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- Module 1 Introduction to Accessibility
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- Module 5 Exterior Accessible Route
- Module 6 Accessible Entry and Means of Egress
- Module 7 Interior Accessible Route
- Module 8 Building Features and Facilities



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## Goal

determine the minimum requirements for accessibility.

- 2021 International Building Code.
- 2021 International Existing Building Code
- 2021 International Residential Code
- 2017 ICC A117.1 Accessible and Usable Buildings and Facilities.



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## Marginal Markings

- ▮ Solid vertical lines in the margins within the body of the code indicate a technical change from the requirements of the 2009 edition.
- ➔ Deletion indicators in the form of an arrow are provided in the margin where an entire section, paragraph, exception or table has been deleted or an item in a list of items or a table has been deleted.
- \* A single asterisk [\*] placed in the margin indicates that text or a table has been relocated within the code.
- \*\* A double asterisk [\*\*] placed in the margin indicates that the text or table immediately following it has been relocated there from elsewhere in the code.



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### Accessibility in the Built Environment



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### What are we talking about?

# disability



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Module 1

## Introduction to Accessibility

- Scope and Technical Requirements of Accessibility Provisions.
- Coordination with Federal Documents.

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### Disability Definition

“A physical or mental impairment which substantially limits one or more of a person’s major life activities.”



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**KEY LEARNING**

## 2021 IBC - Philosophy 101

Everything must be accessible, and then allow for a degree of inaccessibility that is logical and reasonable.

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## Requirements

- Scoping Requirements:
  - “What, Where and How Many”
  - (2021 IBC, IEBC, IRC)
- Technical Requirements:
  - “How”
  - (ICC/ANSI A117.1-2017)

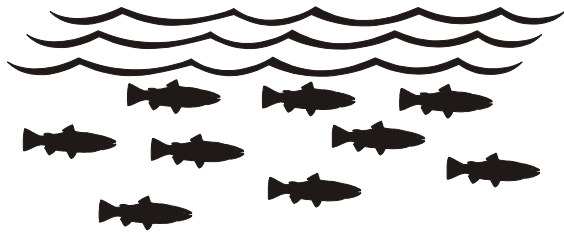




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## Mainstreaming

Not all accessibility related requirements are in Chapter 11

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## Limitation of a referenced standards IBC Section 102.4

- Considered part of the code to the extent referenced
- Examples in A117.1 that are not referenced – stairways, Type C units, sign language interpreter’s station
- Conflicts – codes rule



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## Coordination Efforts

### Federal laws



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## ICC Goals

- Coordinate the building code requirements with the



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## American's with Disabilities Act (ADA) - 1990

- Civil Rights law against discrimination for persons with disabilities.
- Consists of five areas:
  - Title I – Employment
  - Title II – Accessibility public transportation and governmental services
  - Title III – Accessibility to all other buildings
  - Title IV – Telecommunication
  - Title V – Miscellaneous



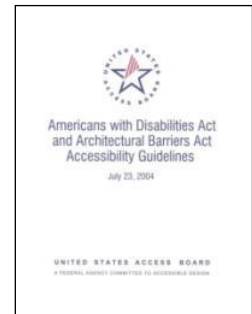
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## American's with Disabilities Act (ADA) - 1990

- Scoping and technical requirements found in:
  - 2010 ADA Standard for Accessible Design
  - Requirements were mandatory for new construction started after March 15, 2012.



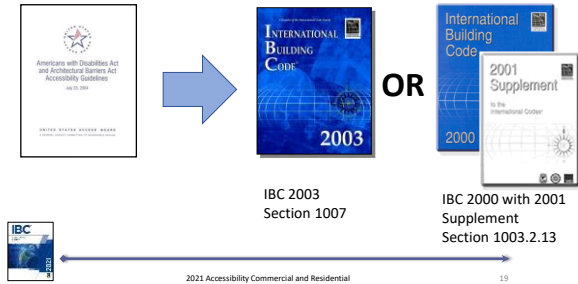
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### ADA & ABA Standards §207

- Require compliance with the International Building Code (IBC) for accessible means of egress



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### ADA & ABA Standards

- What about compliance with later editions?
- Permitted where equivalent or better ("equivalent facilitation" in the ADA Standards Section 103)



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### Fair Housing Act (FHA) – 1968 & 1988

- Civil Rights law against discrimination in housing.
- 1968 - no discrimination on the basis of race, color, religion, sex and national origin.
- 1988 - amended to include disabilities and familial status.



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### Fair Housing Act

- Covers all housing built for first occupancy after March 13, 1991.
- Scoping and technical requirements found in the Fair Housing Accessibilities Guidelines (FHAG).



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# "SAFE HARBOR"



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## "Safe Harbor" means...

- that requirements in the document have been reviewed by HUD and meet or exceed the building construction requirements in the FHA.
- 2021 IBC and 2017 ICC A117.1 will be review by HUD.



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## Role of the Code Official



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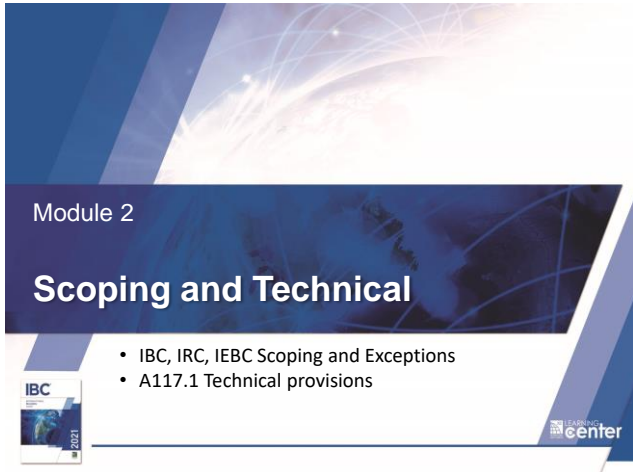
## Technical Assistance

- ICC and A117.1 – ICC, (888)422-7233; [www.iccsafe.org](http://www.iccsafe.org).
- ADA – Access Board, 800-872-2253(v), 800-993-2822(TTY), [www.access-board.gov](http://www.access-board.gov) or email at [ta@access-board.gov](mailto:ta@access-board.gov)
- ADA – ADA Technical Assistance Centers (800)949-4232; [www.adata.org](http://www.adata.org)
- Fair Housing – Fair Housing Accessibility First, (888)341-7781; [www.fairhousingfirst.org](http://www.fairhousingfirst.org).



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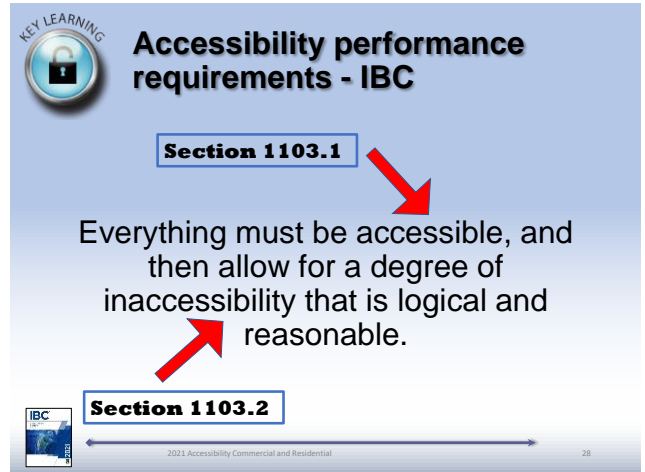
Module 2

## Scoping and Technical

- IBC, IRC, IEBC Scoping and Exceptions
- A117.1 Technical provisions

IBC 2021 CAROLING center

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**KEY LEARNING**

## Accessibility performance requirements - IBC

**Section 1103.1**

Everything must be accessible, and then allow for a degree of inaccessibility that is logical and reasonable.

**Section 1103.2**

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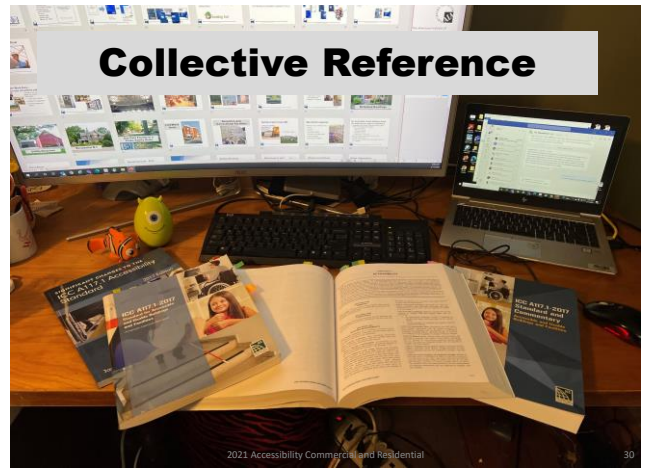
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## General exceptions

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## Collective Reference

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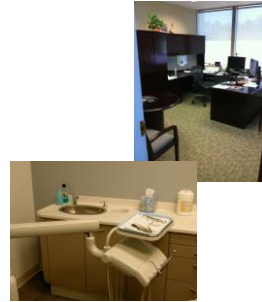
## Construction Sites

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## Employee Work Area



- Approach, enter and exit only
- Elements for employees and only for work not required to be accessible

Exceptions:

- Work station < 300 sq.ft. in area and **required** to be elevated  $\geq 7$  inches



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## Employee Work Area – Common use circulation paths



Common use circulation paths not required to be accessible:

- <1,000 sq.ft. areas
- Integral to equipment
- Exterior employee areas



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## Walk-in Coolers and Freezers



Customer access



Employee only



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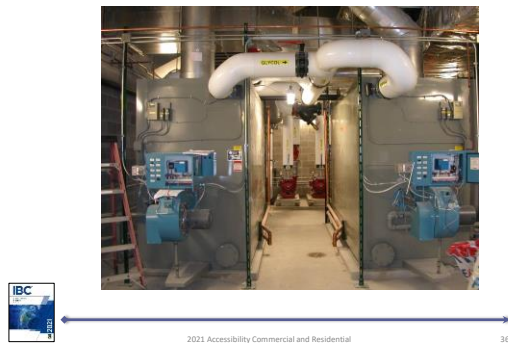
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### Equipment Spaces



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### Highway tollbooths



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### Areas in Places of Religious Worship

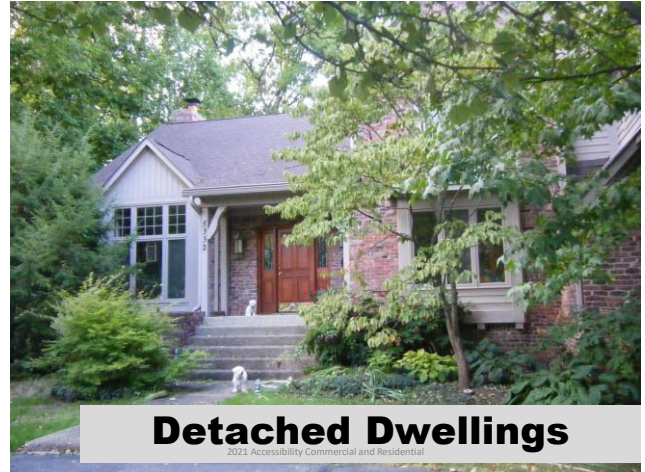
- Small areas used for religious ceremonies are now exempt from the access requirements.
- < 300 sq.ft. in area and elevated or lowered  $\geq 7$  inches



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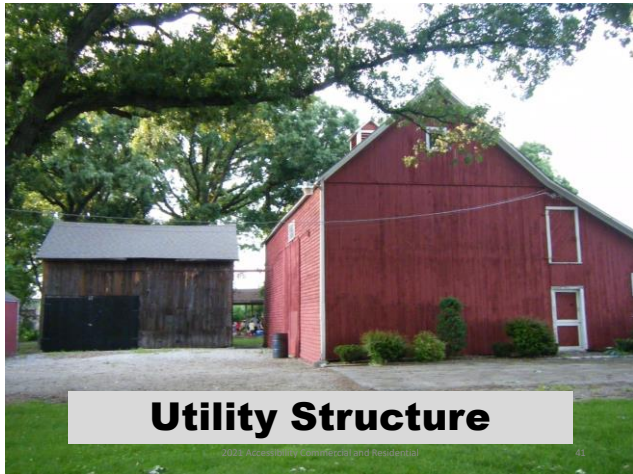
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**Detached Dwellings**

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**Utility Structure**

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**Residential R-1**

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**Live/Work Units**



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**Detention and Correctional Facilities**



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**Not Exempted Under IBC**

- Religious Buildings



- Private Clubs



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### Special Occupancies

Sections 1107, 1108 and 1110

- Group I.
- Group R.
- Assembly seating.
- Self-service storage areas.
- Judicial facilities.
- Recreational facilities.



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### No accessible routes between levels (or when do you need an elevator?)

- Aggregate area of stories, mezzanines and occupied roofs <= 3000 square feet except in:
  - Health care providers.
  - Multi-tenant mercantile.
  - Transportation facilities.
  - Government buildings.
  - Residential with 4 or more units
- Items specifically addressed in 1108 and 1109.
- Air traffic control towers.
- 2<sup>nd</sup> floors or mezzanines that are non-public areas with < = 5 occupants.



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### Press Boxes

- <500 sq.ft.
- Accessed from the bleachers
- A minimum of 12 feet elevation



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Residential Code

IBC Learning Center

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## Residential Code – R320

- Townhouses with 4 or more units – back to IBC as Group R-3
- Live/work units
- Bed n Breakfast



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### Accessibility performance requirements

- This is not mandatory retrofit
- Existing buildings are improved as you alter, with the idea that they will become as accessible over time as technically feasible.
- Whatever you touch, you fix.
- As long as you are making alterations, this is the best time to make improvements to the accessible route, bathrooms and drinking fountains that serve the area being altered.



Architects Guide: Accessibility

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### Existing Buildings

- Maintenance.
- Alteration.
- Change of occupancy.
- Addition.
- Historic buildings.



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### Which book to use?

- Chapter 34 was deleted from the 2015 IBC
- The 2021 IEBC has three methods–
  - Prescriptive Compliance Method – Chapter 5
  - Work Area Method – Chapters 6 through 12
  - Performance compliance method – Chapter 13
- Accessibility provisions for all three methods in Section 306



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### Maintenance & Repair

A facility that is constructed accessible must be maintained accessible.



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### Extent of Application

Alterations are not required to exceed the accessibility that would be required for a new building.



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### Additions

- Additions must comply with new construction.
- If the addition relies on the toilet rooms or route through the existing building for access into the space, then the same accessible route provisions for alterations would apply.



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### Alterations or COO to Existing Buildings – Part 1

- Change of occupancy and alterations treated the same for improvements for accessibility.
- When altering an existing building, everything that is altered must meet requirements for accessibility.



