

2015 IBC Accessibility and Usability for Commercial Buildings

2015 IBC® Accessibility and Usability for Commercial & Residential Buildings


Based on the 2015 International Building Code® and the ICC/ANSI A117.1 - 2009 Accessible and Usable Buildings and Facilities



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Contents

- Module 1 Introduction to Accessibility
- Module 2 Exterior Accessible Route
- Module 3 Accessible Entry and Means of Egress
- Module 4 Interior Accessible Route
- Module 5 Building Features and Facilities
- Module 6 Special Occupancy Requirements
- Module 7 Dwelling and Sleeping units
- Module 8 Existing Structures



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Goal

... determine the minimum requirements for accessibility.

- 2015 International Building Code.
- 2009 ICC A117.1 Accessible and Usable Buildings and Facilities.

This seminar primarily addresses accessibility in **commercial buildings**. Residential type facilities covered in this class is limited to the facilities that are not permanent residences. There are types of facilities that may have some overlap, such as dormitories, assisted living facilities and nursing homes.



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Objectives

- Upon completion of this seminar, you will be better able to:
 - Identify accessibility requirements in context of:
 - Who they benefit.
 - Where and why they originated.
 - Distinguish between:
 - Federal laws.
 - Accessibility code requirements.
 - Determine the extent to which accessibility code provisions apply.
 - Identify scoping and technical requirements



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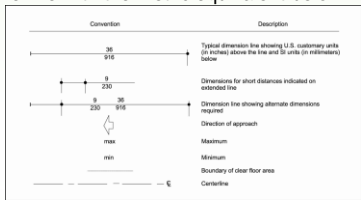
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Graphic Conventions

- Drawings presented today, and in the workbook, use the following graphic conventions for showing dimensions on figures. All dimensions are shown in inches above the measure line with the metric equivalent below.



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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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Built Environment

- Physical impairments



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What are we talking about?

disability



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Module 1

Introduction to Accessibility



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A Look at 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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2015 IBC - Philosophy 101

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



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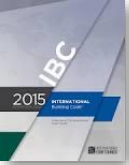
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Requirements

- Scoping Requirements:
 - “What, Where and How Many”
 - (2015 IBC®)

- Technical Requirements:
 - “How”
 - (ICC/ANSI A117.1-2009)





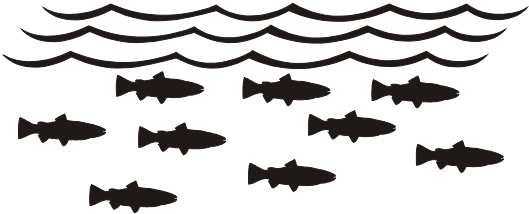
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Mainstreaming





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Coordination Efforts

Federal laws





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ICC Goals

- Coordinate the building code requirements with the


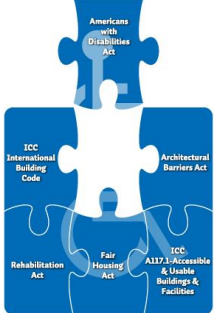


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ICC Goals





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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:
 - Originally in 1991 -
 - American's with Disabilities Act Accessibility Guidelines (ADAAG).
 - Uniform Federal Accessibility Standards (UFAS).
 - Currently –
 - 2010 ADA Standard for Accessible Design
 - Previously called the 2004 ADA/ABA Accessibility Guidelines




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2010 ADA Standard for Accessible Design

- Dept. of Justice adopted July 23, 2010.
- Published in Federal Registry on Sept. 15, 2010.
- Requirements were mandatory for new construction started after March 15, 2012.





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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.
- 2009, 2012 and 2015 IBC and 2009 ICC A117.1 are currently under review by HUD.




