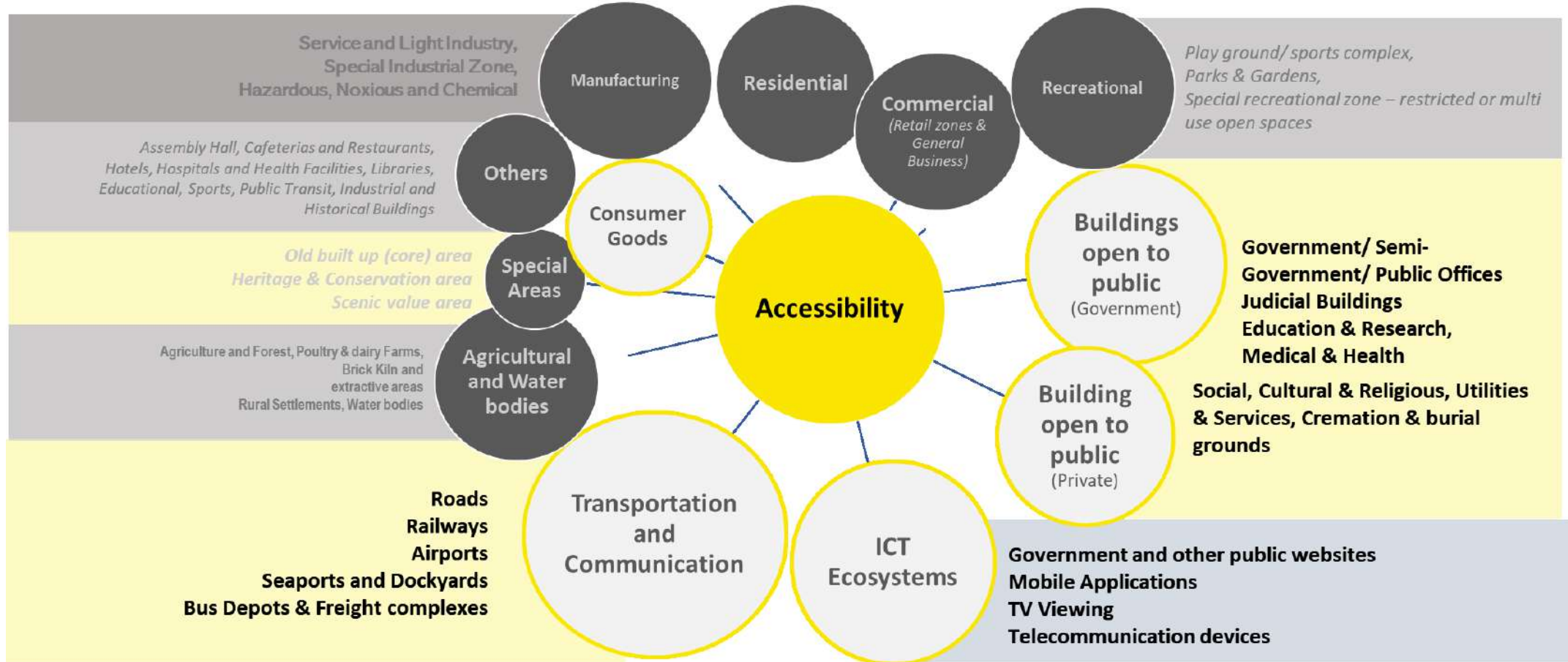




Accessibility in Built Environment

Building Typology



Principles of Design

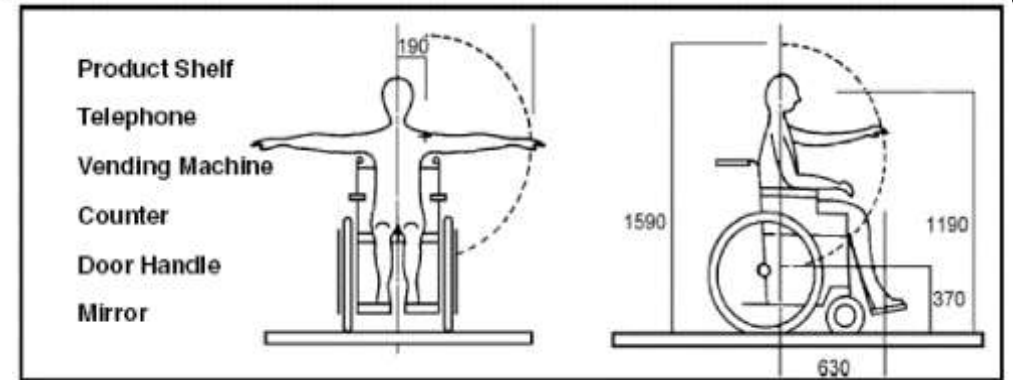
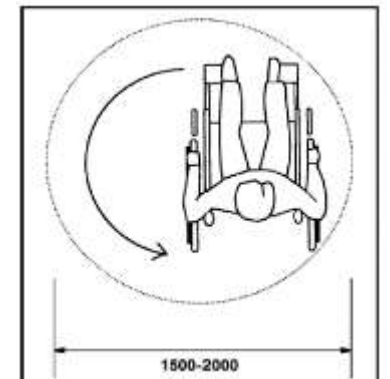
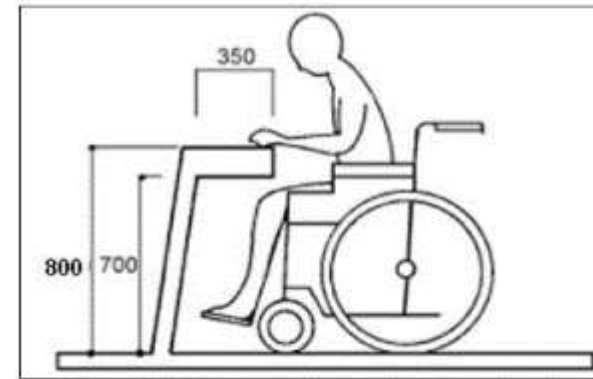
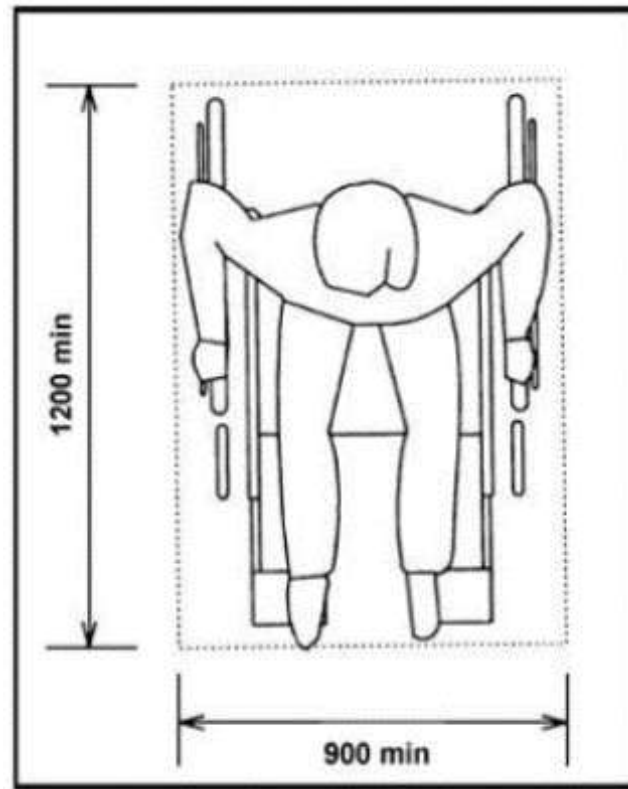
As described in NBC, 2016...