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### General Exceptions

- Accessible means of egress not required to be added.
- Technically infeasible.
- When historical significance is adversely affected.
- Type B units when the alteration is to less than 50% of the area of the building (Level 1 or 2)



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### Technically Infeasible

- Removal or *alteration* of a load-bearing member that is an essential part of the structural frame
- Existing physical or site constraints



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### Special Allowances for Existing Buildings

- Entrances.
- Elevators.
- Platform lifts.
- Stair and Escalators.
- Ramps.
- Dwelling and sleeping units – Accessible, Type A and Type B.
- Toilet rooms.
- Dressing, fitting and locker rooms.
- Amusement rides.



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### Ex: Platform Lifts

- Permitted anywhere in existing buildings.
- ASME A18.1 limits vertical platform lifts to a 14 foot rise maximum.



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### Ex: Dwelling and sleeping units

- **A** Accessible units and Type A units required based on number being altered.
- **A** Accessible and Type A units required shall not exceed new construction requirements.
- **B** Type B units are required when the alteration is to more than 50% of the building area (i.e., Level 3 alteration).
- **B** When Type B units are altered or added within an existing building, there are no extra requirements to improve the accessible route.



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### Ex: Toilet Rooms

- When it is technically infeasible to altered the existing toilet rooms to comply
  - Comply as much as feasible in the existing bathroom
  - Provide an accessible single occupant toilet room in the same area
- Family/assisted use toilet room only required where fixtures are being added.



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### Alterations to Existing Buildings – Part 2

- If the area being altered contains a primary function area, the route to that area and any toilet rooms or drinking fountains that serve that area must be evaluated for accessibility.
- If they are not accessible, additional improvements are required.



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## Primary Function Area

- A major activity for which the facility is intended.
- Excluding areas such as:
  - Mechanical room or boiler room
  - Supply storage
  - Employee lounge or locker room
  - Janitors closet
  - Entrances
  - Corridors
  - Restrooms



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## Accessible Route Exceptions

- The cost of the accessible route exceeds 20% of the cost of the alteration.
- The alteration is limited to items that will not alter the physical configuration or use of the space.
- The alteration is to improve accessibility.
- The route is to Type B units only.



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## Accessible Route to Primary Function Area

- Parking.
- Exterior accessible route.
- Entrance.
- Interior accessible route.
- Toilet rooms.
- Drinking fountains.
- Signage.



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## Extent of application for additional accessible route criteria

- The route improvements (including improving the bathrooms and drinking fountains) are limited to those that serve the area being altered.
- For example, if an alteration is only to the first floor, and the route is compliant, a designer is not required to fix non-compliant items on the upper floors.



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### Number 1 & 2 complaints in existing buildings

Parking



Toilet Rooms



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### HISTORIC BUILDING.

Any building or structure that is one or more of the following:

1. Listed, or certified as eligible for listing, by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, in the National Register of Historic Places.
2. Designated as historic under an applicable state or local law.
3. Certified as a contributing resource within a National Register, state designated or locally designated historic district.



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### IEBC Appendix B

Section B101: Qualified historical buildings and facilities.

- Explains what a qualified historic building is
- Requires consultations with interested persons
- Where compliance with accessibility would threaten the historical significance, alternatives are available.



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### Historic Building

- When compliance would be detrimental to the historical significance of a registered building.
- Minimum requirements
  - Site arrival points.
  - Access to main level.
  - Alternative entrance.
  - Unisex toilet room.



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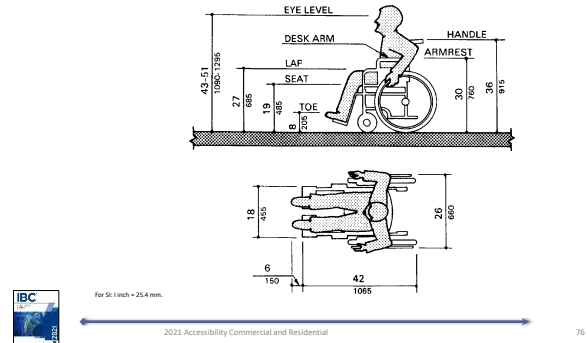
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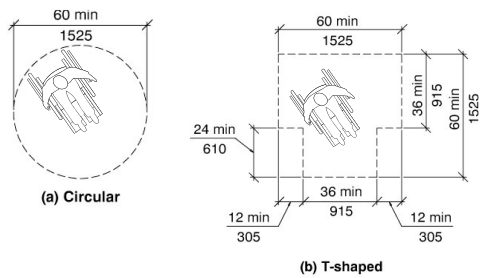
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### Dimensions of Adult-Sized Wheelchair



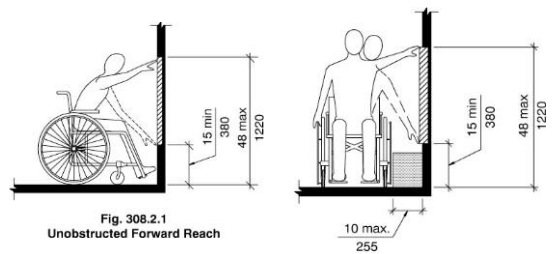
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### Wheelchair Turning Space



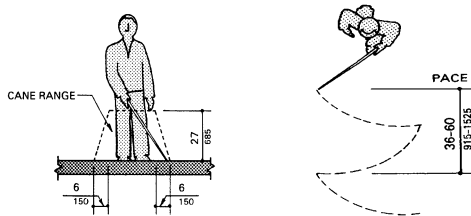
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### Unobstructed Reach Limit



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## Cane Ranges and Techniques



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## Children Requirements

Unobstructed Children's Reach Ranges			
Forward or Side Reach	Ages 3 and 4	Ages 5 through 8	Ages 9 through 12
High (maximum)	36 in.	40 in.	44 in.
Low (minimum)	20 in.	15 in.	16 in.



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## 2017 ICC A117.1

- Referenced for the first time in the 2021 IBC
- Revisions based on study on Anthropometry of Wheeled Mobility
  - Sponsored by the US Access Board
  - Including persons using manual wheelchairs, motorized wheelchairs & scooters
- <http://idea.ap.buffalo.edu/projects/anthropometry/>

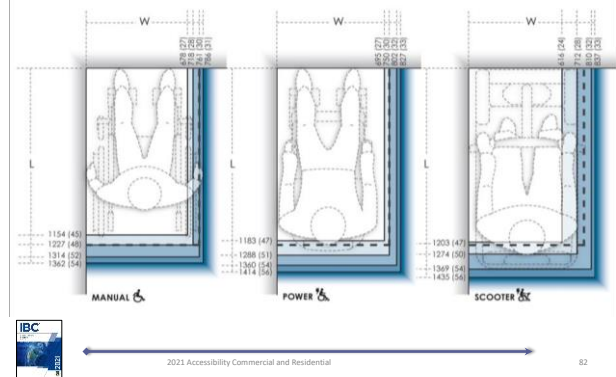


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## Human Factor Anthropometrics



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### 2017 ICC A117.1

Revisions include items such as

- 30"x52" clear floor space
- 67" turning circle
- 8" chamfered corners on turns for 36" wide aisles and corridors
- Changes to turning spaces allowances to use knee and toe clearances
- Is referenced for the 1st time in the 2021 I-codes



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### Building Blocks – A117.1

- Rather than repeat requirements reference back to the building blocks for repeated requirements
  - Example: Knee and toe clearances under lavatories, work surfaces, dining surfaces, drinking fountains

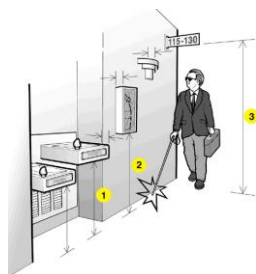


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### Building Blocks

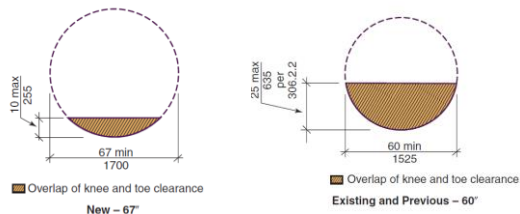
- Clear floor space
- Turning space
- Alcoves
- Knee and toe clearance
- Reach ranges
- Protruding objects



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### Circular Turning Space



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### Circular Turning Space

- Size increased to 67” circle for new buildings
- 60” circle for existing buildings
- Amount of knee and toe clearance allowed for overlap is now limited to 10” max.

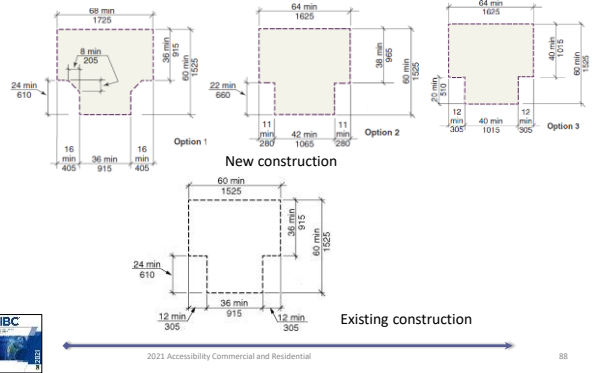


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### T-shaped Turning Space



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### T-shaped Turning Space

- New buildings have 3 options – all have an increase in size
- Vary based on width of arms and base
- No preference – any option is acceptable
- Existing buildings can continue with previous requirements
- Will exceed ADA



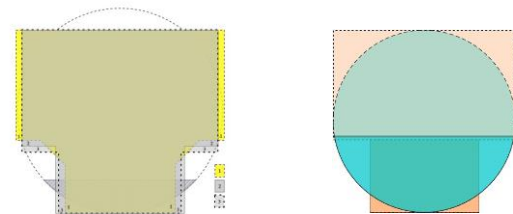
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### Impact - Turn comparison

- New
- Existing

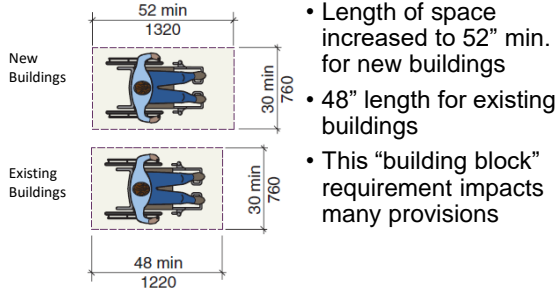


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## Clear Floor Space



- Length of space increased to 52” min. for new buildings
- 48” length for existing buildings
- This “building block” requirement impacts many provisions



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KEY LEARNING

## Definitions – A117.1 Existing Building

- New definition
- Needed due to desire to lessen impact of 2017 changes
- Defined as “ A building erected prior to adoption of 2017 standard, or for which a legal building permit has been issued.”



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KEY LEARNING

## Existing building and facilities

- New sizes will not apply to any alterations or change of occupancy in existing buildings or facilities, including the improvements to the accessible route
- New sizes will apply to new construction and additions

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Module 3

## Dwelling Units & Sleeping Units

- Institutional:
  - Groups I-1, I-2 and I-3.
- Residential:
  - Groups R-1, R-2, R-3 and R-4.
- Townhouses from IRC

LEARNING center

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**KEY LEARNING**

## Accessibility performance requirements

- Transient and permanent housing should have units that can accommodate persons with mobility impairment's.
- Numbers are based on anticipated need for each type.
- Permanent housing should allow for aging in place, temporary impairments, and visiting.



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## Key Terms

- Dwelling unit:
  - Independent living facilities including provisions for living, sleeping, eating, cooking and sanitation.
- Sleeping unit:
  - Rooms where people sleep which may include living and eating and either cooking or sanitation.



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## Key Terms

- Dwelling or sleeping units, multistory.
  - Living space on more than one level.
- Intended to be occupied as a residence.
  - Dwelling units; or
  - Sleeping units; and
  - Occupant's place of abode.



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## Shared Spaces

- All public spaces
- All spaces for shared use by residents
- Recreational facilities
- Parking:
  - 2% of parking provided
  - If covered parking provided, at least one accessible space in covered parking

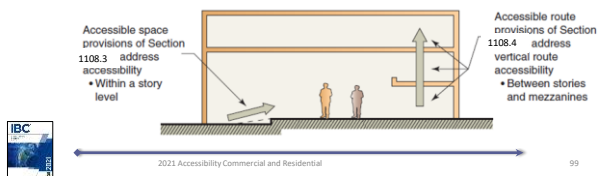



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## Accessible routes

- Connect to accessible elements on a site
- Connect to shared spaces for the units
- Dormitories are required to have elevators, even where no Accessible units are provided on upper floors (coordination with DOJ requirement)
- Connect levels, mezzanines and stories



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## Level of Accessibility

- Accessible units:
  - Constructed wheelchair accessible.
  - ICC A117.1 Section 1102.
- Type A units:
  - Constructed wheelchair adaptable.
  - ICC A117.1 Section 1103.
- Type B units:
  - Matches Fair Housing Accessibility Guidelines.
  - Geared towards mobility impaired persons
  - ICC A117.1 Section 1104.



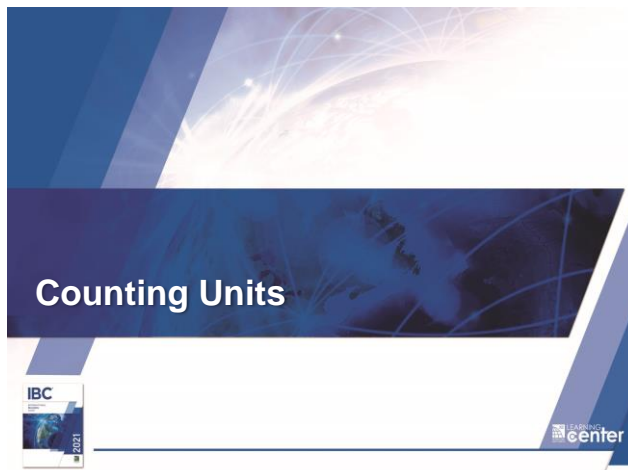
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## Existing Buildings

- Accessible units and Type A units required based on number being altered.
- Accessible and Type A units required shall not exceed new construction requirements.
- Type B units are required when the alteration is to more than 50% of the building area (i.e., Level 3 alteration).
- When Type B units are added, there are no extra requirements to improve the accessible route.



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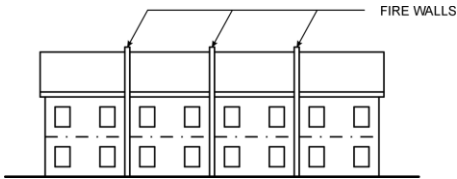


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## Fire Walls



- This is one structure for purposes of accessibility.