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Role of the Code Official





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Enforcement of Federal Requirements



Complaints



Inspection and Review



Mediation



Through the courts



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General Exceptions

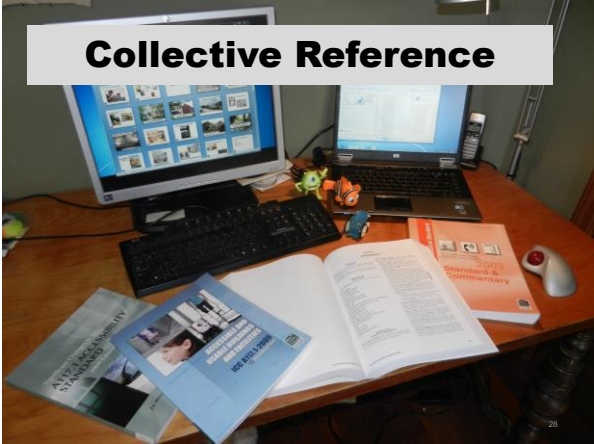


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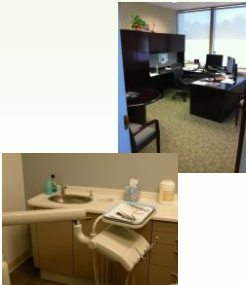
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Employee Work Area



- 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 >=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

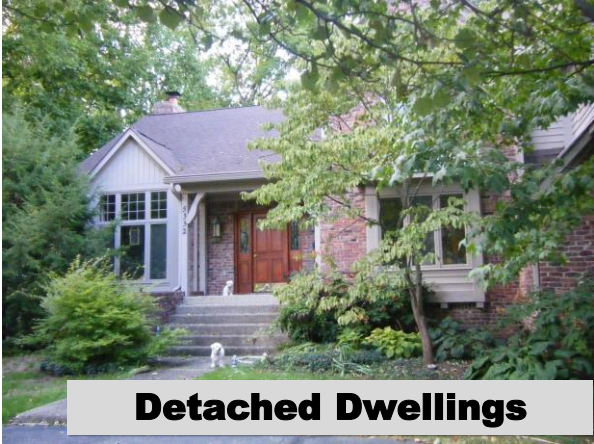


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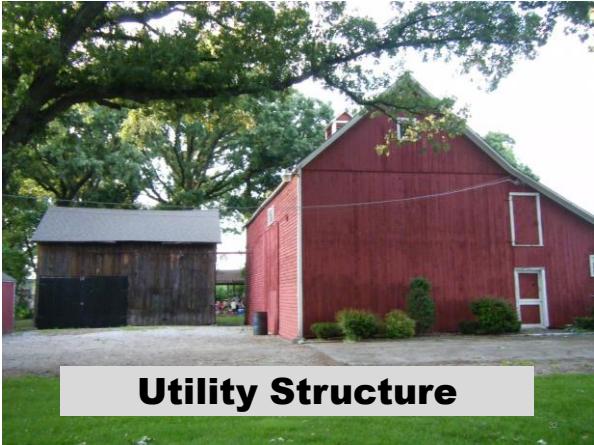
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Raised Area





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Limited Access Space



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 ≥ 7 inches



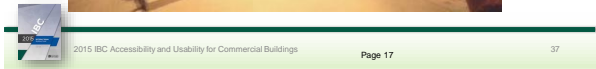


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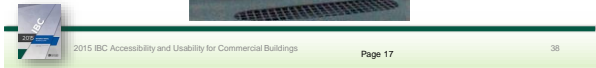
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Equipment Spaces



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Single Occupant Structure



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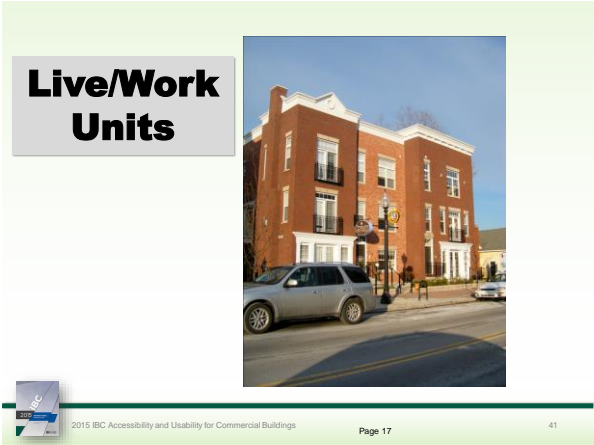
Residential R-1