*“**Accessibility** includes ease of independent approach, entry, evacuation and/or use of a building and its services and facilities, by all of the building’s potential users with an assurance of individual **health, safety and welfare** during the course of those activities.”*

Principles of Design

All dimensions are in millimetres (mm)

Basis of requirements for accessibility features in Built Environments:

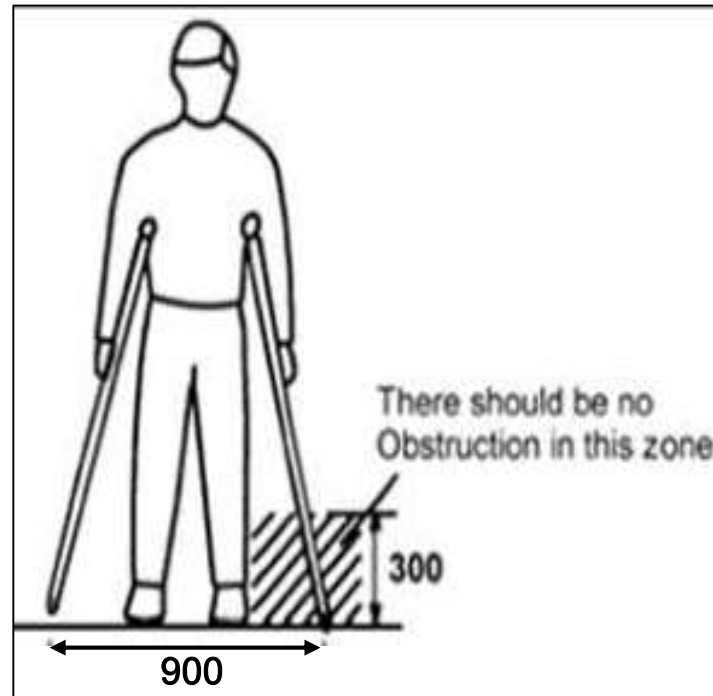
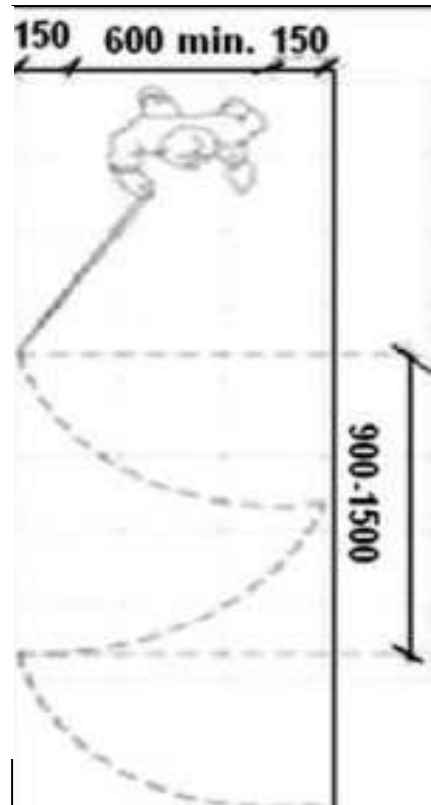


Intellectual Disability

Principles of Design

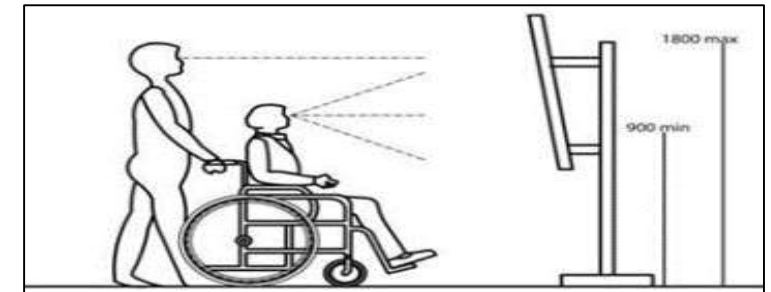
All dimensions are in millimetres (mm)

Basis of requirements...