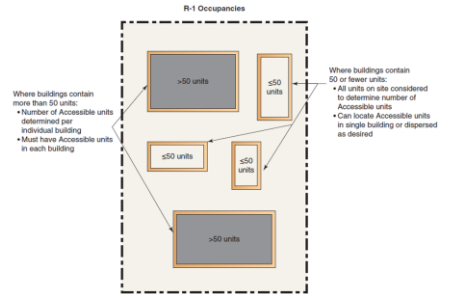


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## Group R-1

Determine the number of units on the site, and the number of Accessible units required

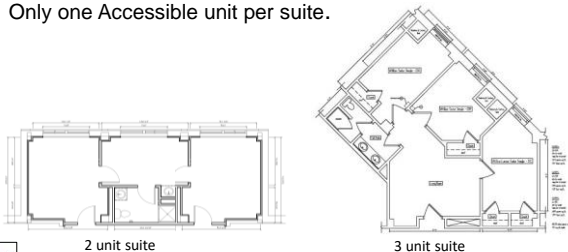


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## Group R-2 congregate residences and dormitories.

- Count the bedrooms in the suite to determine the number of Accessible units required.
- Only one Accessible unit per suite.



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Institutional

IBC 2021

Learning Center

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## Group I Occupancy

24 Hour Care Facilities				
Age of Residents	Capability of Residents	Number of Residents		
		1-5	6-16	Over 16
2½ years or less	Not capable of self preservation	R-3 or IRC	I-2	I-2
Over 2½ years	Capable of self preservation	R-3 or IRC	<b>R-4</b>	I-1
Over 2½ years	Not capable of self preservation	R-3 or IRC	I-2	I-2

For Group R-4, the number 16 is based on the limitations for an NFPA13D sprinkler system and the last national census. Of those that identified themselves as a single family home, 98% had 16 or fewer residents.



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## Group I-1

- Condition 1 - 4% Accessible units.
  - ½ can use the assisted option for bathrooms
- Condition 2 - 10% Accessible units
  - ½ can use the assisted option for bathrooms
- B** Remainder Type B units if intended to be occupied as a residence.
  - Number of units with visible alarms per Table 907.5.2.3.2.



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## Group I-2- Hospitals

- 10% Accessible unit:
  - General purpose hospital
  - Psychiatric facilities
  - Detoxification facilities
- B** Remainder Type B units if intended to be occupied as a residence.



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## Group I-2 – Nursing Homes

- 50% Accessible unit.
  - 90% of the 50% can use the assisted option for bathrooms
- B** Remainder Type B units if intended to be occupied as a residence.




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## Group I-2 – Rehabilitation Facilities

-  100% Accessible unit.
  - ½ can use the assisted option for bathrooms






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## Group I-3

-  3% Accessible units.
-  At least one of each special holding or housing cells.
-  10% of cells in medical care facilities.
- Exception for common areas serving only non-accessible cells. (IBC 1103.2.13).



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### Assisted toileting and bathing option




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## Assisted Toileting and Bathing



- Changes have been made to the provisions for nursing homes and assisted living facilities to allow some units to have toilet and bathing facilities designed for assisted use.
  - These allowances are permitted instead of the independent use facilities generally intended by the ICC A117.1 Accessible unit provisions.
- Both scoping and technical provisions are provided in IBC.
- The assisted use provisions are optional and can be applied when desired by the designer.
  - Units may be modified for toileting, bathing or both

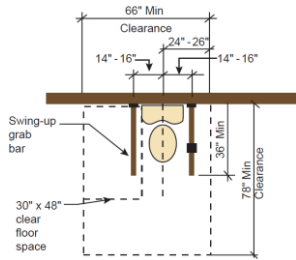


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## Assisted Toileting



Primary technical changes include:

- Increased clearance around water closet of 66" with clearance of 24" to 26" from centerline of fixture
- Increased clearance depth of 78" to allow for additional approach options
- Allowance for swing-up grab bars that are typically only permitted in Type B units
- Toilet paper dispenser to be installed on at least one of the swing-up grab bars



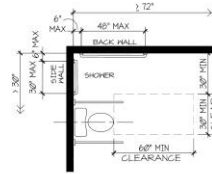
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## Assisted Bathing

- Primary technical change is elimination of required folding seat
- Allows for use of rolling chair when necessary
- Sidewall and backwall grab bars now differ, with side-wall bar required on 'seat wall' and both grab bars starting in corners



ASSISTED BATHING ROLL-IN SHOWER - USING EXCEPTIONS EXAMPLE 1

ASSISTED BATHING ROLL-IN SHOWER - USING EXCEPTIONS EXAMPLE 2



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## Group R-1

- A** Number of Accessible unit based on Table 1107.6.1.1.
  - New way to add up units on the site.
- B** Remainder Type B units if intended to be occupied as a residence.
  - Number of units with visible alarms per Table 907.5.2.3.2.



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## Group R-2

### Live/work units

- B** All dwellings are Type B units
  - The work areas must be accessible.




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## Group R-2

### Boarding Houses Dormitories Fraternity and Sorority Houses

-  Number of Accessible unit based on Table 1107.6.1.1.
- B** Remainder Type B units.



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## Group R-2 -

### Apartments and Condominiums Convents and Monasteries

- A** 2% Type A units.
  - add up units on the site
  - >20 units in the facility.
- B** Remainder Type B units.



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## Group R-3

- B** All Type B units

- IRC sends townhouse back to the IBC as Group R-3 for accessibility.






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## Group R-4

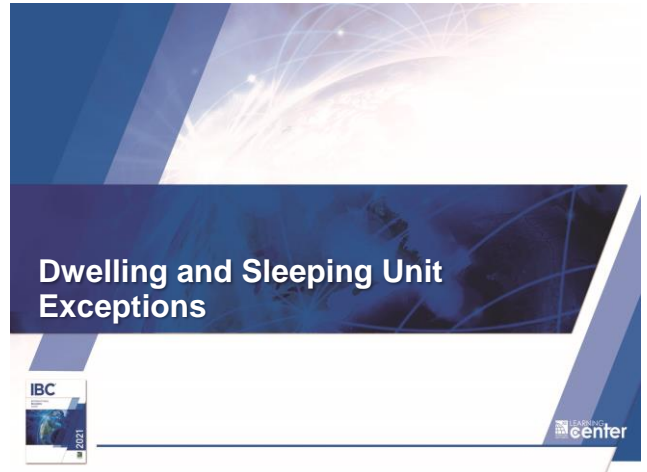
-  Condition 1 – One Accessible unit.
-  Condition 2 – Two Accessible units
-  Remainder Type B units



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center

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## Exceptions – Accessible Units



- No exceptions.



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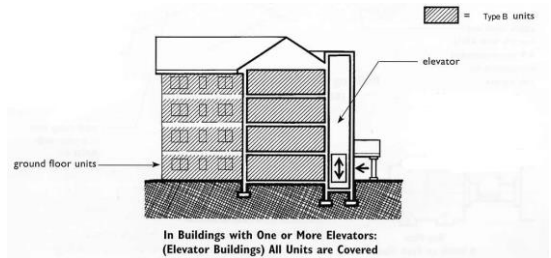
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## Exceptions – Type A and B Units



- No exception for elevator buildings.



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## Exceptions – Type A and B Units

**A** **B**

- Type A -  $\leq 20$  units in the site
- Type B - structures with less than 4 units.
- Non-elevator buildings.
- Multi-story units.
- Steep and hilly sites.
- Sites subject to flood regulations.



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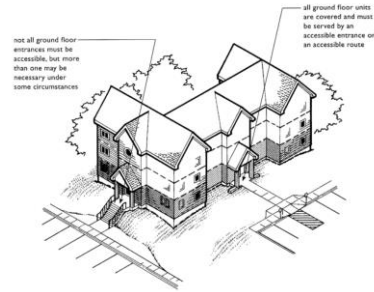
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## Lowest Level (IBC 1107.1)

Type B units

**B**



Buildings with a Single Ground Floor



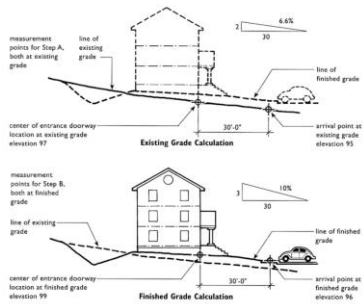
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## Lowest Level (IBC 1107.1)

**B**



both calculations do not exceed 10%; therefore, the developer must provide an accessible route to the entrance and all units on the ground floor served by the entrance are covered



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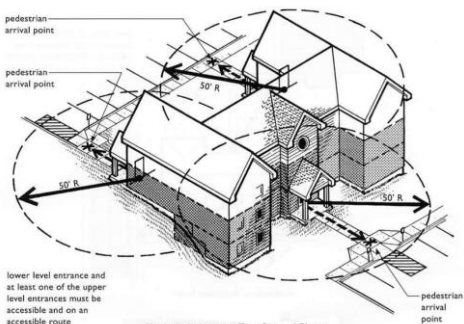
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## Lowest Level (IBC 1107.1)

Type B units

**B**



Single Building with Two Ground Floors



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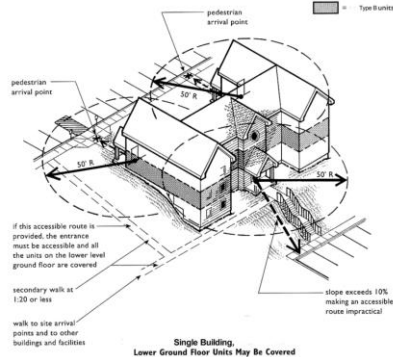
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### Lowest Level (IBC 1107.1)

**B**



Single Building, Lower Ground Floor Units May Be Covered



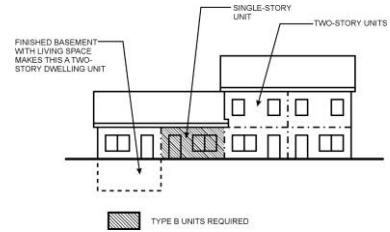
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### Multi-story Units (IBC 1107.7.2)

**B**



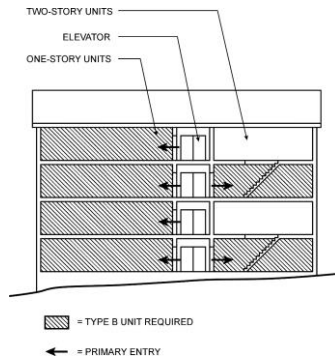
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### Multi-story Units (IBC 1107.7.2)

**B**



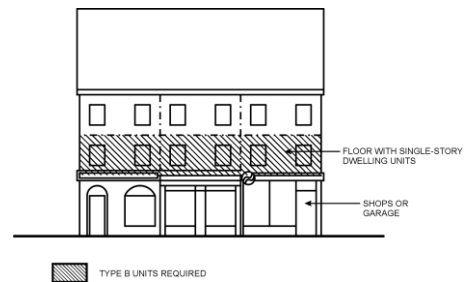
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### At Least One Story (IBC 1107.7.3)

**B**

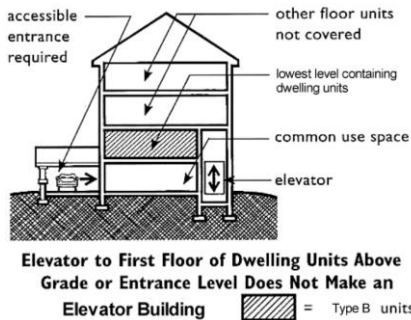


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### At Least One Story (IBC 1107.7.3) B

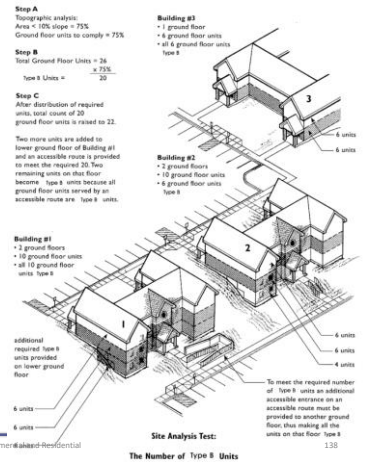


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### Steep or Hilly Site (IBC 1107.7.4) B

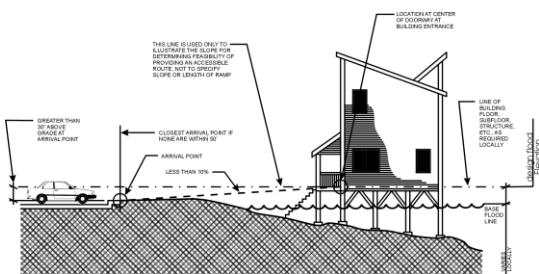


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### Flood Plain (IBC 1107.7.5) A B



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### Technical Criteria

- ♿ Accessible units:
  - ICC/A117.1 Section 1102.
- A Type A units:
  - ICC/A117.1 Section 1103.
- B Type B units:
  - ICC/A117.1 Section 1104.
  - Consistent with FHAG requirements.



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## Technical Criteria



- 110\*.1 Type of unit;
- 110\*.2 Primary entrance;
- 110\*.3 Accessible route;
- 110\*.4 Walking surfaces;
- 110\*.5 Doors and doorways;
- 110\*.6 Ramps;
- 110\*.7 Elevators;
- 110\*.8 Platform lifts;
- 110\*.9 Operable parts;
- 110\*.10 Laundry equipment;
- 110\*.11 Bathing rooms;
- 110\*.12 Kitchens;
- 110\*.13 Windows; and
- 110\*.14 Storage facilities.



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Module 4  
**Special Occupancies Requirements**

- Assembly seating.
- Dining areas.
- Classroom Acoustics
- Self-service storage facilities.
- Recreational facilities.

IBC 2021 center

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## Accessibility performance requirements

A person with a hearing, vision or mobility impairment should have equal access to facilities and services.

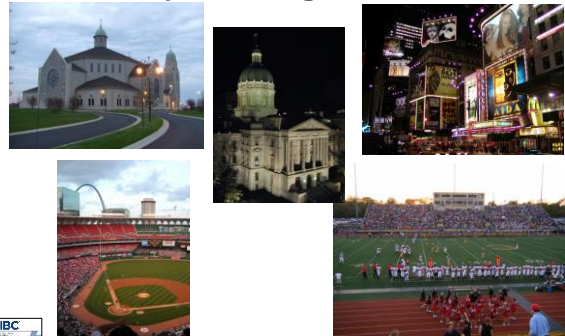


Architects Guide: Accessibility

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## Assembly Seating - Fixed



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## Number of Spaces

- Fixed seats provided.
  - Table 1108.2.2.1.
- Luxury boxes, club boxes or suites.
  - Each box based on Table 1108.2.2.1.
- Other box seats.
  - 20% of total box seats based on Table 1108.2.2.1.
- Lawn seating.



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## Dispersion

- Number of wheelchairs spaces (IBC Table 1108.2.2.1)
- Number of wheelchair space locations (ICC A117.1 Table 802.10)



*“Wheelchair space locations” include the companion seat and can include multiple wheelchair spaces.*



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## Dispersion - IBC

- Access to services.
- Integration.
- Different levels.
- Exceptions:
  - Balconies in religious facilities with <25% of the total seats.
  - Balconies in assembly with both <300 seats and <25% of the total seats.