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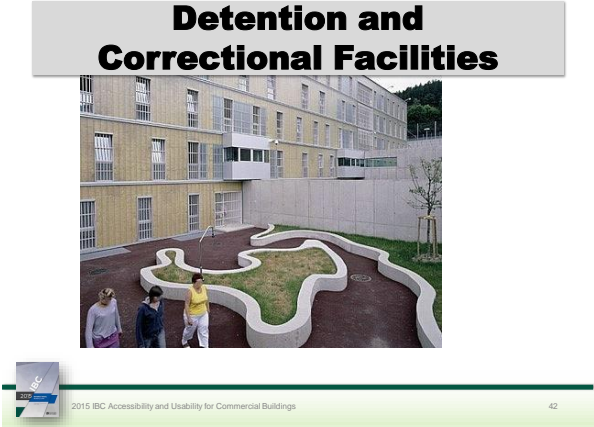
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Not Exempted Under IBC

- 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

- Aggregate area of stories or mezzanines <= 3000 square feet except in:
 - Health care providers.
 - Multi-tenant mercantile.
 - Transportation facilities.
 - Government buildings.
- Items specifically addressed in 1107 and 1108.
- Air traffic control towers.
- 2nd floors or mezzanines that are non-public areas with < = 5 occupants.
- Press boxes



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Press Boxes

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



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Platform Lifts

- 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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Existing buildings



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Which book to use?

- Chapter 34 was deleted from the 2015 IBC
- The 2015 IEBC has three options –
 - Prescriptive Compliance Method – Chapter 4
 - Work Area Method – Chapters 5 through 13
 - Performance compliance method – Chapter 14



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Existing Buildings

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






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Which book to use?

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- The 2015 IEBC has three options –
 - Prescriptive Compliance Method – Chapter 4
 - Work Area Method – Chapters 5 through 13
 - Performance compliance method – Chapter 14






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Extent of Application

When an existing facility is being altered, it is not required to provide a higher level of accessibility than that which would be required for a new building.



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Alterations to Existing Buildings – Part 1

When altering an existing building, everything that is altered must meet new construction requirements for accessibility.



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General Exceptions

- Accessible means of egress.
- 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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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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Primary Function Area



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Primary Function Area






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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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Basis for Technical Requirements

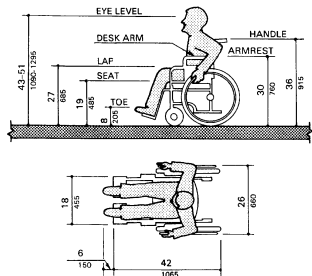


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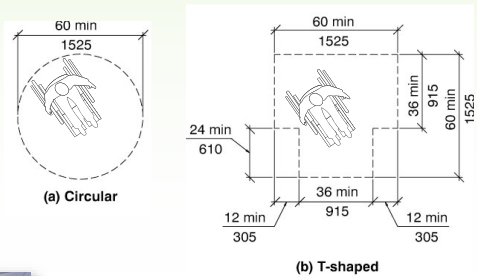
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Dimensions of Adult-Sized Wheelchair



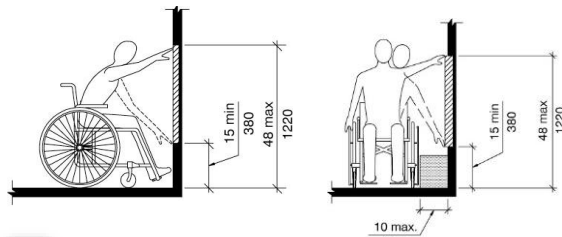
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Wheelchair Turning Space



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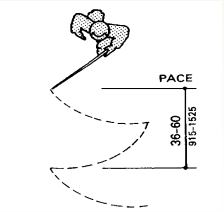
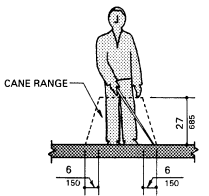
Unobstructed Reach Limit




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Cane Ranges and Techniques





For SI: 1 inch = 25.4 mm.