Contd...

Vision Zone



Disabilities addressed -

- Locomotor disability
- Visual impairment (Blindness, Low Vision and Colour Blindness)
- Hearing disability
- Multiple Disorder
- Intellectual Disability

10 Accessibility Features in the Built Environment

**GOOD PRACTICES
V/S
GROUND SCENARIO OF
RETROFITTED BUILDINGS**

Features of Accessibility in Built Environments

OUTDOOR FEATURES

- i. Accessible route/approach;**
- ii. Accessible Parking - Reserved parking near entrance**
- iii. Accessible entrance to building – ramp;**

INDOOR FEATURES

- iv. Accessible reception;**
- v. Accessible corridors and tactile flooring;**
- vi. Accessible lifts with braille; auditory commands;**
- vii. Staircases with durable handrails;**
- viii. Accessible toilets;**
- ix. Accessible drinking water provision;**
- x. Auditory and visual signage**

Key Accessibility Features (Outdoor)

1. Accessible Route/Approach – Good Practice

- **Continuous path** connecting **all** accessible elements and spaces in a building or facility.
- Width of **1800mm for 2 wheelchairs/900 mm for 1**
- **Anti Skid flooring**
- **Tactile guiding path** of at least **300mm wide**
- **Colour contrasting surface**
- **Directional signage** regarding accessibility features



Good Practice
Netherlands

1. Accessible Route/Approach - Issues in implementation

- Not continuous
- No unobstructed path
- Slippery surfaces
- No colour contrasted guiding path
- No directional signage

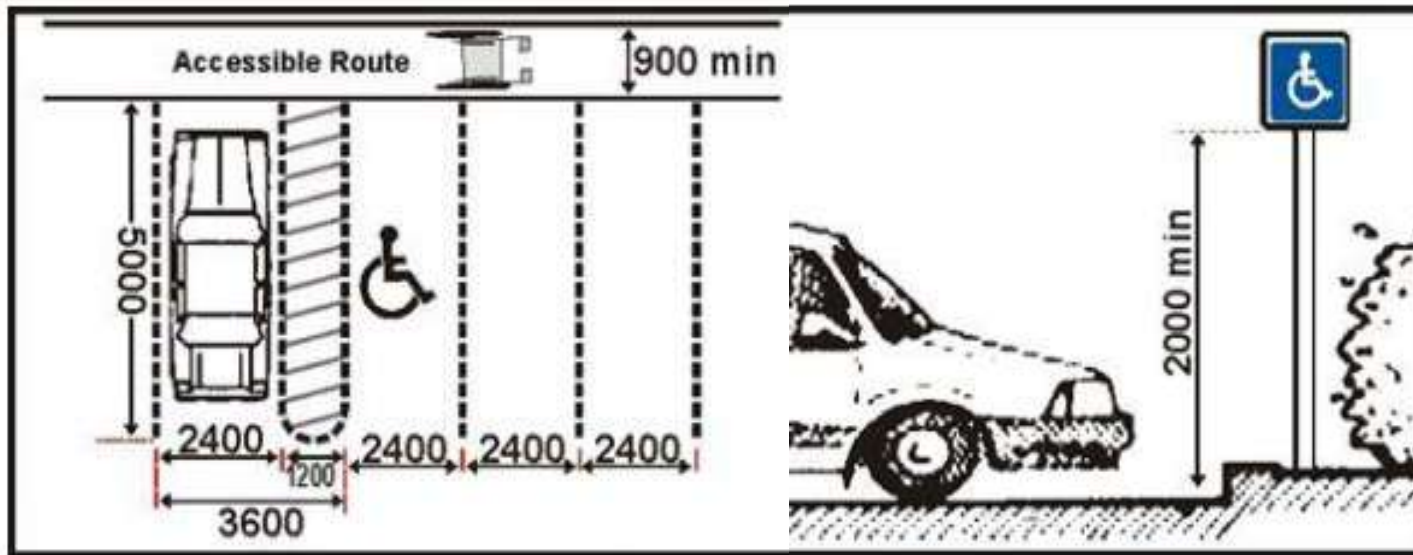


Key Accessibility Features (Outdoor)

2. Accessible Parking – Good Practice

All dimensions are in millimetres (mm)

- Should be within **30m** of the building entrance and connected to the **accessible route**
- **Vertical and on floor signage**
- **Minimum dimensions of 5000mm X 3600mm** (minimum 1200mm wide transfer bay)



Standard Accessible Parking Design



2. Accessible Parking - Issues in implementation

- No reserved parking provided for PwDs
- Not provided near the entrance
- No marking/ vertical and on-floor signage
- No transfer bay provided for alighting and boarding of wheelchair users
- Not connected to the entrance through an unobstructed accessible route



Key Accessibility Features (Outdoor)

3. Accessible Entrance to Building – Good Practice

- A ramp of gradient of **1:12** to be provided next to stairs.
- **Minimum width** of ramp should be **1200mm**
- Provided with continuous **round handrails, on both sides, at a height of 760 mm and 900 mm with rounded edges** at the ends(**Braille indicators**)
- The **entrance door** should have **minimum clear width of 1000 mm**
- **Anti-skid flooring**
- **Signage**



3. Accessible Entrance to Building - Issues of Implementation

- Ramp not provided
- Steep gradient
- Not wide enough/
Narrow
- Handrails not provided
on both sides
- Handrails do not allow
firm grip
- Slippery ramp
- No braille indication/
signage
- Not unobstructed