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## Dispersion – A117.1

- Line of Sight – standing or seated spectators
- Horizontal (side-to-side)
- Vertical (front-to back)
- Type (seating type or services)



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## Wheelchair Space

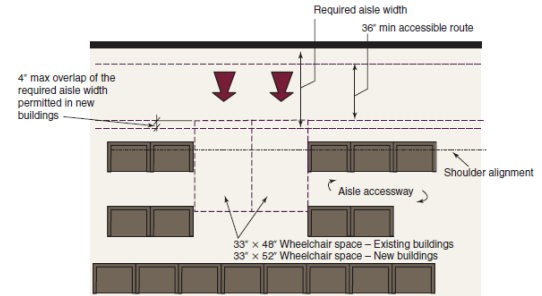
- Adjacent companion seat.
- Size dependent on approach and if 1 or 2 wheelchair spaces.
- 1:48 maximum slope.
- Provided on accessible route.



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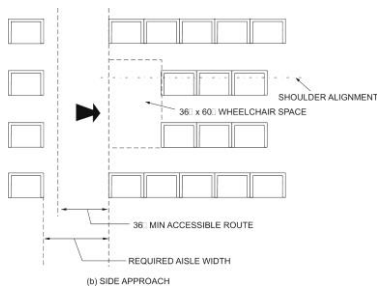
## Wheelchair Space – Size and Access



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## Wheelchair Space – Size and Access

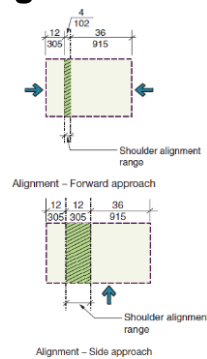
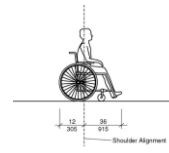


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## Companion Seat Alignment 802.7.2

- Allows a range for shoulder alignment due to clear floor space size increase



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## Companion Seat Alignment

- Alignment is not required for seating at tiered dining or work surfaces
- Examples:
  - Dinner theaters
  - Lecture halls
- Dispersion should be based on general assembly seating



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## Accessible Route Requirements

- 1:12 maximum slope.
- Guards at drop-offs – height can be reduced for line-of-sight.
- Platform lifts for entry and exit.
- Common path of travel for means of egress.



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## Line of Sight

- Looking **over** the heads of **seated** spectators

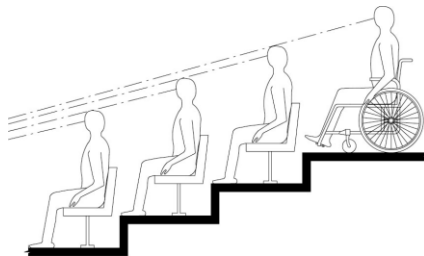


Fig. 802.9.1.1  
Lines of Sight over the Heads of Seated Spectators



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## Line of Sight

- Looking **between** the heads of **seated** spectators

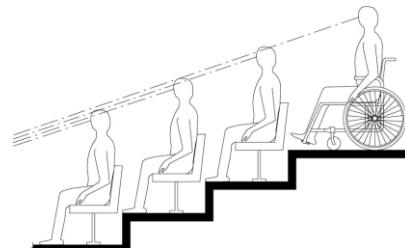


Fig. 802.9.1.2  
Lines of Sight between the Heads of Seated Spectators



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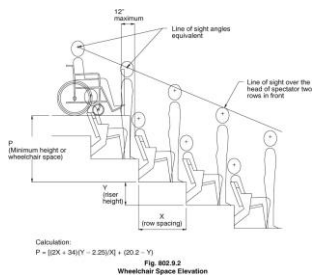
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## Line of Sight

- Looking **over** the heads of **standing** spectators



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## Allowances

- Companion seats can be moveable provided they are equivalent to fixed seats
- Dispersion in bleachers can be to just the front row.
- Lawn seating requires an accessible route to the edge of the seating area.



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## Motion Picture Theaters

- Where tiered seating (stadium style) is provided, the wheelchair spaces must be integrated, but they can be in the cross aisle as the first tier.
- The wheelchair spaces need to be in the rear 60% of the theater seating rows.
- Remember that two accessible means of egress are required from the theater.



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## Designated Aisle Seats

- 5% of all aisle seats.
- Best design practice:
  - Located along accessible route.
  - Folding or retractable armrests when adjacent seating has armrests.



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### Assistive Listening System

- Where audible communications are integral to the use of the space; and
- An audio amplification system is provided.
- Number based on IBC Table 1109.2.7.1.
- Some devices hearing-aid compatible.
- Signage.
- Also at ticket windows for stadiums and arenas.

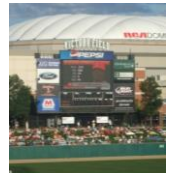


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### Text Messaging

- Stadiums, arenas and grandstands.
- With audible public announcements.
- Equivalent text messages must be provided.



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### Performance Areas

- Access to all performing areas.
  - Where a stairway is provided between the stage and the audience, the accessible route shall be in the same area.
- Access to all supporting spaces.



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Dining areas

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## Dining Areas

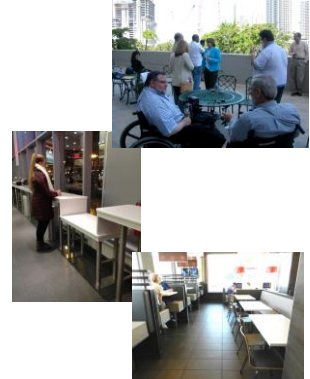
- All dining areas accessible throughout.
- Exceptions:
  - Mezzanines with <25% of the total seating.
  - Sports facilities with tiered dining, at least 25% of the seating area must be accessible.
- 5% of the seating and standing spaces must be accessible.
- Distributed throughout the facility.



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## Dining surface

- Dining and drinking surfaces – both standing and sitting
- Disperse throughout (IBC), not by type



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## Dining surface

- If the seating is at a bar, cutting down the bar should be inclusive, not exclusive



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## Dining surface

- Exception for knee and toe clearances at drink rails and side tables



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### Enhanced Acoustics for Classrooms (New)



- IBC 1207 & A117.1 808
- Provides guidance to improve acoustics by controlling:
  - Reverberation
  - Ambient sound levels
- Currently only for rooms  $\leq 20,000 \text{ ft}^3$
- Helps improve hearing and comprehension/learning



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### Enhanced Acoustics for Classrooms (New)

#### Classroom Acoustics Requirements

Learning Space	Greatest one hour average sound level of exterior source background noise	Greatest one hour average sound level of interior source background noise	Maximum reverberation times for sound pressure levels in octave bands with frequencies of 500, 1000 and 2000 Hz.
Classrooms with an enclosed volume of $\leq 10,000$ cubic feet	35 dBA/55 dBC	35 dBA/55 dBC	0.6 seconds
Classrooms with an enclosed volume of $> 10,000$ cubic feet and $\leq 20,000$ cubic feet	35 dBA/55 dBC	35 dBA/55 dBC	0.7 seconds



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**KEY LEARNING**

## Accessibility performance requirements

- The recreation requirements are not intended to change the nature of the game.
- Players should be able to get to the field, and then participate to the best of their ability.



IBC 2018  
Architects Guide: Accessibility 180

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## Site Access

An accessible route is required to all recreational facilities on a site.



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## Supporting Services

- Viewer seating
- Concession stands
- Locker rooms
- Ticket windows
- Toilet rooms



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## Scoping

- Group R-2, R-3 and R-4 occupancies
  - Serving Accessible units – all recreational facilities accessible
  - Serving Type A or Type B units – 25% of the recreational facilities per building accessible.
- Other occupancies
  - All recreational facilities accessible



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## Areas of Sports Activity

- Defined term – “That portion of a room or space where the play or practice of a sport occurs.”



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## Scoping & Technical

An accessible route to all *areas of sports activity*.

Special requirements/allowances for:

- Amusement rides
- Recreational boating and fishing piers
- Exercise machines and equipment
- Miniature golf facilities
- Playgrounds
- Swimming pools, wading pools, hot tubs and spas
- Shooting facilities



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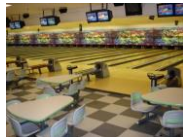
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## Scoping

Exceptions:

- 95% of bowling lanes
- Raised boxing or wrestling rings
- Raised areas for refereeing, judging or scoring
- Animal containment areas not in public use areas



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## Scoping

Special requirements:

- Team or player seating
- Court sports



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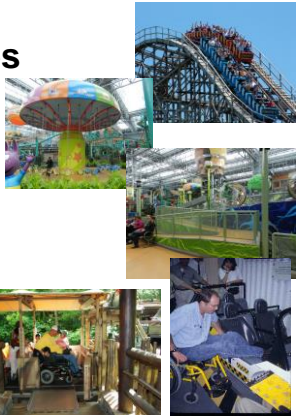
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## Amusement Rides

- Access required for rides with a fixed course within a defined area.
- Accessible route to the ride.
- A transfer space next to a ride or a wheelchair space on the ride.



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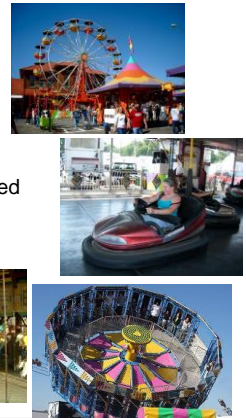
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## Amusement Rides

### Exceptions:

- Mobile rides
- Controlled by rider
- Primarily for children and assisted by adults
- No ride seats



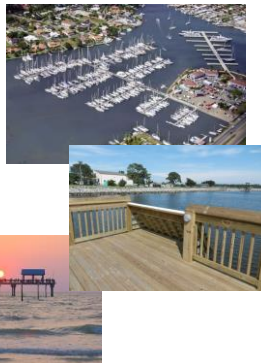
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## Recreational Boating and Fishing

- Access to docks
- Access to a percentage of the slips
- Allowances for changes in water level
- Coordination with barriers and guards



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## Exercise Equipment

- Space for transfer or to use at least one of each type of machine
- Not intended to change machines – no requirements for transfer or operable parts



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## Miniature Golf

- Access to at least 50% of holes
- Route on or adjacent to the holes
- One break permitted in the sequence if you play the last hole.



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## Play areas

- Percentage of ground level components
- Percentage of raised components on a route via ramp or transfer steps
- Access to soft contained play structures



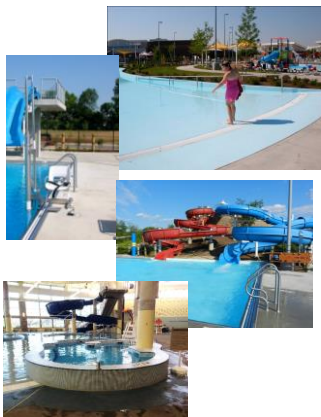
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## Pools

- Access to pools based on types and size
- Options for type of entry
- Exceptions:
  - Diving boards
  - Slides
  - Catchment pools
  - Entry into the water for pools serving Group R-2 and R-3 with Type A and Type B dwelling units
- 5% of hot tubs



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## Shooting Facilities

- A turning space at one station in each type of shooting facility
- Exception for raised stations similar to press boxes



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## Golf

- In A117.1 but not specifically scoped.
- Access to driving range, practice greens, bag drop off
- Access to tees and greens on the golf course using a golf cart



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## Module 5

# Exterior Accessible Route

- Exterior Accessible Routes
- Parking Spaces
- Passenger Loading Zones
- Signage.

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## Accessibility performance requirements

A person with mobility impairments should be able to arrive at the site, enter the building, and move throughout the building and site independently.



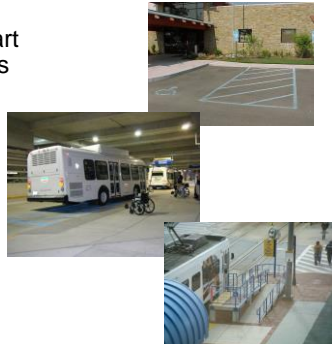
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## Public Arrival Points

- Accessible routes start at public arrival points such as:
  - Accessible parking spaces
  - Bus drop offs
  - Public transportation stops
  - Where a building sidewalk connects to the public sidewalk



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### Accessible Entrances

- Accessible routes connection public arrival points to accessible entrances



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### Other elements on the site

- Accessible routes are required to all facilities offered on the site.
- Exception: Where the only access is by a vehicular route, then the accessible route can also be provided by that vehicular route.

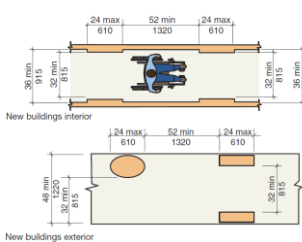


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### Walking Surfaces



- Width of new exterior accessible routes increased to 48" min. (A117.1 403.5.1)
- Existing exterior routes can stay at 36" min. (IEBC 306.7.6)



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### Hazards

- Grates
- Platform edges
- Protruding objects

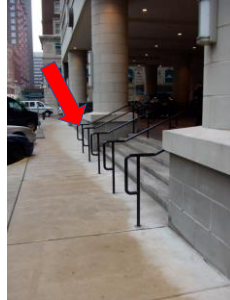


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### Protruding Objects



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### Protruding Objects



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### Curb Ramps and Blended Transitions

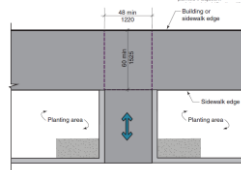
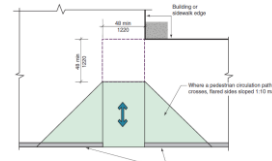
- Three options:
  - Perpendicular curb ramps
  - Parallel curb ramps
  - Blended Transitions
- Working to coordinate with proposed federal PROWAG



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### Perpendicular Curb Ramps



- 48" min. landing length at top; 60" min. if constrained
- Larger landing (width and length) allows for turning
- Requires flared sides if circulation path crosses ramp
- Limits slope of ramp to 1:20 min., 1:12 max. but does not require ramp >15 feet.



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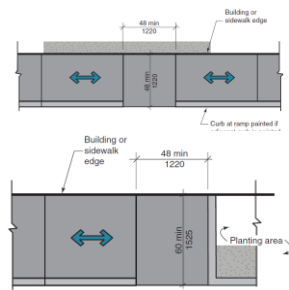
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### Parallel Curb Ramps

- Landing increased to 60" min. depth from street if constrained on two sides
- Limits slope of ramp to 1:20 min., 1:12 max. but does not require ramp >15 feet.