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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

- Many revisions based on a study sponsored by the Access Board on Anthropometry of Wheeled Mobility
- <http://www.udeworld.com/anthropometrics.html>





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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




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Module 2

Exterior Accessible Route




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Exterior Accessible Route

- Exterior Accessible Routes
 - Locations and Elements
 - Curb Ramps
 - Ramps
- Accessible Parking Spaces
- Passenger Loading Zones
- Signage.



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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.



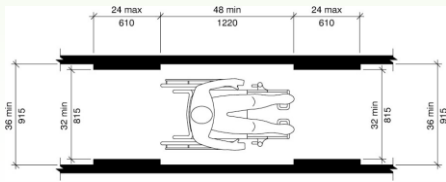
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Minimum Clear Width for a Single Wheelchair

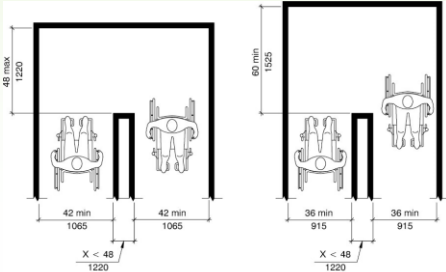


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Accessible Route Width for Turns

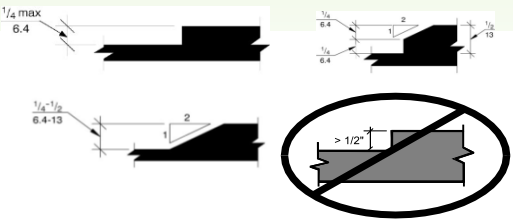


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Changes in Elevation



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Hazards

- Grates
- Platform edges
- Raised and marked crossings








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Protruding Objects





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Protruding Objects





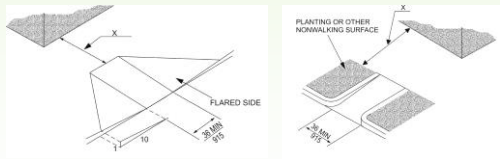
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Cut-in Curb Ramps



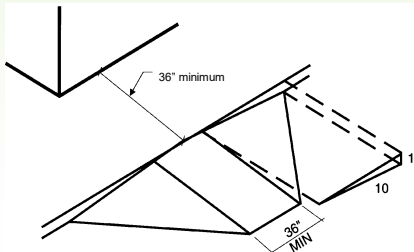
X = 36" minimum in new construction

On existing sites, if landing is <36" then slope of flared sides shall not exceed 1:12.



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Built-Up Curb Ramps



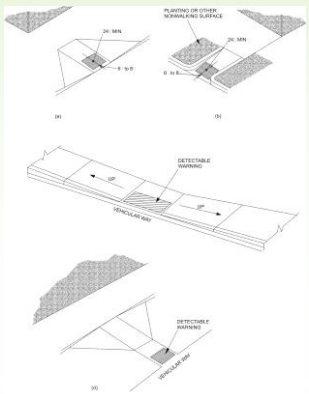
On existing sites, if landing is <36" then slope of flared sides shall not exceed 1:12.



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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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Painting at Curb Ramps

- Surfaces are required to be slip resistant, so don't paint the curb ramp or flared sides
- If the curb is painted, then just the curbs on the flared sides are painted





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Curb Ramp Location

- A 36" minimum landing must be available at the top of the curb ramp
- A depressed sidewalk with curb ramps at each end is permitted
- 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 where there is an adequate landing.





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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






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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





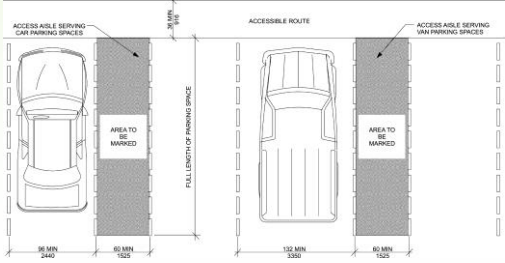
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Dimensions of Parking Spaces in Parking Lot





For 1:1 inch = 25.4 mm.