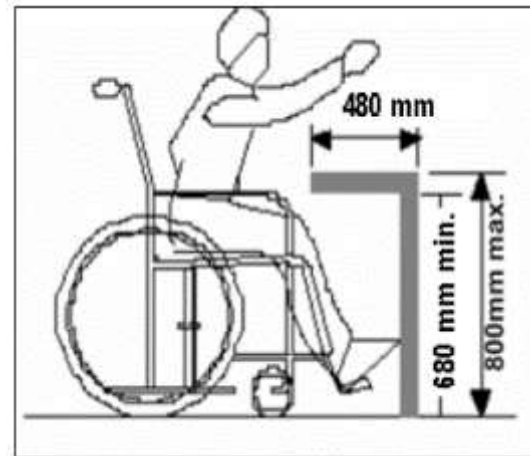
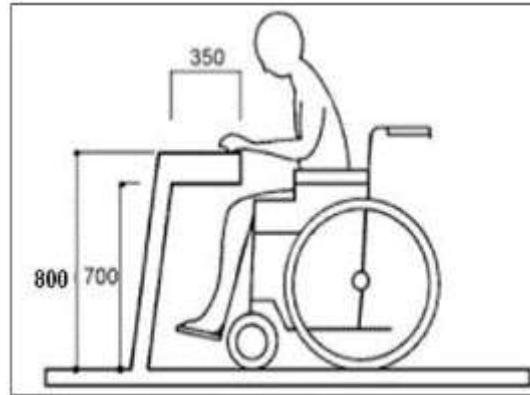


Key Accessibility Features (Indoor)

4. Accessible Reception – Good Practice

All dimensions are in millimetres (mm)

- **Low height counter** (counter top at **750 to 800 mm**) can have 2 heights
- Minimum unobstructed space of **900mm X 1200mm** before the counter
- **Leg space (800mm) wide** below counter
- Minimum **depth of 480mm** for **closer reach to commuter**
- **Induction loop** may be provided for persons with hearing impairment
- **Information made available** regarding accessible features of the building (washrooms, drinking water etc.)
- **Tactile/Audio maps** for directions may be provided
- **Signage for easy identification.**



Good Practice, Capital Green building, Singapore

4. Accessible Reception - Issues of Implementation

- No accessible reception/ counter provided
- Height of low counters not maintained at a comfortable height of 750 to 800 mm
- No leg space provided below the counter
- Information on accessible features not provided
- Information is not provided in multiple accessible formats (braille/infographics/audio etc)
- **No signage for easy identification**



Key Accessibility Features (Indoor)

5. Accessible Corridors and Tactile Flooring – Good Practice

- Maintain **unobstructed width of 2200mm**
- **Anti Skid flooring, tactile guiding path (at least 300mm wide), colour contrasting surface**
- Should be **kept free of any obstacles** (plantation, seating arrangements etc.)
- Should be **well lit (150 lux)**
- Should be supported by **directional and informational signage**
- **Handrails**
- **Room doors not to open outside** on to the corridor