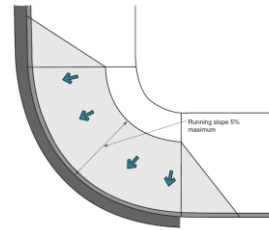


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### Blended Transitions

- Are not a curb "ramp" because slope  $\leq 1:20$
- Rely on "common requirements" for most provisions
- Previously inconsistent applications due to no specific details in standard

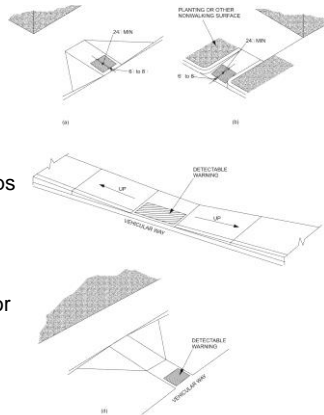


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### Detectable Warnings at Curb Ramps

- Detectable warnings are not required on curb ramps by IBC or A117.1
- If a designer chooses to provide detectable warnings, then technical provisions are provided for area covered, location, pattern and contrast.



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### Detectable warning mistakes



Wrong location Too extensive  
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### Curb Ramp Location

- A 36" minimum landing must be available at the top of the curb ramp
- Don't put a built up curb ramp overlapping the access aisle
- Locate so that they will not be obstructed by parked cars



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### Curb Ramp Allowances

- Curb ramps can have a rise of more than 6 inches.
- Curb ramps do not have to have handrails.
- Curb ramps are not required to have flared sides.



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### Signage

Where not all entrances are accessible

- At accessible entrances
- Directional signage at non-accessible entrances



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Accessible parking and passenger loading zones

IBC 2021

Learning Center

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## Accessible Parking Spaces

- Based on number of parking spaces provided.
- Number of parking spaces required per zoning ordinances.
- Accessible spaces required:
  - Table 1106.1 for general parking.
  - 2% for Group R-2 and R-3.
  - 10% at hospitals facilities.
  - 20% at mobility treatment centers.
  - 1 of 6 accessible spaces sized for a van



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## Dispersion by Type

- Parking lots
- Parking garages
- Carports
- Private garages
- Pay/free
- Employee/visitor only



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## Parking Locations

- Locate on the shortest accessible route to an accessible entrance.
- Multi-entrance building or multi-building sites – disperse spaces
- Exception:
  - Van spaces on ground level of parking garages (vertical clearance of 98 inches)
  - Grouped where better access is provided

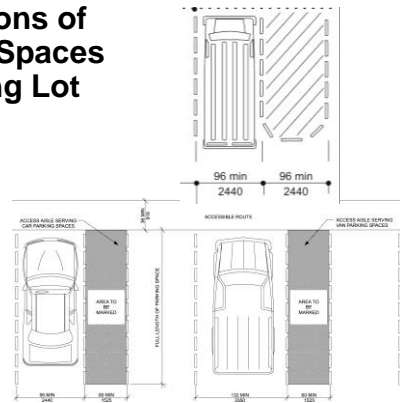


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## Dimensions of Parking Spaces in Parking Lot

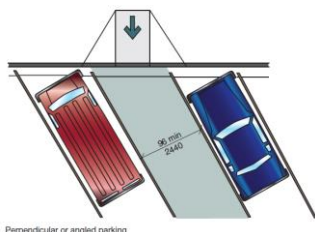


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## On street parking



- Added provisions related to diagonal and parallel parking
- Allows slope with street
- On-street provisions based on and coordinate with PROWAG

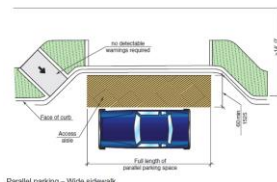


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## On street parking



- Parallel provisions depend on width of sidewalk or right-of-way
- Use "Wide" if >14 ft. width right-of-way, "Narrow" if ≤14 ft.



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## Parking Meters and Pay Stations



- Stations that serve accessible parking spaces
- Provisions added to address location and access to on-street parking meters and pay stations.
  - Not applicable to parking lots
- Done to coordinate with PROWAG
- Requires: Compliance with operable parts, location at end of stall, visible display at 40" max.



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## Electrical Vehicle Charging Station

- Ensures they are accessible and usable
- Regulated "where provided" at parking spaces
- Provisions address operable parts, accessible route, obstructions
- Applies to both parking lots and on-street parking



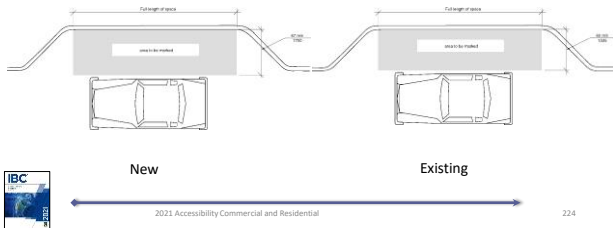
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## Passenger Loading Zones

- At least one in Group I-1 and I-2
- At the entrance where valet parking is provided
- Where passenger loading zones are provided, they must be accessible



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## Passenger Loading Zones

- At least the length of the vehicles at the drop off
- Access aisle where someone will not drive over
- Minimum height for vans with raised roofs



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## Signage

- Accessible parking must have a sign
- Exceptions:
  - Fewer than 4 total parking spaces
  - In Group I-1, R-2, R-3 and R-4 where parking is assigned to residents
- Access aisles should be marked to discourage parking on them
- The space is not required to be marked
- Accessible passenger loading zones must have a sign



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Module 6

## Accessible Entry vs. Accessible Exits


- Comparison of Requirements.
- Accessible Entrances.
- Accessible Means of Egress.
- Visible and Audible Alarms.

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**KEY LEARNING**

### Accessibility performance requirements

- A person with mobility impairments should be able move throughout the building independently.
- Evacuation may require assistance – so it is important to communicate between emergency responders and persons who need assistance.

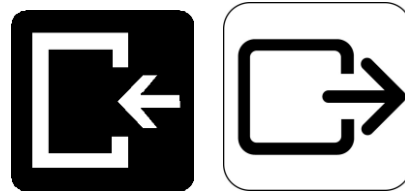


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### Entrance/Exit Requirements—Introduction

- Requirements for both entry and egress must be addressed and the most restrictive applied.




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### Accessible Entry





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### Accessible Entrance



- Special entrances – at least one:
  - Parking garages
  - Tunnels
  - Elevated walkways
  - Restricted
  - Inmates or detainees
- Public entrances – 60%.
- Individual entrance
  - Tenants
  - Accessible Group I and R dwelling and sleeping units



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## Exceptions

- Areas not required to be accessible.
- Doors that serve as means of egress only.
- Service entrances that are not the only entrance to a tenant.



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## Automatic Doors at Public Entrances

- In specified occupancies with sizable occupant loads, the accessible public entrances must now be provided with an automatic door.
- Where an automatic door is required by Table 1105.1.1, it shall be either a full power-operated door or a low-energy power-operated door.

**TABLE 1105.1.1 Public Entrance with Power-Operated Door<sup>a</sup>**

Occupancy	Building Occupant Load Greater Than
A-1, A-2, A-3, A-4	300
B, M, R-1	500

<sup>a</sup> In mixed-use facilities where the total sum of the building occupant load is greater than those listed, the most restrictive building occupant load shall apply.



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## Automatic Doors at Public Entrances

- In mixed-occupancy buildings where total building occupant load exceeds that listed, the most restrictive building occupant load shall apply.
- Where the public entrance includes a vestibule, at least one door into and one door out of the vestibule must comply with the requirements.
- **Very important to understand that doors that require card or key entry will most likely still be considered public entrances.**



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## Interior Routes

- Connect accessible entrances to accessible spaces within the building
- The accessible route must allow for unassisted access

Ramps      Horizontal surfaces



Platform lifts



Elevator



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### Additional Routes

- Connections between dwelling and sleeping units and all shared facilities (e.g., dining halls, lobby, laundry, mailrooms).



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### Accessible Means of Egress

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### Accessible MOE

An accessible means of egress is:

- A continuous and unobstructed accessible route of egress travel from any accessible point in a building or facility to a public way.
- The intent – self-evacuation as much as possible – sometimes completed with assistance.



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### Accessible MOE Options

- Assisted rescue when necessary
- Defend in place (i.e., hospitals, jails)
- Assisted evacuation at stairways
- Assisted evacuation at elevators with standby power



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### Accessible Entry vs. Accessible Exit

TERM	DEFINITION	EXAMPLE	REQUIRED #
Accessible Entry	Consists of: •Exterior accessible route. •Accessible entrances. •Interior accessible route.	Elevator	60% of the entrances
Accessible Exit	Consists of: •Exit access via interior accessible route. •Area of refuge/Exit. •Exit discharge.	Exit Stairway	1 AMOE with 1 MOE 2 AMOE with 2+ MOE



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**Planning**

IBC 2021 logo and Fire Safety Center logo are visible at the bottom.

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### Pre-Planning for Emergencies

- Fire evacuation plans
- Fire safety plans
- Lockdown plans
- Associated drills
- Worked out with the building owner/renter and the fire department
- Updated annually or when necessitated by changes
- Available for review



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### Fire Evacuation Plans

- Emergency routes
- Strategy - Evacuation or defend in place
- Critical equipment operation
- **Assisted rescue procedures**
- Verifying full evacuation
- Emergency responders
- Notification of occupants
- Notification of fire department
- Emergency voice/alarm communication system



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## Fire Safety Plans

- Reporting emergency
- Evacuation or relocation of **all** occupants
- Site plans – occupancy assembly point, fire hydrants, fire truck route
- Floor plans – exits, routes, **areas of refuge**, fire alarm, extinguishers, fire hoses
- Major fire hazards
- Persons responsible



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## Emergency Drills

- Assembly – quarterly
- Business – annually
- Educational – monthly
- Factory – annually
- Institutional – quarterly on each shift
- Hotel - quarterly on each shift
- Apartments/dorms – 4 times annually
- Group homes - quarterly on each shift
- High rise - annually



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## Audible and Visible alarms

- Installed in accordance with NFPA 72.
- Manual fire alarm pull stations must be accessible.



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## Visible Alarms

- All public spaces.
- All common spaces.
- Group I-1 (assisted living) and R-1 (hotel) units per Table 907.5.2.3.2.
- Future expansion for:
  - Individual employee work areas.
  - Smoke alarms in Group R-2 (apartments) units.



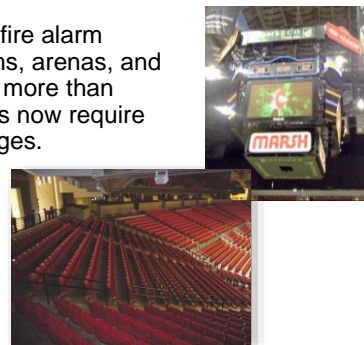
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## Notification & Communication

- Mass notification fire alarm signals in stadiums, arenas, and grandstands with more than 15,000 fixed seats now require captioned messages.



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## Directional Signage

- Evacuation plans at elevators
- Signage at any non-accessible exits



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## Exit Signs

- Visual exit signs at stairway entrances
- Tactile exit signs at stairway entrances, areas of refuge and exterior area for assisted rescue



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## Stairway Signage

- Visual signage within the stairway
- Tactile signage indicating floor levels
- Tactile signage at the door leading to the exit discharge



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## Two-way Communication

- Within areas of refuge
- At elevator lobbies in sprinklered buildings (starting with 2009 IBC including when the elevator is not part of an AMOE)
- Variety of options
- Allow for communication and feedback between emergency responders and people who need assistance



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**Accessible Means of Egress Requirements**



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## AMOE: Minimum Number

- Minimum number of AMOE required:
  - 1 AMOE - where 1 MOE required
  - 2 AMOE - if more than 1 MOE required
- Exceptions:
  - Existing facilities
  - Areas not required to be accessible
- Must consider both the building and spaces within the building.



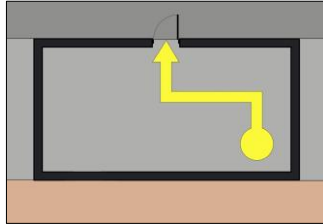
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### Example: 1 MOE/AMOE

- 1 MOE & 1 AMOE allowed under these conditions:
  - mercantile occupancy; and
  - 49 or fewer occupants; and
  - 75' max. travel distance from farthest point

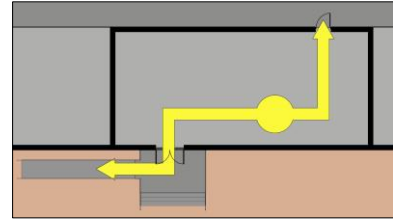


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### MOE: Minimum Number

- At least 2 MOE required

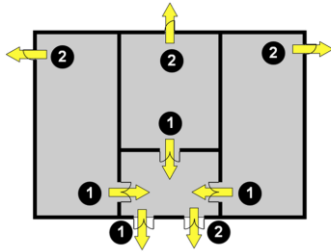


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### MOE: Minimum Number (cont)

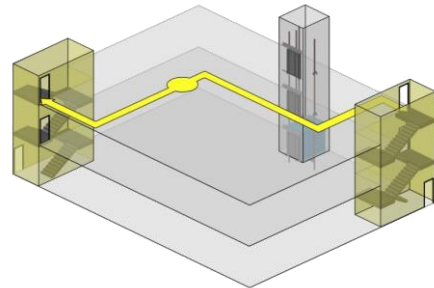
- MOE required from each space and room



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### Exit Access: Upper Floors

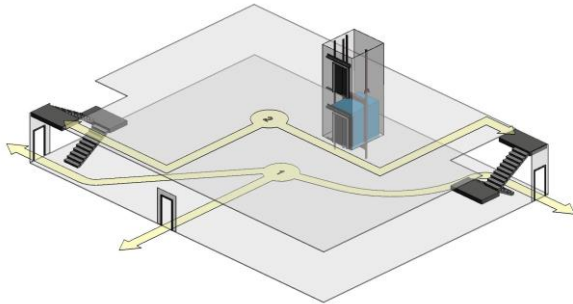


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### Exit Access – Open Stairs



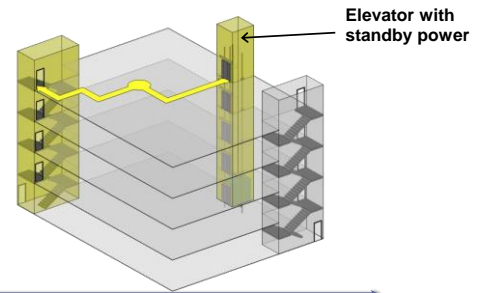
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### Elevator with Standby Power

- Required in buildings 5 stories or higher



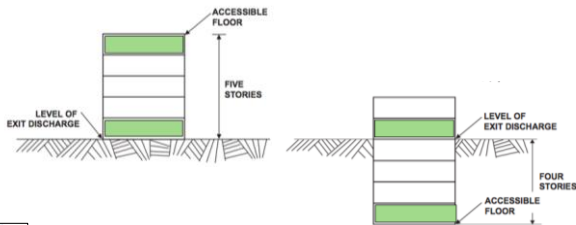
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### Elevator with standby power - Determining stories

- Required in buildings with 4 or more stories above or below the level of exit discharge



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### Fire Recall on elevators

- Elevators are required to have automatic recall
- Fire department can always choose to use the elevators for staging or assisted evacuation
- Standby power is added where the buildings are tall enough the trucks cannot reach the outside



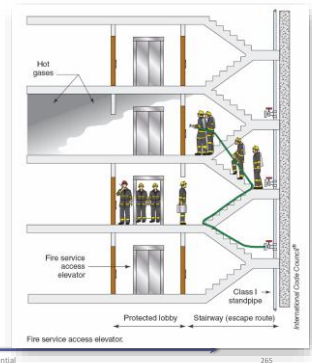
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## Fire Service Access Elevators

- Minimum number of fire service access elevators required > 120' buildings
- increased from one to two where multiple elevators provided in building.