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Alternative Space

The diagram illustrates an accessible route through a parking space. It shows a car and a wheelchair. Dimensions include: 96 min (2440) for the car width, 60 min (1525) for the wheelchair width, and 96 min (2440) for the remaining space. The total width is 252 min (6400). The height is 36 (915). The text 'For 1 inch = 25.4 mm' is at the bottom left.

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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

The diagram shows a car in a passenger loading zone. Dimensions include: 20 feet min (6100) for the length of the zone and 60 inches min (1525) for the width. The text 'area to be marked' is in the center.

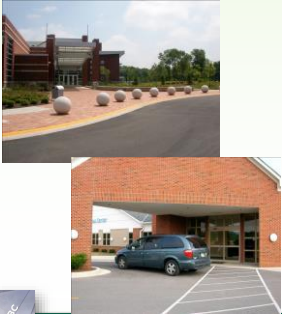
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Allowances



- Passenger loading zones do not have to have a confined length. The intent is to allow for a location where people can transfer in safety.
- Vertical clearance is 114” minimum



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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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Good or Bad?





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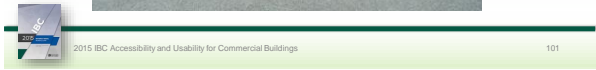
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Good or Bad?



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Good or Bad?



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Good or Bad?



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ACTIVITY

Module 2 Problem

- Evaluate the accessible parking and the exterior accessible route on this site.
- Might there be different considerations if this is an existing site?



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ACTIVITY

Module 2 Answer

Requirements met:


- The number of accessible spaces required is correct (IBC Section 1106.1).
- Access aisles may be shared between accessible spaces (ICC A117.1 Section 502.4).
- An accessible route is required from the accessible parking to the accessible entrance (IBC Section 1104.1).



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ACTIVITY



Module 2 Answer

Requirements not met:

- There should be a van accessible space (IBC Section 1106.5).
- The accessible spaces should be those located closest to the accessible entrance (IBC Section 1106.6).




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ACTIVITY



Module 2 Answer

These requirements are not indicated on the plan, but must also be considered:

- Parking and aisle width requirements per ICC A117.1 Sections 502.2 and 502.4.2.
- Parking and aisle sloping requirements according to ICC A117.1 Section 502.5.
- Signage is required according to IBC Section 1111.1 and ICC A117.1 Section 502.7.




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ACTIVITY



Module 2 Answer

These requirements are not indicated on the plan, but must also be considered:

- Width of accessible route is 36 inches minimum (ICC A117.1 Section 403.5).
- Accessible route requirements listed in ICC A117.1 Sections 402 and 403.
- Curb ramp requirements covered in ICC A117.1 Section 406.



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Module 2 Answer

Discussion

- On an existing site there might be revisions to the accessible parking and route based on alterations to a primary function space within the building (IBC Section 3411.7). Limitations would be based on technical infeasibility and 20 percent of the cost of the alteration.



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Module 3

Accessible Entry vs. Accessible Exits



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Accessible Entry vs. Exits

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



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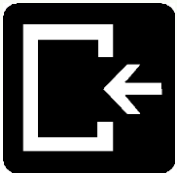
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Entrance/Exit Requirements—Introduction

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






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Accessible Entry vs. Accessible Exit


TERM	DEFINITION	EXAMPLE	REQUIRED #
Accessible Entry	Consists of: <ul style="list-style-type: none">Exterior accessible route.Accessible entrances.Interior accessible route.	Elevator	60% of the entrances
Accessible Exit	Consists of: <ul style="list-style-type: none">Exit access via interior accessible route.Area of refuge/Exit.Exit discharge.	Exit Stairway	1 with 1 MOE 2 with 2+ MOE



