.8	Stepped path and stair	20
7.9	Width of stepped path and stair	21
7.10	Landing of stepped path and stair	21
7.11	Landings of sloped paths	21
7.12	Support and guidance by a handrail on paths	21
7.13	Drainage of access routes	21
7.14	Solitary obstacles in a path	21
7.15	Guards against falling within a path	22
8	Ramps	22
8.1	General	22
8.2	Slope and length	24
8.3	Width of ramps	25
8.4	Landings of ramps	25

8.5	Support and guidance by handrail on ramps	25
8.6	Drainage of ramp	25
8.7	Surface materials	25
9	Guarding along paths and ramps	25
10	Building entrances and final fire exits	26
10.1	General	26
10.2	Identification	27
10.3	Floor level at the entrance	27
10.4	Principal entrance doorway	27
10.5	Doorway width	27
10.6	Clear height of a doorway	28
10.7	Circulation space	28
10.8	Lobbies	28
10.9	Visibility through an entrance door	29
11	Horizontal circulation	29
11.1	General	29
11.2	Internal passages	30
11.3	Turning space for 90° turn of a wheelchair in corridors	31
11.4	Circulation space for 180° wheelchair turn	31
12	Vertical circulation	32
12.1	General	32
12.2	Ramps in buildings	32
13	Stairs	32
13.1	Rise and going of steps	32
13.2	Minimum width of stair flights	33
13.3	Staircase landings	34
13.4	Head clearance	34
13.5	Visual and tactile warnings	35
13.6	Guards along stairs	35
14	Handrails	36
14.1	General	36
14.2	Provision of handrails	36
14.3	Profile of a handrail	37
14.4	Continuity of a handrail	37
14.5	Height of a handrail	37
14.6	Horizontal extension of a handrail	38
14.7	Visual and tactile information	38
14.8	Mechanical resistance	38
15	Lifts (Elevators)	38
15.1	General comments	38
15.2	Inner dimensions of cars	39
15.3	Lift car entrance -- Door opening	40
15.4	Equipment in the car	41
15.5	Control devices and signals	43
15.6	Use of lifts (elevators) for fire evacuation	45
16	Vertical and inclined lifting platforms	46
16.1	General application	46
16.2	Platform dimensions	46
16.3	Vertical lifting platforms	46
17	Escalators and moving walks	46
18	Doors and windows	47
18.1	Doors and door furniture	47

18.2	Fire resisting doorsets	53
18.3	Windows and window hardware	54
19	Reception areas, counters, desks and ticket offices	55
19.1	Hearing and lip-reading	55
19.2	Location	55
19.3	Space to manoeuvre	55
19.4	Height	55
19.5	Lighting	56
19.6	Ticket systems	56
20	Cloakroom	56
21	Auditoriums, concert halls, sports arenas and similar seating	57
21.1	Hearing enhancement systems	57
21.2	Lighting for sign language interpretation	57
21.3	Designated seating areas for wheelchair users	57
21.4	Access to stage and backstage	57
21.5	Row and seat numbers	57
21.6	Accessible changing rooms	57
22	Conference rooms and meeting rooms	58
23	Viewing spaces in assembly areas	58
23.1	Floor area	58
23.2	Sight lines	59
24	Bars, pubs, restaurants, etc	59
25	Terraces, verandas and balconies	59
26	Toilet rooms and sanitary rooms	60
26.1	General	60
26.2	WC compartments for ambulant disabled people	60
26.3	Wheelchair user accessible toilet rooms	61
26.4	Dimensions for wheelchair user accessible toilet rooms	61
26.5	Toilet room doors	66
26.6	Toilet seat	66
26.7	Grab rails	67
26.8	Toilet paper	68
26.9	Washbasin	69
26.10	Water supply	70
26.11	Taps	71
26.12	Urinals	71
26.13	Other fittings	71
26.14	Alarm	71
26.15	Emergency warning alarm	72
26.16	Shower	72
26.17	Individual shower room	73
26.18	Bathrooms	74
27	Accessible bedrooms in non-domestic buildings	77
28	Kitchen areas	79
29	Storage areas	79
30	Facilities for guide dogs and other assistance dogs	79
30.1	General	79
30.2	Relief facilities for guide dogs and assistance dogs	79
31	Floor and wall surfaces	80

32	Acoustic environment	80
32.1	General	80
32.2	Acoustic requirements	80
32.3	Hearing enhancement systems	81
33	Lighting	82
33.1	General	82
33.2	External lighting	82
33.3	Natural lighting	82
33.4	Artificial lighting	82
33.5	Lighting to facilitate wayfinding	82
33.6	Controllable and adjustable lighting	83
33.7	Light levels in different areas	83
33.8	Lighting in auditoriums	83
33.9	Glare and shadows	83
34	Fire emergency warning systems, signals and information	84
34.1	General	84
34.2	Light warning signals	84
34.3	Acoustic warning systems	84
35	Visual contrast	84
35.1	General	84
35.2	Choice of colours and patterns	85
36	Equipment, controls and switches	86
36.1	General	86
36.2	Location, heights and distances	86
36.3	Location of controls from walls, corners and opening doors	88
36.4	Operation	89
36.5	Identification	90
36.6	Usability	90
36.7	Telephones	90
36.8	Card access, dispensing machines and automatic teller machines (ATMs), etc	91
36.9	Security access systems	93
36.10	Drinking fountains	93
36.11	Refuse bins	93
37	Furnishing	93
37.1	General	93
37.2	Seating in waiting areas	93
37.3	Seating at desks, tables, etc	94
38	Fire safety, protection and evacuation for all	95
38.1	Fire engineering design objectives	95
38.2	Principles of fire evacuation for all	95
38.3	Assisted fire evacuation	96
38.4	Evacuation chairs	97
38.5	Emerging fire evacuation technologies	97
38.6	Fire defence plans	97
39	Orientation and information	98
39.1	General	98
39.2	Principle of two senses	99
39.3	Audible information	99
39.4	Levels of information	99
40	Signage	99
40.1	General	99
40.2	Main types of signs	100
40.3	Placement of signs	100

40.4	Height and location of signs	101
40.5	Font and size of lettering	102
40.6	Differences in LRVs	102
40.7	Glare free	103
40.8	Illumination	103
40.9	Understandable	103
40.10	Provision of raised tactile and Braille signs	103
40.11	Tactile letters, figures, signs and graphical symbols	103
40.12	Braille	104
40.13	Tactile symbols	104
40.14	Tactile maps and floor plans	104
40.15	Information displays	105
41	Graphical symbols	105
42	Management and maintenance issues	109
Annex A (informative) Tactile walking surface indicators (TWSIs)		110
Annex B (informative) Human abilities and associated design considerations		118
Annex C (informative) Circulation spaces at doorways		132
Annex D (informative) Fire safety and assisted evacuation for all in buildings		144
Annex E (informative) Management and maintenance issues		146
Bibliography		149