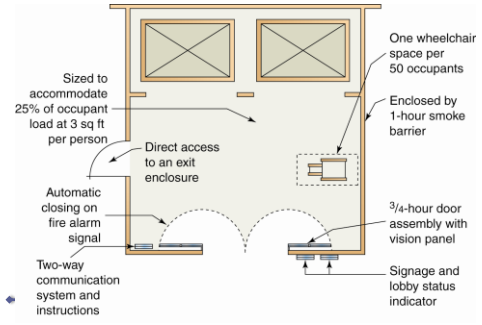
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## Occupant Evacuation Elevators

- Option for super high-rise buildings



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## Exit Discharge

- Only at the level of exit discharge
- Accessible route to a public way or
  - Interior area of refuge or
  - Exterior area for assisted rescue



No exceptions for sprinklered buildings



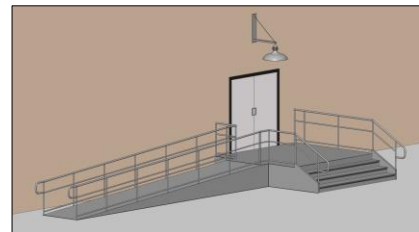
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## Exit Discharge – Option 1

- Accessible route to a public way



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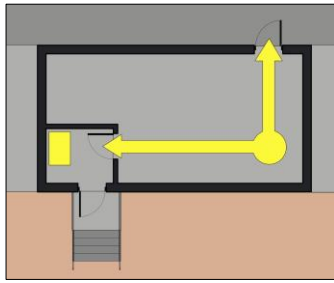
Drawings courtesy of Access Board

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### Exit Discharge – Option 2

- Interior Area of Refuge



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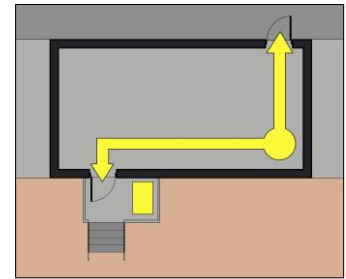
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### Exit Discharge – Option 3

- Exterior Area for Assisted Rescue



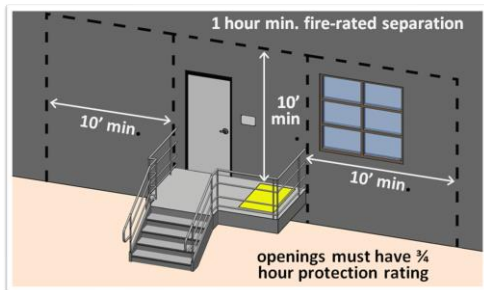
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### Exterior Area for Assisted Rescue



2018 IBC Rated wall is not required in sprinklered buildings

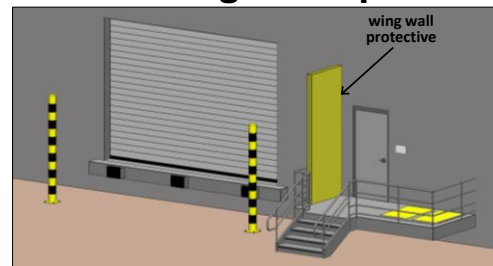
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### Exterior Area for Assisted Rescue – Wing wall option



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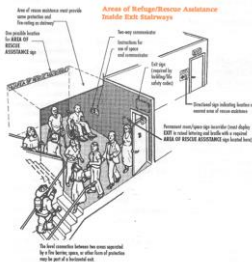
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## Area of refuge in non-sprinklered buildings.

Technical criteria:

- On accessible route
- Separated by a smoke barrier
- Direct access to exit stairway, elevator with standby power
- Alternative: horizontal exit

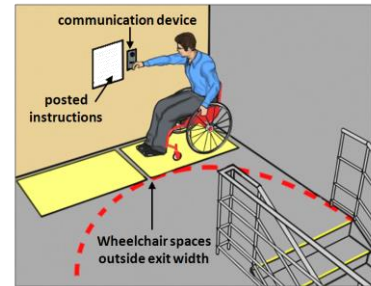


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## Areas of Refuge - Example



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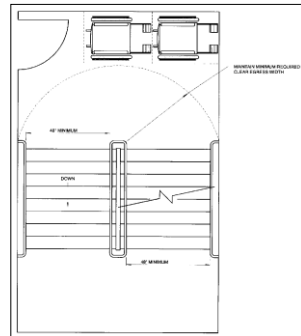
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## Areas of Refuge – Inside stairway

- 48" min. stairway width (between handrails)
- 30" x 48" space (1 for every 200 occupants) located outside general MOE path
- Two-way communication system
- Identification and instructional signage

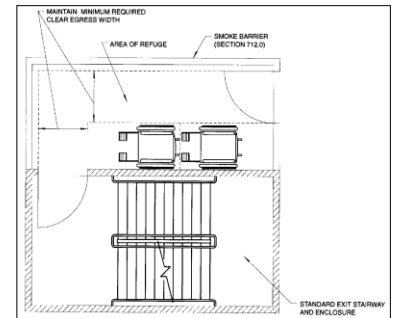


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## Areas of Refuge – adjacent to stairway



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## Areas of Refuge - exceptions

Exceptions for areas of refuge:

- buildings fully equipped with an automatic sprinkler system
- open parking garages
- open exit access stairways between stories



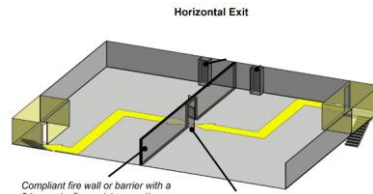
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## Horizontal exit exception

- A horizontal exit allows for slower evacuation of the building
- Alternative for areas of refuge
- Standby power not required at elevators where this is on all floors but the level of exit discharge



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Special consideration

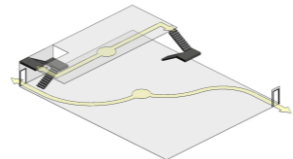
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## Mezzanines

- Mezzanines have at least 7 feet underneath and the area is less than 1/2 of the room below
- Where mezzanines have elevator access
  - One open stairway for AMOE
  - Two way communication at the elevator lobby



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## Open stairways

- Open stairway can be supplemental or part of a required MOE
- Open stairways for required MOE is mostly for two story buildings and with travel distance limitations (there are limited exceptions)
- Open stairways that are part of the required MOE can also serve as AMOE
- No area of refuge, even in non-sprinklered buildings
- Two-way communication at the elevator



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## Occupied roofs

- Treated the same as a story for an accessible route and means of egress
- Occupied roof same as floor for AMOE
- Specifically indicated in 2021 IBC as a story for requiring elevators with standby power.



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## Stages, platforms and orchestra pits

- Depending on size of stage – one or two ways off
- If platform lift used for AMOE then it has to have standby power



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## Assembly seating

- Two ways out for every wheelchair space location
- Common path of travel for how far you can go back out the way you came in before you have two ways to go



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## Bleacher seating



- Smoke protected and outdoor seating have longer common path of travel
- Bleachers require two MOE with >250 occupants
- Accessible seating only on first row
- Common mistake to only provide one ramp on the side



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## Parking garages

- AMOE required from every floor
- No areas of refuge required in open parking garage
- 48" clear width between handrails on stairways required if not sprinklered
- Drive ramps between parking can be used for AMOE if 1:12 slope (required to be 1:15 in IBC)



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## Giant warehouse buildings

- May choose to exceed code and provide additional exterior areas of assisted rescue due to extended travel distance
- Based on fire safety and evacuation plan



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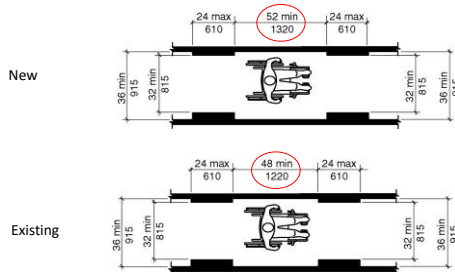
Module 7

## Interior Accessible Route Elements

- Technical requirements.
- Doors.
- Elevators and Platform Lifts.
- Stairways and Ramps.

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### Minimum Clear Width for Single Wheelchair

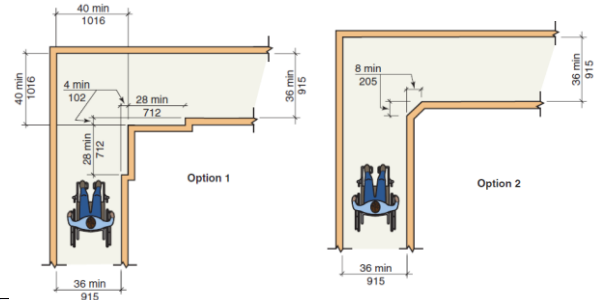


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### At 90-degree Turn (New)

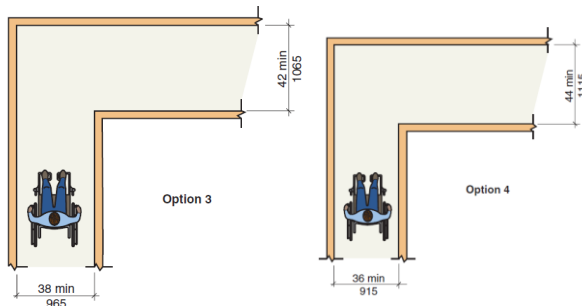


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### At 90-degree Turn (New)



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### At 90-degree Turn (New)

- New buildings have four options for making turns on 36" wide accessible routes
- Exceptions exempt turns at doors, elevators, platform lifts
- Does not include turns into clear floor spaces at fixtures, elements or wheelchair spaces.



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### At 90-degree Turn (Existing)

- Existing buildings may continue to use a 36" route at 90-degree turns
- 2009 Standard did not have a section for 90-degree turns but used general route requirements.
- Existing building provision match with ADA

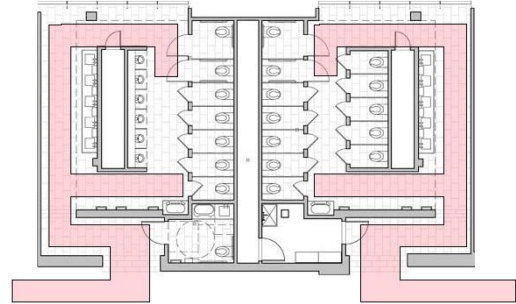


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### Impact - Multi-stall layout

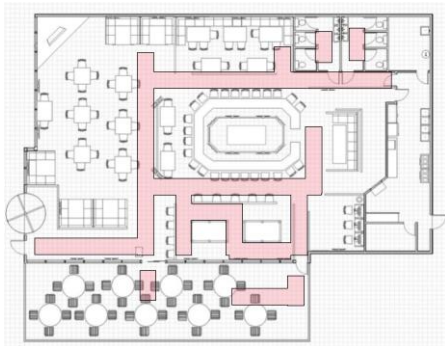


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### Impact - Dining room layout



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### Protruding Objects Along A Circulation Path

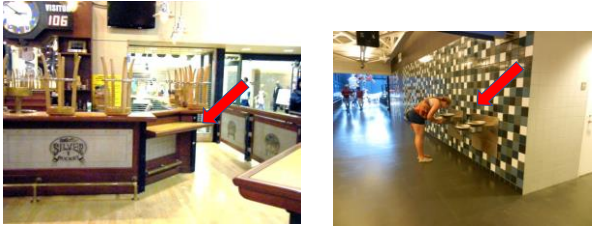


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### Protruding object

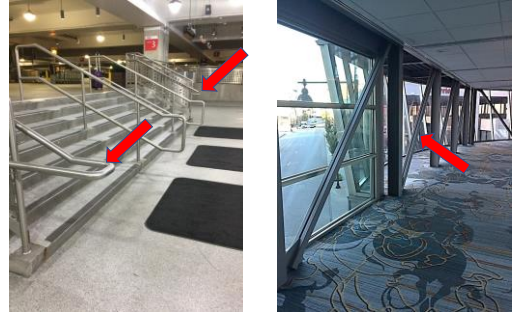


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### Protruding object

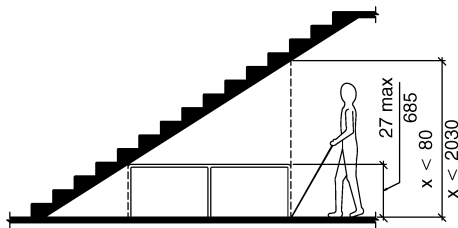


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### Overhead Protruding Objects

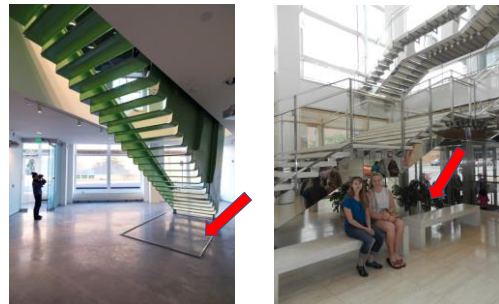


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### Overhead protruding object

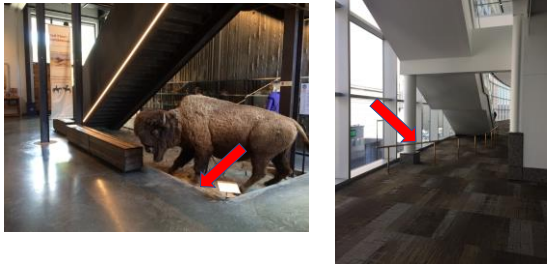


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### Overhead protruding object



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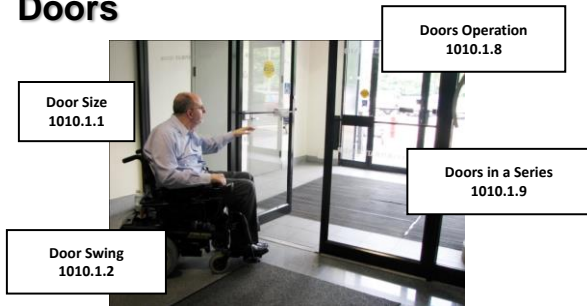
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302

### Doors

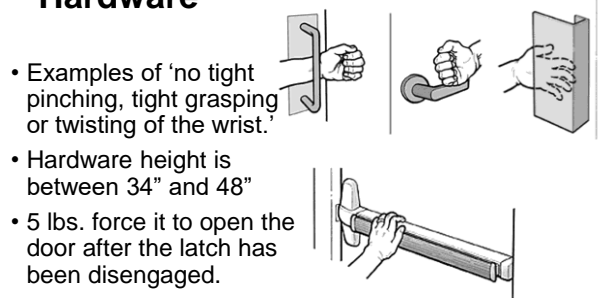


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### Hardware



- Examples of 'no tight pinching, tight grasping or twisting of the wrist.'
- Hardware height is between 34" and 48"
- 5 lbs. force it to open the door after the latch has been disengaged.