Good Practices

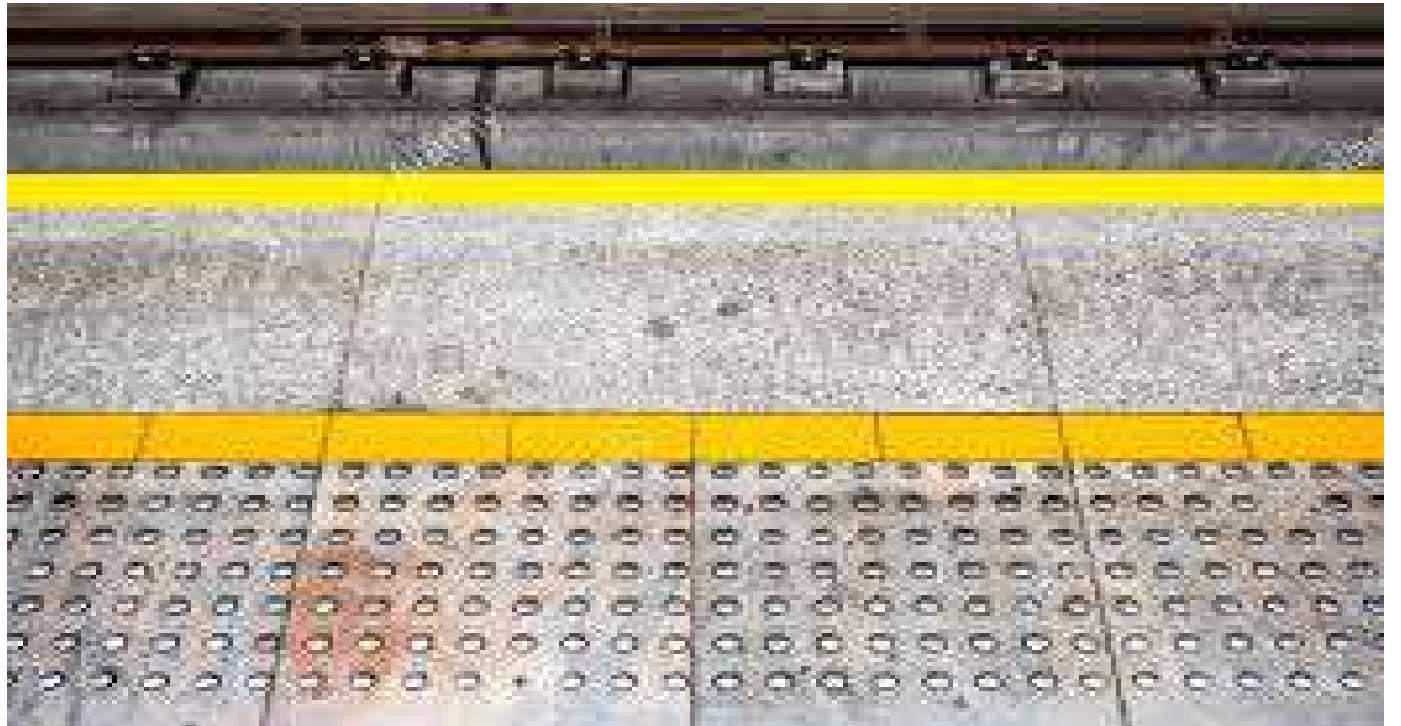
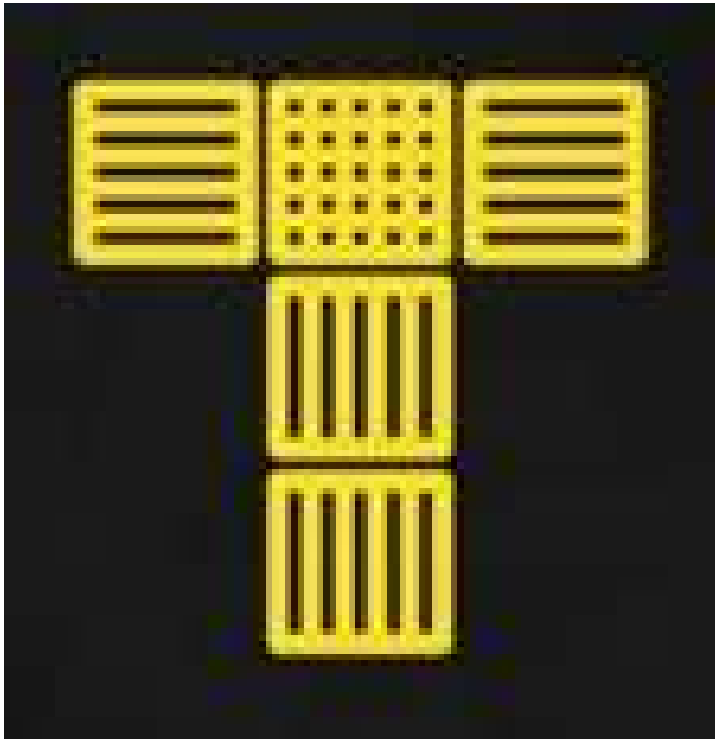
- Hospital

Institute
Secco
Suardo,
Bergamo



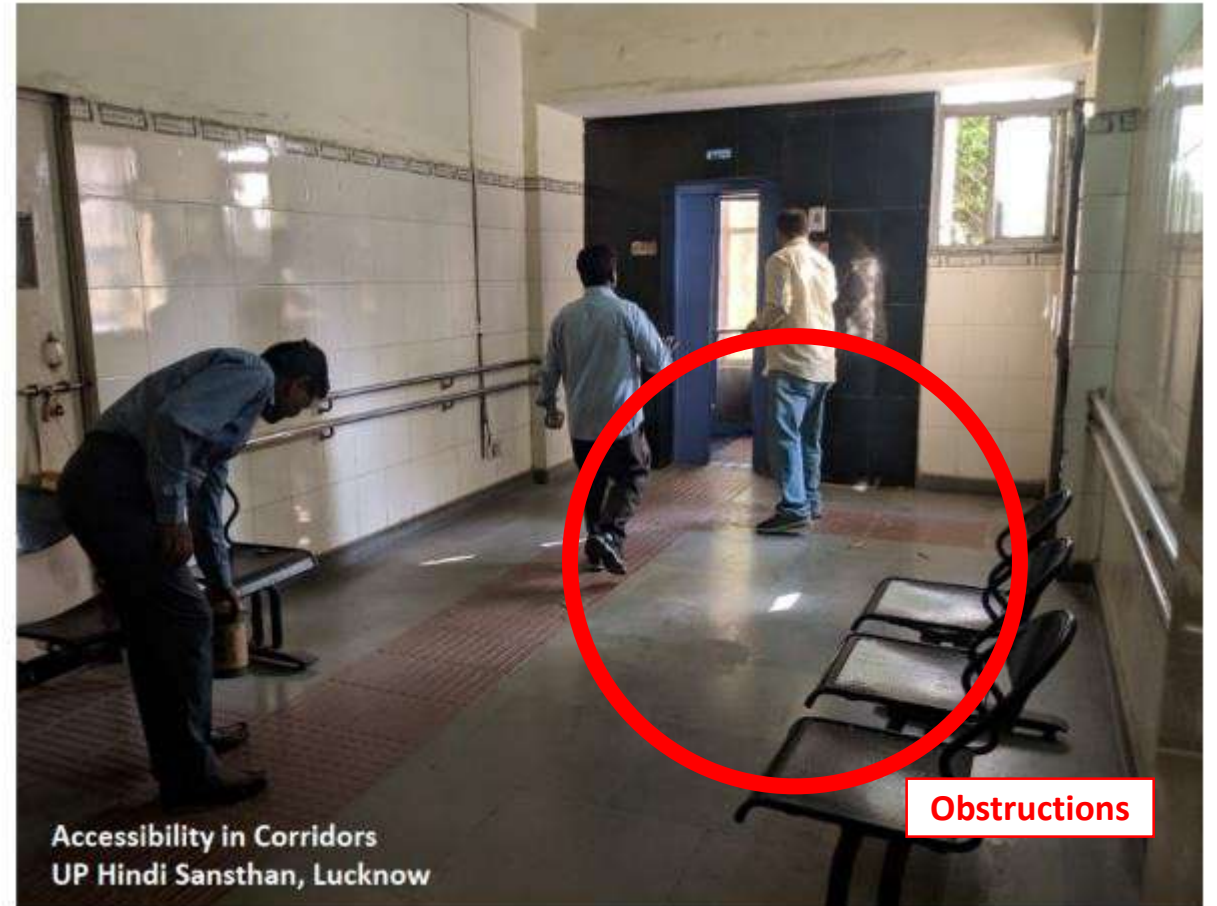
Key Accessibility Features (Indoor)