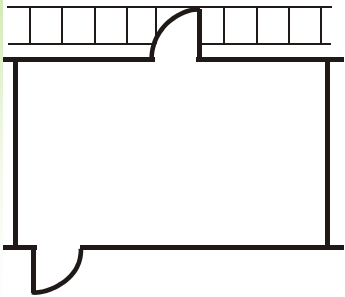
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ACTIVITY



Problem #1

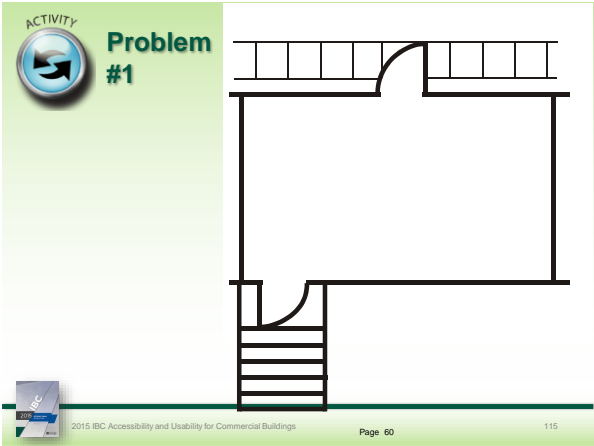




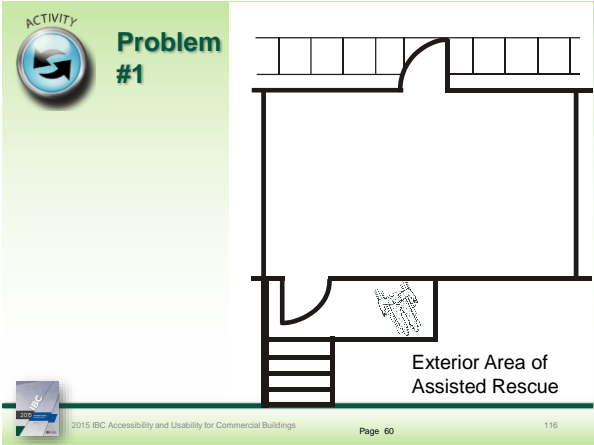
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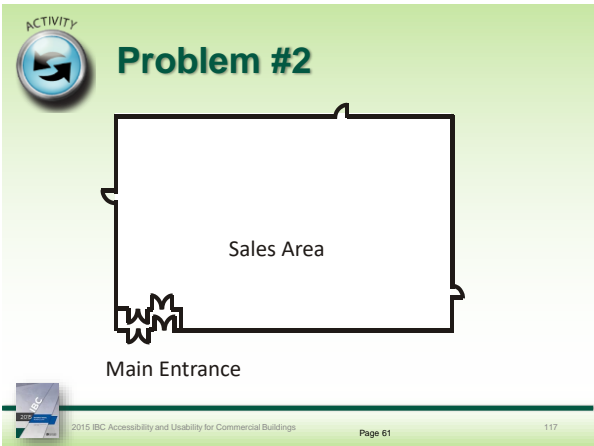
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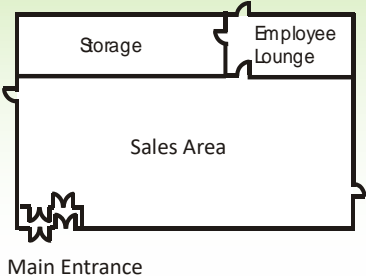
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Problem #2



Main Entrance




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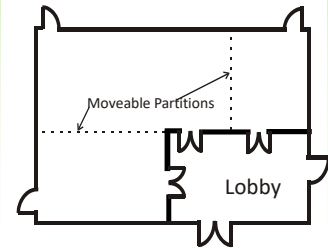
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Problem #3



Moveable Partitions

Lobby




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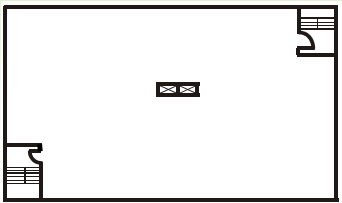
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ACTIVITY