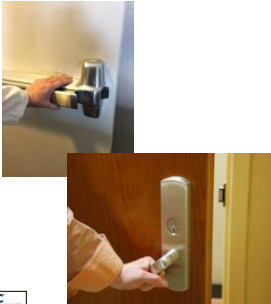


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### Manual Doors and Gates Hardware & Opening Force



- Splits provisions for hardware and door forces
- Provides operational force for hardware
  - 15 pound forward pushing or pulling
  - 28 inch-pounds rotational motion



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### Door Surface



- On the push side, the bottom 10" must be clear of obstructions



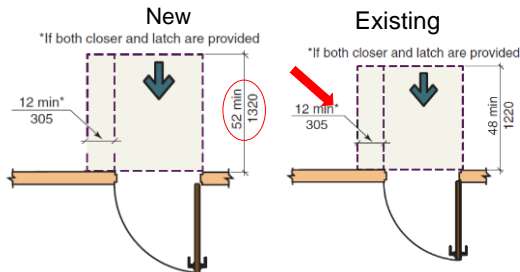
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### Manual Doors and Gates Maneuvering Clearances

Required at manual doors where someone moves through the door as part of an accessible route.



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### Maneuvering Clearances



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### Maneuvering Clearance – Automatic doors

- Required at power assist doors
- Not required a low-power automatic doors and fully automatic doors unless part of AMOE
- Options for standby-power, battery backup, open with power off, or break away



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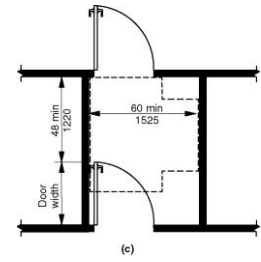
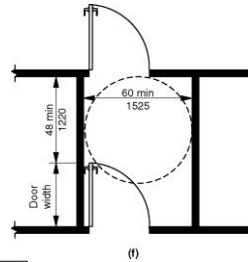
309

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### Vestibules

Existing

New



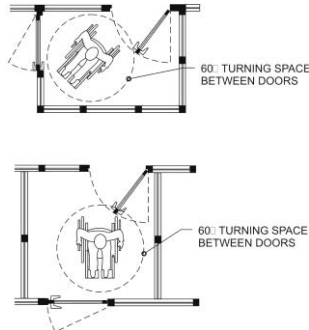
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### Vestibules

- Where doors at a vestibule are not in a straight line of travel, they still have to meet the vestibule requirements.
- A wheelchair space should be provided past the swing of the first door.
- A turning space must be available in the vestibule in case the 2<sup>nd</sup> door is locked or too difficult to open.



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### Other types of doors

- Revolving doors and security turnstiles cannot serve as part of an accessible route.
- Gates are required to meet the same provisions as doors.



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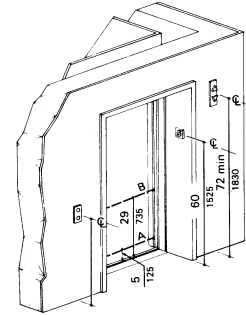
312



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## Elevators

- ASME A17.1.
- ICC A117.1.
- Permitted to serve as part of the accessible route anywhere.
- 5 story buildings or higher, standby power for accessible MOE.
- 4 stories or higher, one sized for a stretcher.



NOTE: The automatic door reopening device is activated if an object passes through either line A or line B. Line A and line B represent the vertical locations of the door reopening device not requiring contact.



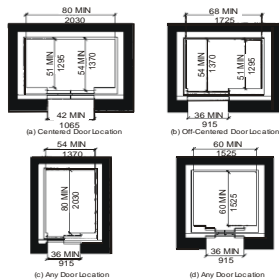
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## Elevator Care Size

- Access to controls.
- 60" turning circle not required.



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## LULAs



### Limited Use/Limited Application Elevators

- Considered a type of passenger elevator
- ASME A17.1.
- ICC A117.1.
- Application limited by product:
  - Limited capacity.
  - 25' max. travel.
  - Slow speed.



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### Private Residence Elevator



- ASME A17.1.
- ICC A117.1.
- Application limited:
  - Limited capacity.
  - Serve or within an individual dwelling unit.
  - Slow speed.



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### Platform Lifts



- ASME A18.1.
- ICC A117.1.
- Permitted anywhere in existing buildings.
- Limited application in new construction.
- Standby power when used as part of an accessible means of egress.



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### Platform Lifts

- Performing areas.
- Wheelchair spaces in assembly seating.
- Restricted spaces with <6 occupants.
- Within dwelling and sleeping units.
- Areas in courtrooms.
- Amusement rides.
- Play structures.
- Team or player seating.
- Boating and fishing piers.
- Existing exterior constraints.
  - This location cannot also serve as part of an accessible means of egress.



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### Good or Bad?



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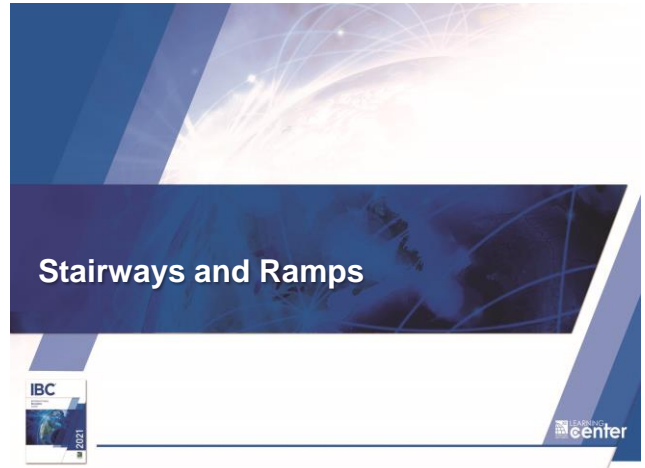
320

### Good or Bad?



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322

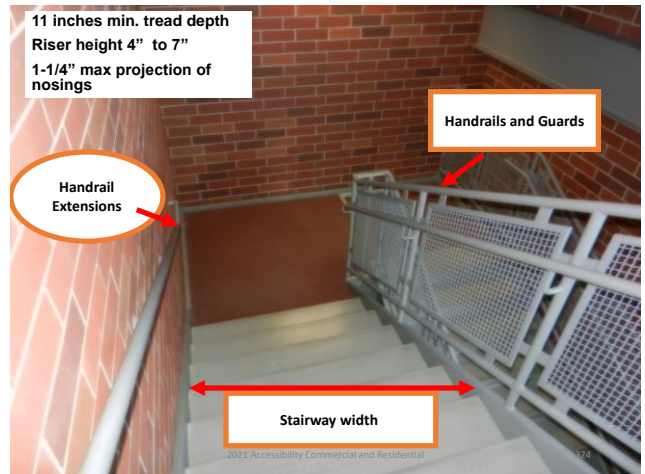
### Stairways

- Not part of the accessible route into building.
- Part of an accessible means of egress out of building with assistance.
- Mainstreamed requirements with no reference to ICC A117.1.
- Safety provisions for persons with mobility and visually impairments addressed in IBC.



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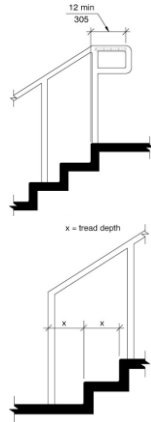
323



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### Handrail Extension

- The handrail extension at the bottom is 1 tread depth minimum and sloped.
- The 2010 ADA has removed the requirement for the additional 12" horizontal extension at the bottom.
- The handrail extension at the top is 12" minimum horizontal.
- The extension must be in the direction of the stairway run



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### Solid tread and risers?

- Treads allow for opening 1/2" or smaller
- Risers should not allow for someone to get their foot caught under the tread.



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### Ramp Technical Criteria

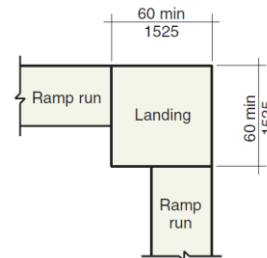
- >1:20 slope.
- 1:12 slope maximum on accessible routes.
- Change in level at start of ramp
- Surfaces – slip resistant
- Cross slope - < 1:48
- Minimum width – 36" between handrails
- Maximum rise – 30" between landings
- Adequate landings



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### Ramps



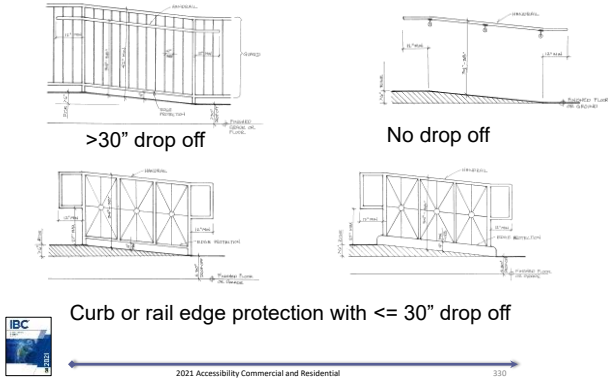
- Requires 60" x 60" landing at change of direction – not "turning space"
- Exception reduces ramp width due to equipment in employee work areas



Significant Changes to the ICC A117.1 - Accessibility Standard - 2017 Edition 328

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### Edge Protection, Handrails & Guards



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### Ramp Allowances

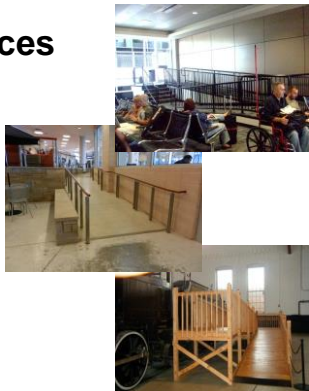
- Curved ramps are permitted if they meet cross slope.
- Where the ramp slope matches the sloped floor, edge protection may be provided by a wider surface.
- In assembly seating, accessible ramps are only required for entry and exit from accessible wheelchair spaces.



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### Ramp Allowances

- Barriers may serve as a handrail where guards are not required.
- Projections can be at or below the handrail height.
- Handrail grasping surfaces cannot be obstructed.



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### Ramp Allowances

- Ramps can have gridded surfaces in cold or wet areas.
- Where the ramp moves up with the grade, edge protection may be provided by a wider surface.



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Module 8

## Building Features and Facilities

- Customer Service.
- Plumbing Facilities.
- Other Features.




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## Customer Service




335

### Built-in Counters

- Check out aisles.
  - Table 1110.13.1 based on number provided.
- Sales and service counters.
  - At least on of each type.

### Check-out Counters – Good or Bad?



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### Check-out Counters – Good or Bad?



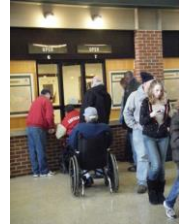
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### Sales/Service Counters & Windows

- “Windows” added into requirements
- Regulates “public portion” “where counters are provided”
- Employee side is not regulated since it is a work area
- Clarifies small (<36” length) parallel counters are OK if that is entire counter length



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### Sales/Service Counters & Windows

- Side or front approach
- Equal customer counter
- Maximum barrier height to allow for face-to-face contact between employee and customer
- Allowance for security windows

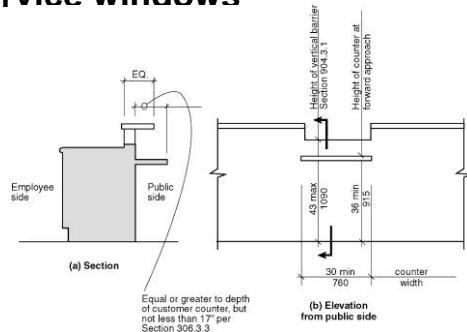


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### Service windows



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### Sales and Service Counters–



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### Built-in Counters

- Built-in counters and work surfaces
  - 5% of work surfaces.
  - 5% of dining surfaces.
- Food service lines:
  - All cafeteria style lines accessible
  - 50% of self service areas.
- Queue and waiting lines:
  - All that serve accessible elements.

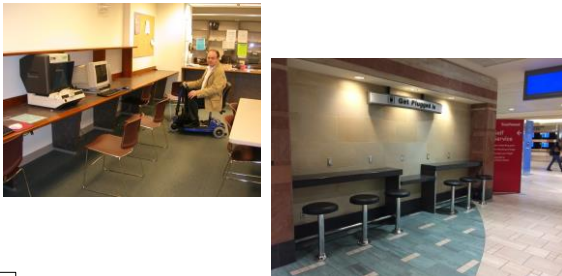


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### Built-in Work Surface – Good or Bad?



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### Food Service – Good or Bad?



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## Food Service Lines – Good or Bad?



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## Storage

- At least one of each type in accessible spaces:
  - Cabinets
  - Closets
  - Drawers
  - Mail boxes
- 5% of lockers.
- Display shelves must be on an accessible route, but not within reach ranges.

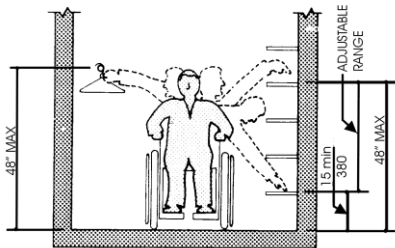


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## Storage Shelves and Closets



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## Lockers – Good or Bad?



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### Storage – Good or Bad?



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### Storage – Good or Bad?



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### Mailboxes – Good or Bad?



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Plumbing Facilities

IBC 2021

LEARNING center

355

A graphic slide with a blue background. The top half features a stylized globe with white lines representing connections. Below the globe, the text "Plumbing Facilities" is written in white. At the bottom left, there is a small IBC 2021 logo. At the bottom right, there is a logo for "LEARNING center".