5. Tactile path – Good Practice



5. Accessible Corridors and Tactile Flooring - Issues of Implementation

- **Minimum unobstructed width of 2200mm not found**
- **Anti Skid flooring/ tactile guiding /colour contrasting surface not provided**
- **Not kept free of any obstacles** such as plantation, seating arrangements etc.
- **Not well lit (min. 150 lux)**
- **Not Supported by directional and informational signage**



Key Accessibility Features (Indoor)

6. Accessible Lift – Good Practice

All dimensions are in millimetres (mm)

- **Minimum internal car dimensions of 1500mm X 1500mm** (if possible, 13 passenger lift)
- **Braille buttons and auditory announcement systems and digital display**
- **Alarm call button, emergency brake button and other operating mechanisms (control panels) provided at an accessible height of 650mm to 800mm**
- **Signage to be provided outside the lifts**
- **Handbars at 900mm**
- **Mirror at the back**
- **Warning Tactile tiles outside lift**

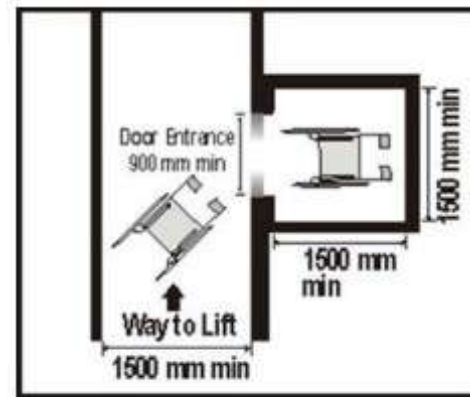


Figure 7-13: Size of lift

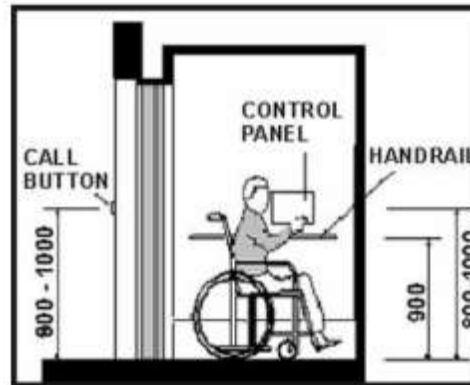


Figure 7-14: Placement of lift accessories



Good Practice, Bespoke lifts in UK

6. Accessible Lift - Issues of Implementation

- **Lift size is not adequate (even for single wheelchair)**
- **Lift door not wide enough**
- Braille buttons/ auditory signals not provided
- Buttons not at accessible height
- **Grab bars/rear mirror not provided**
- Emergency button not in working condition
- Warning tactile tiles not provided

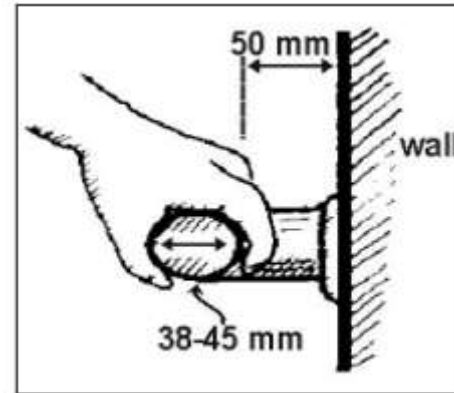


Key Accessibility Features (Indoor)

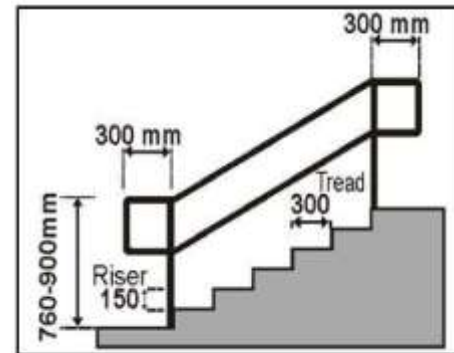
7. Staircase with handrails – Good Practice

All dimensions are in millimetres (mm)

- **Warning tiles** (tiles with bold dots) before and after the sloped surface
- **Regular steps of tread** (width) 250mm and rise(height) 150mm
- **Colour contrasting strips** (glow in the dark, retroreflective kinds) at the edge of the nosing
- **Continuous round handrails, on both sides**, at a height of 760 mm and 900 mm with rounded edges at the ends
- **Braille indicator at both ends of the handrails**
- **Diameter of handrail – 38 -45mm**
- **Gap of handrail from wall – 50mm**