Problem #4






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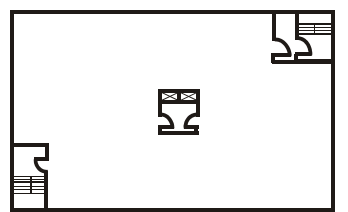
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Problem #4





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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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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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Planning

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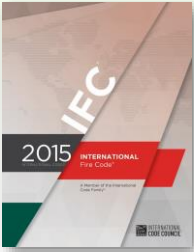
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Pre-Planning for Emergencies

- 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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Pre-Planning for Emergencies

Required in:

- Assembly
- Churches over 2,000 occupants
- Educational
- College dormitories
- High Hazard
- Institutional
- Hotels
- Group homes



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Pre-Planning for Emergencies

Required in:

- High-rise buildings
- Covered malls > 50,000 sq.ft.
- Mercantile & Factory (> 500 occupants on the 1st floor and basements or 2nd floor > 100 occupants)
- Underground buildings
- Assembly, Educational and Mercantile with atriums



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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 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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Lock-down plans

- Occupant notification
- Emergency responders notification
- Accountability
- Recall
- Communication
- Coordination
- Training



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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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Notification & Communication



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Signage

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



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Signage

- Visual exit signs at stairway entrances
- Tactile exit signs at stairway entrances





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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 (2009, 2012 and 2015 IBC)
- Variety of options
- Allow for communication and feedback between emergency responders and people who need assistance





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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 907.9.1.3.
- Future expansion for:
 - Individual employee work areas.
 - Smoke alarms in Group R-2 (apartments) units.







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Accessible Means of Egress (MOE)





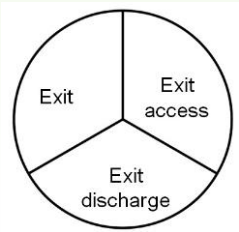
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Elements of Accessible MOE

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.





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Accessible Exit Access

Ramps





Horizontal surfaces



Platform lifts with standby power



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Accessible Exit



Exit Door



Exit Stairs



Horizontal Exit



Elevator with standby power



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Accessible Exit Discharge

Allow for self evacuation when possible



Drawing courtesy of Access Board




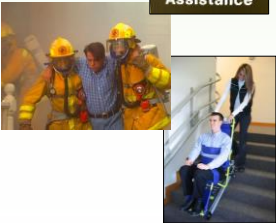
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Accessible MOE

- 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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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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AMOE: Minimum Number

- Minimum number of AMOE required:
 - 1 - where 1 MOE required
 - 2 - if more than 1 MOE required
- Exceptions:
 - Existing facilities
 - Areas not required to be accessible




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Special Consideration

- Mezzanines.
- Wheelchair spaces in Assembly seating with sloped or stepped floors.
- Areas accessed only by platform lifts.



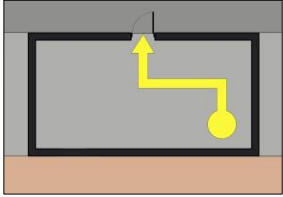
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Example: 1 MOE/AMOE

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



Drawing courtesy of Access Board



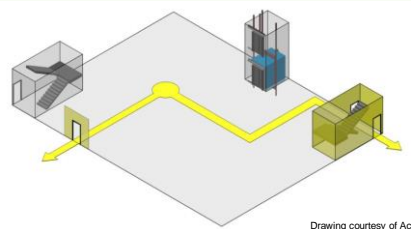
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MOE: Minimum Number

- IBC requires 2 or more MOE in most facilities with few exceptions



Drawing courtesy of Access Board



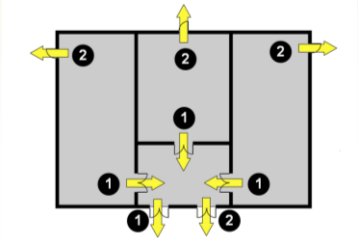
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MOE: Minimum Number