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## Drinking Fountains (Scoping)

- 50% of drinking fountains provided on each floor configured for persons using wheelchairs.
- 50% of drinking fountains provided on each floor configured for standing persons.
- Exception for drinking fountains sized for children



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## Drinking Fountains (Technical)

- Clear floor space/approach
- Protruding objects
- Operable parts
- Spout location
- Water flow



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## Bottle Filling Stations

- Water bottle-filling stations, where provided, are to be accessible.
  - Stations located over drinking fountains for standing persons not required to be accessible, provided such stations are also located over the drinking fountains for persons using wheelchairs.
- Technical requirements found in A117.1 Section 602.4.
  - Clear floor space provided for either a forward or side approach
  - Controls to comply with operable parts requirements



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## Toilet rooms

- Required fixtures per IPC.
- Designers choice for how required fixtures are separated:
  - Multi-stall toilet rooms
  - Single occupant toilet rooms
- All toilet rooms must be accessible per Chapter 6 of ICC A117.1.



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### Toilet rooms

- Type A and Type B unit bathing rooms are not addressed in this class.
- All other toilet rooms will be covered here:
  - Public toilet rooms
  - Private toilet rooms
  - Accessible dwelling and sleeping units
  - Child size toilet rooms



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### Exceptions

- Accessed through a private office.
- Non-accessible dwelling or sleeping units.
- 50% of each type of clustered single occupant toilet rooms.
- When only one urinal is provided in a toilet room, that urinal is not required to be accessible.
- Critical care or Intensive care.
- Allowance to design for children



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### Toilet and bathing rooms

- One of each type of fixture provided in each toilet or bathin room:
  - Water closets
  - Lavatories
  - Urinals
  - Bathtubs/Showers
- When 6 or more water closets and/or urinals are provided in a room, an ambulatory stall is required.



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### Sinks/Lavatories

- Lavatories are for bathing purposes.
- Sinks are typically a work sink.
- 5% constructed with front approach.
- When 6 or more lavatories are provided in a room, a lavatory with an enhances reach range faucet is required.



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## Exceptions

- Non-accessible:
  - Part of individual work stations
  - Mop or service sinks
- Limited accessibility:
  - Sinks for children's use
  - Kitchenettes permitted to have side approach



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## Family Use/Assisted Use Accessible Toilet Rooms

- Mercantile or assembly facilities; and
- 6 or more required water closets;
- 1 unisex toilet room required;
- Not an exception for accessible fixtures in the men's and women's toilet rooms.



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## Family Use /Assisted Use Accessible Bathing Rooms

- Recreational facilities where bathing rooms are provided.
- One family use bathing room is required.
- Exception:
  - If only one shower is provided in men's and women's bathing room.



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## Family Use/Assisted Use Accessible Toilet/Bathing Rooms

- Family Use room counts toward required fixture count.
- Designers choice to take from men's or women's fixture count.
- Toilet room must include one water closet and one lavatory.
- Room may include one urinal.
- Room must include any amenities provided in men's and women's toilet/bathing rooms.
- Bathing rooms must include a tub or shower.



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### Purpose

- Person with mobility impairment may require assistance.
- Families with small children.
- Persons with temporary disabilities may require assistance.
- Customer friendly.

### Location

- Maximum of 500 feet and one story travel from the men's and women's rooms.
- In transportation facilities, travel shall not be through a security checkpoint.



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### Additional Requirements

- Privacy locks
- Signage

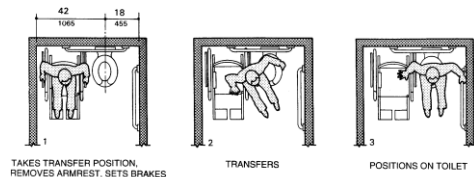


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### Clear Floor Space at Water Closet

Allows for side transfer.

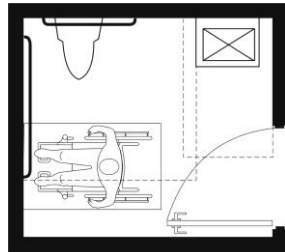


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### Single Occupant Toilet Rooms

- 60" turning space required in the room
- A door **can** swing over the space where someone sits to use the lavatory, toilet or urinal **provided** a 30" x 48" space is provided past the swing of the door
- A fixture **cannot** overlap the clear floor space of another fixture



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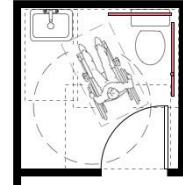
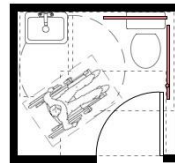
372

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### Impact – Single occupant toilet room design

• Existing

• New



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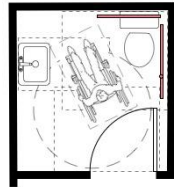
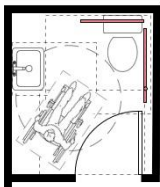
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### Impact – Single occupant toilet room design

• Existing

• New



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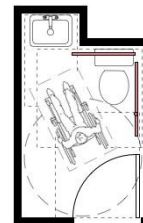
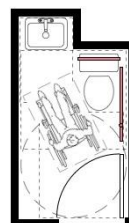
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### Impact – Single occupant toilet room design

• Existing

• New



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### Water Closet: Side View

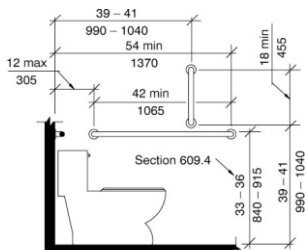


Fig. 604.5.1 Side Wall Grab Bar for Water Closet

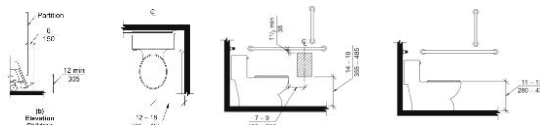


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### Children's Water Closets



Advisory Specifications for Water Closets Serving Children Ages 3 -12			
	Age 3 & 4	Age 5-8	Age 9-12
Water closet centerline	12"	12"-15"	15"-18"
Toilet seat height	11"-12"	12"-15"	15"-17"
Grab bar height	18"-20"	20"-25"	25"-27"
Dispenser height	14"	14"-17"	17"-19"



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### Multi-stall Toilet Rooms

- 60" turning space required in the room.
- A door **cannot** swing over the space where someone sits to use the lavatory or urinal.
- A fixture **cannot** overlap the clear floor space of another fixture.



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### Multi-stall Toilet Rooms

- The stall and door arrangement will not change for the minimum size stall, however, the table does address door location options for larger size stalls.

Door Opening Location	TABLE 604.9.3.1—DOOR OPENING LOCATION	
	Measured From	Dimension
Front Wall or Partition	From the side wall or partition closest to the water closet	56 inches (1420 mm) minimum
	or	
Side Wall or Partition Wall-Hung Water Closet	From the side wall or partition farthest from the water closet	4 inches (100 mm) maximum
	From the rear wall	52 inches (1320 mm) minimum
Side Wall or Partition Floor-Mounted Water Closet	or	
	From the front wall or partition	4 inches (100 mm) maximum
Side Wall or Partition Floor-Mounted Water Closet	From the rear wall	55 inches (1395 mm) minimum
	or	
	From the front wall or partition	4 inches (100 mm) maximum

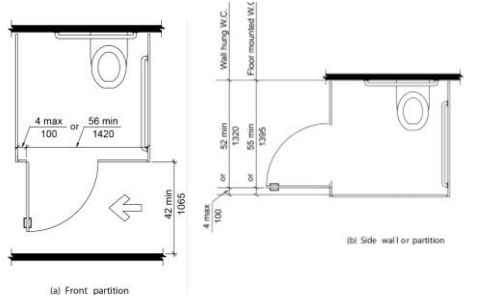


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### Wheelchair Accessible Toilet Stall: Door Swings Out

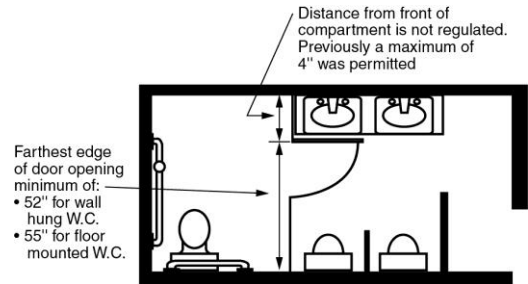


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### Multi-stall Toilet Rooms



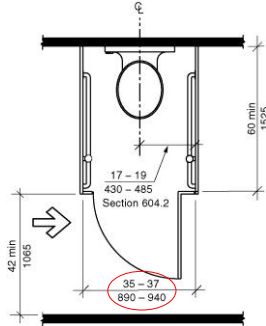
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### Ambulatory Accessible Stall

- When 6 or more water closets/urinals in one room.
- Purpose is for persons who have difficulty sitting and standing
- Toilet seat 17"-19"
- Horizontal and vertical grab bars on both sides



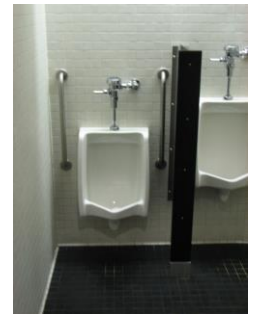
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### Urinals

- Rim height
- Clear floor space
- Alcove
- Flush controls



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### Lavatories & Sinks

- Height
- Clearance
- Clear floor space
- Pipe protection
- Controls



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### Room requirements

- Room requirements include towel dispensers or hand dryers (A117.1 603.6).
- Other elements covered by operable part requirements.



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### Bathtubs or Shower

- Minimum dimensions for showers
- Clearances/approach
- Seats
- Grab bars
- Controls
- Shower unit
- Enclosures/doors
- Thresholds



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### Bathtubs

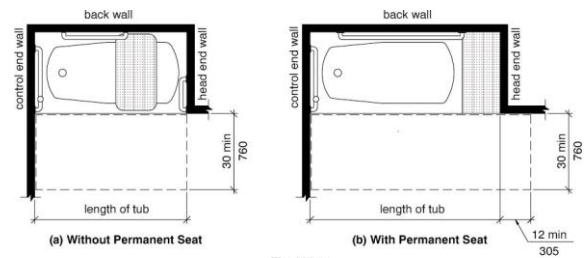


Fig. 607.2  
Clearance for Bathtubs

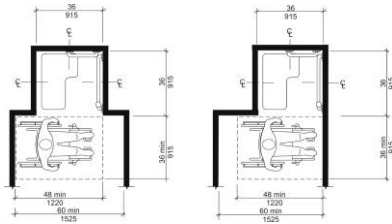


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### Transfer Shower

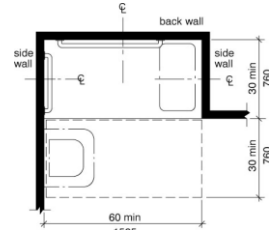


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### Roll-in Shower



Note: inside finished dimensions measured at the center points of opposing sides

Fig. 608.2.2 Standard Roll-In-Type Shower Compartment Size and Clearance



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Other features

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### Operable Parts

- All operable parts within accessible spaces and intended for occupant usage.

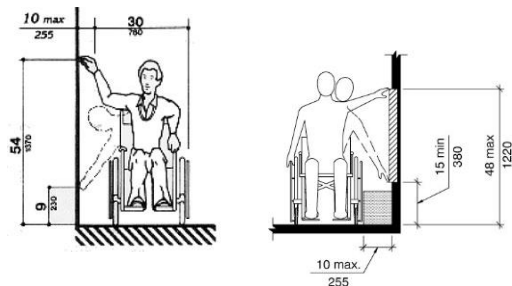


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## Control Reach Limitations



1994 ADAAG      ICC A117.1 and 2010 Standard



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## Operable Parts

- A117.1 Section 309.1 is now referenced regarding those operable parts exempted from accessibility, allowing for the deletion of like exceptions in IBC.
- Five exceptions deleted from IBC to:
  - Eliminate redundancy and confusion
  - Maintain consistency between ICC A117.1 and IBC
- Exceptions addressed include:
  - One kitchen counter top outlet where two or more provided
  - One control, for other than light switches, where redundant controls are provided
  - Electrical receptacles serving dedicated use
  - Floor electrical receptacles
  - HVAC diffusers



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## Operable Parts 309.1, 1102.9, 1103.9



- Exceptions for operable parts moved from Chapter 11 to Section 309
- Allows exceptions to be used for all public areas and not just in the dwelling units
- Eliminates exceptions in Accessible and Type A units
- Primary changes are:
  - New exception 3 and 10



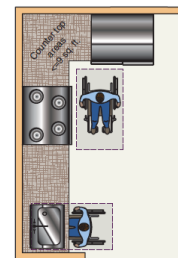
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## Operable Parts 309.1, 1102.9, 1103.9

- Exception 3 covers outlets in kitchen. Limits include:
  - Location where parallel approach cannot be provided
  - Outlets are over counter in a corner
  - Excluded area < 9 sq. ft. in area
  - Excluded area is "between appliances"
- Exception 10 is for emergency devices used by emergency personnel, during emergencies



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## Windows

- Accessible units in Groups I-1, I-2, R-1, R-2 and R-4.
- When required for ventilation or emergency escape.
- At least one in each room.
- Exception:
  - Kitchens
  - Bathrooms



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## Windows

- Separate force provisions for latch or operable parts versus window opening force
- Four forces on a required window – locking, unlocking, opening and closing
  - Locking/unlocking are operable parts
  - Opening/closing - AAMA 513



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## Windows

Operating force for opening/closing windows:

- 8.5 pounds max. for vertical or horizontal sliding
- 5 pounds max. for all other types
- Type A units only regulate height and clear floor space
- Accessible and Type A units exempt windows in kitchens and bathrooms
- Not required in Type B units



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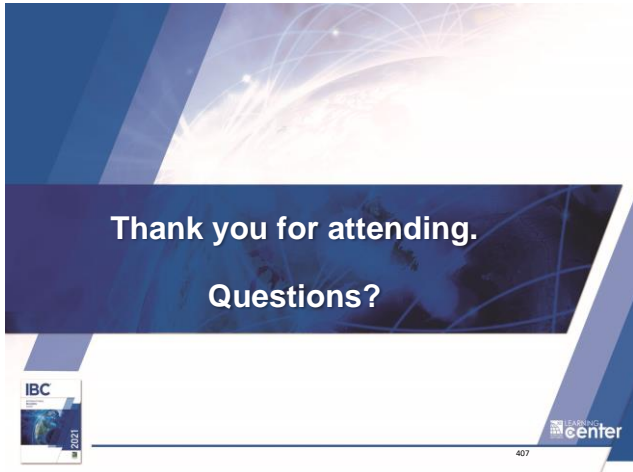
## Technical Assistance

- ICC and A117.1 – ICC, (888)422-7233; [www.iccsafe.org](http://www.iccsafe.org).
- ADA – Access Board, 800-872-2253(v), 800-993-2822(TTY), [www.access-board.gov](http://www.access-board.gov) or email at [ta@access-board.gov](mailto:ta@access-board.gov)
- ADA – ADA Technical Assistance Centers (800)949-4232; [www.adata.org](http://www.adata.org)
- Fair Housing – Fair Housing Accessibility First, (888)341-7781; [www.fairhousingfirst.org](http://www.fairhousingfirst.org).





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**Thank you for attending.**

**Questions?**

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