Grab bar details



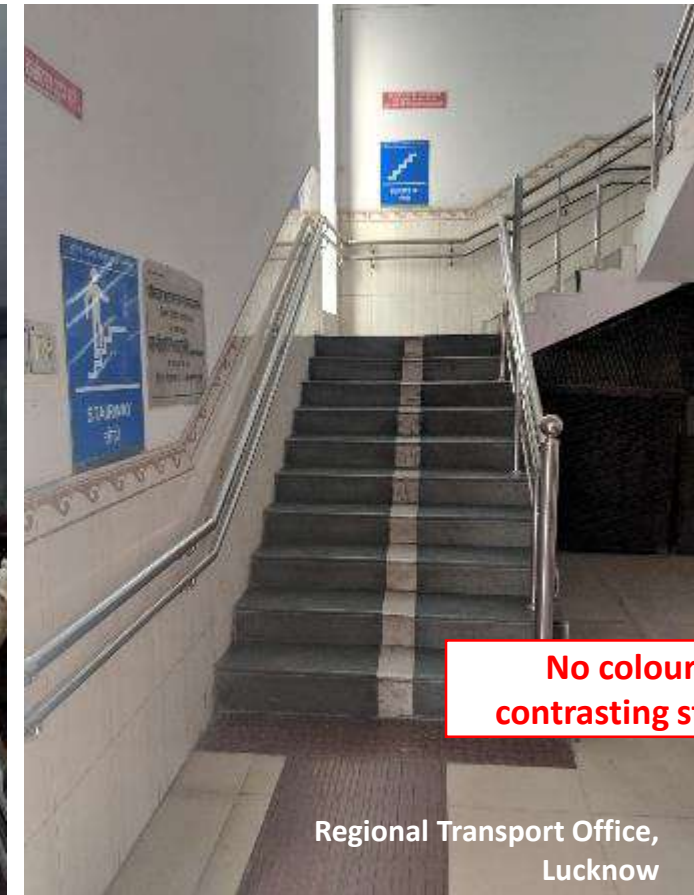
Handrails for steps



Good Practice,
Stanmore tube station

7. Staircase with handrails - Issues of Implementation

- Higher and wider steps
- Colour contrasting strips not provided
- Edge of staircase not finished/sharp
- Handrails not on both sides
- Handrail fixed too close to wall
- Grip of handrails not adequate
- Warning tiles not provided
- No braille indicator or other visual signage

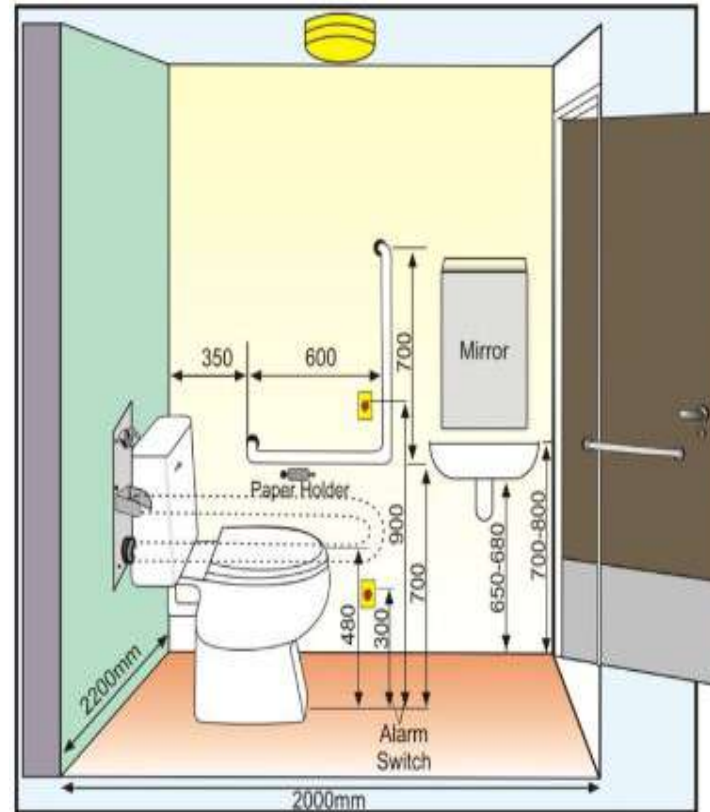


Key Accessibility Features (Indoor)

8. Accessible Toilets – Good Practice

All dimensions are in millimetres (mm)

- **Minimum dimensions of 2000mm X 2200mm**
- **Outward-opening/ double door, double-swing doors, minimum 900 mm wide/level (no chookhat)**
- **WC top height - 450mm to 480mm**
- **Washbasin top height - 750mm to 800mm**
- **Grab bars/ door handles/ all fittings/ accessories/ operable items placed at **approachable height** of 300mm to 1000mm from the floor and be **easy to operate/adequate strength (250 Kgs)/Easy operability)****
- **Anti-skid flooring**
- **Emergency button**
- **Height of latches also at base (foot operable/non-protruding) or mid height (750-800mm)**
- **Long/lever handles of taps**
- **Door handles - D-type/ lever type (not knobs)**
- **Colour contrast**



Standard Accessible Toilet Design



Good Practice
Edinburg Airport

8. Accessible Toilets - Issues of Implementation

- Entry at door not levelled (Chaukhat)
- Doors not proper
- Less space
- No grab bars/Not provided with grab bars of adequate strength
- Latches of doors at top only
- Taps, etc not easy to use
- Slippery flooring
- No emergency buttons

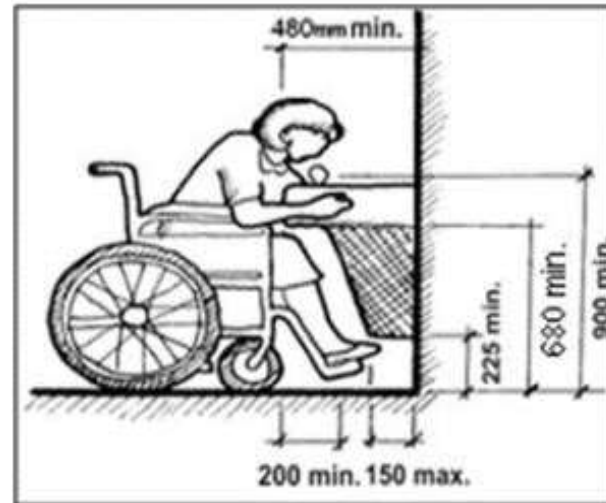


Key Accessibility Features (Indoor and Outdoors)

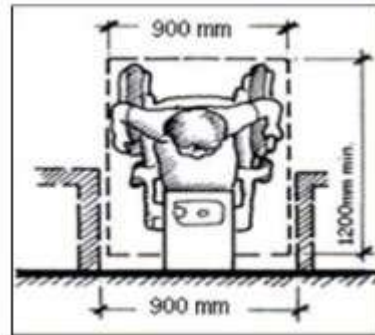
9. Accessible Drinking Water Facility – Good Practice

All dimensions are in millimetres (mm)

- Area should have a clear space of **900 mm X 1200 mm**
- Low height counter (**counter top at 900 mm**)
- Leg space of 680 mm below the counter which can **extend maximum upto 300 mm from the wall**
- **Lever type tap systems (at two levels)** with easy to use systems
- **Non-skid surface** with proper drainage should be created
- **Fountain type taps**
- **Covered drainage**

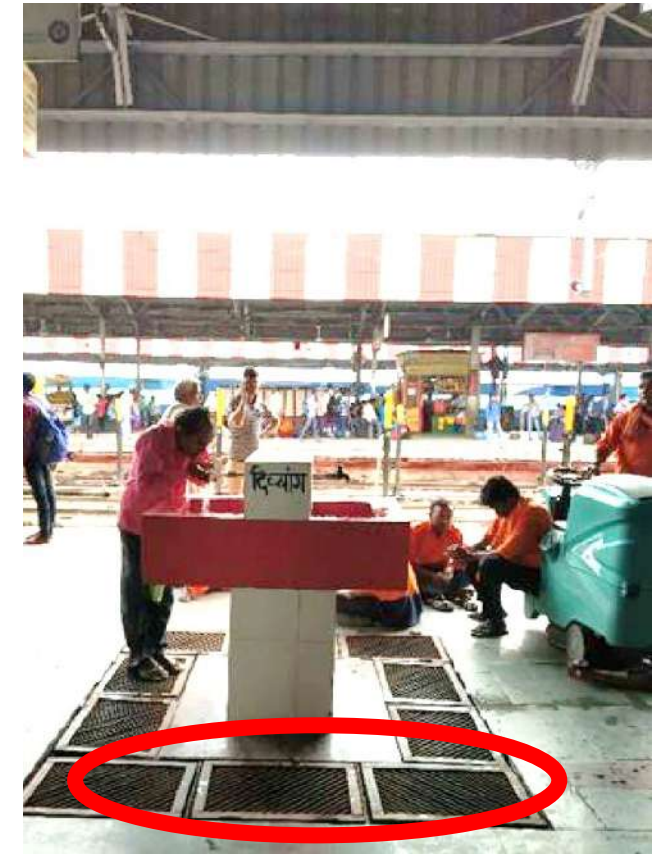


Standard design principles of Drinking Water Facilities



9. Accessible Drinking Water Facility - Issues of Implementation

- Taps not provided at two levels
- Fountain type taps not provided
- No leg space provided for wheelchair users
- Drains/Steps made below taps
- **Slippery/ wet surfaces**



Key Accessibility Features (Indoor and Outdoors)

10. Signage – Good Practice

To make signage universally usable components must be kept in mind:

- **Standardization**
- **Colour contrast (white on blue)**
- **Character, Content and Layout should be simple and eye-catching**
- **Pictograms and accessibility symbols for quick reference**
- **Positioning and Viewing Distance**
- **Lighting**
- **Material and surface finish**
- **Alternative formats etc. embossed letters with Braille (Audio/ Visual information, Maps and models)**
- **Fonts/san serif family**
- **Mix of upper and lower case**



Good Practice - Signage Panels with textual, braille and pictographic information, high colour contrast

10. Signage - Issues of Implementation

- Not standardized
- Not placed at places with clear vision
- Visibility obstructed
- Not of non reflective surfaces
- Not well lit
- Colour contrast not maintained (e.g Red/Green or Blue/yellow)



on and Public Relations Office,
hwar

G B Pant Hospital, Delhi



Summary of features

Features	Specifications
OUTDOOR FEATURES	
Accessible Route	900mm - 1800mm, anti skid surface, tactile path, signage (directional and informational)
Accessible Pathway	
Accessible Parking	5000mm X 3600 mm, within 30m of entrance, transfer bay, accessible route, vertical and on floor signage
Accessible Entrance to the Building	900 - 1800mm width, ramp with gradient 1:12 and double height handrail with proper grips, anti-skid flooring, colour contrast

Summary of features

Features	Specifications
INDOOR FEATURES	
Accessible Corridors	1200mm, anti skid surface, tactile path, well-lit, unobstructed (with chairs/plants)
Accessible Reception	Low height counter (750-800mm), width (750-900mm), leg space below counter (480mm), Information of accessible features, induction loop (audio enhancing technology)
Accessible Lifts	Braille and auditory information, 1500mm X 1500mm, grab bars
Accessible Toilets	Grab bars, 900mm door (double or outside opening), anti skid floor, emergency button, latches (middle, base), easy to operate handles/taps
Accessible Staircase	Colour contrasting strips, double height handrail with proper grips, warning tactile tiles
Accessible Drinking Water Facility	Low height counter (750-800mm), leg space below counter (300mm), ramps, no drains/ holes
Signage	Directional and informational, high contrast, easy to understand, prominent locations, unobstructed, standardized

Making India Universally Accessible