MOE required from each space and room



Drawing courtesy of Access Board



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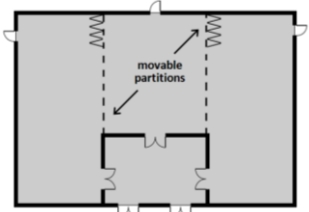
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MOE: Minimum Number

Required MOE must be maintained under all conditions, including temporary divisions of space



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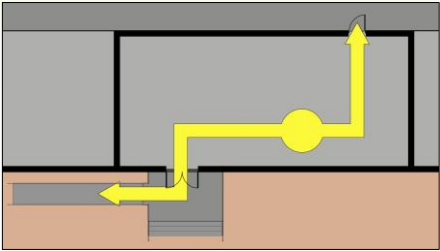
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MOE: Minimum Number

At least 2 MOE required



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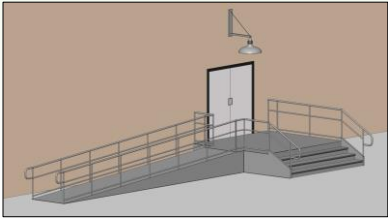
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Exit Discharge

Accessible route to a public way



Drawing courtesy of Access Board



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Accessible Exit Discharge

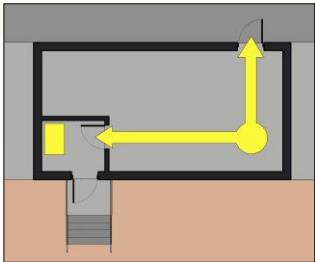
- If exit discharge is not accessible:
 - Steps
 - Steep site
 - Snow
- Interior area of refuge, or
- Exterior area of rescue assistance.
- No exceptions for sprinklered buildings.



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Exit Discharge

Interior Area of Refuge



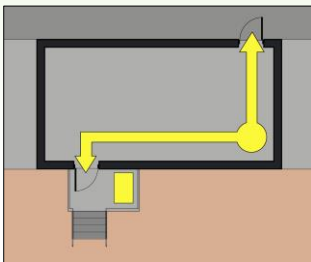
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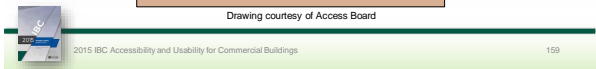
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Exit Discharge

Exterior Area for Assisted Rescue

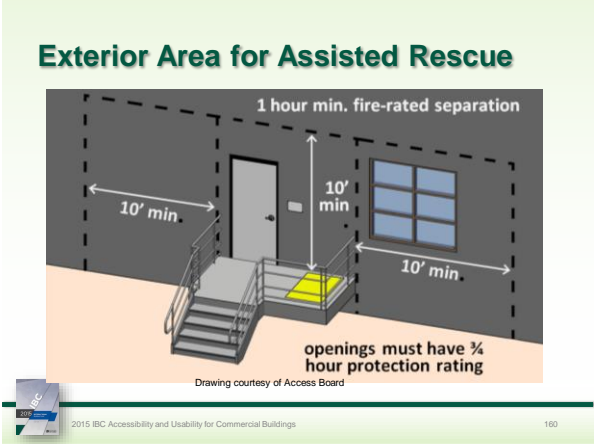


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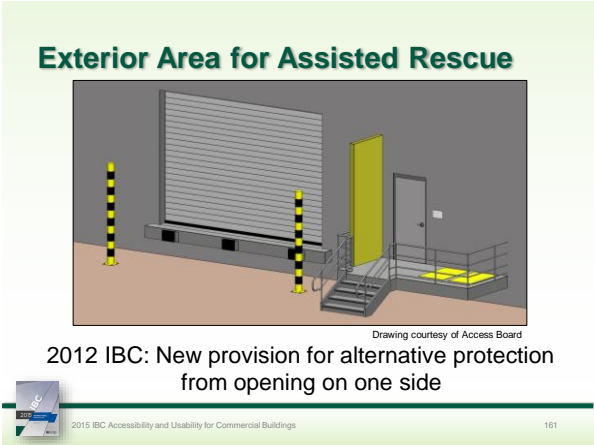


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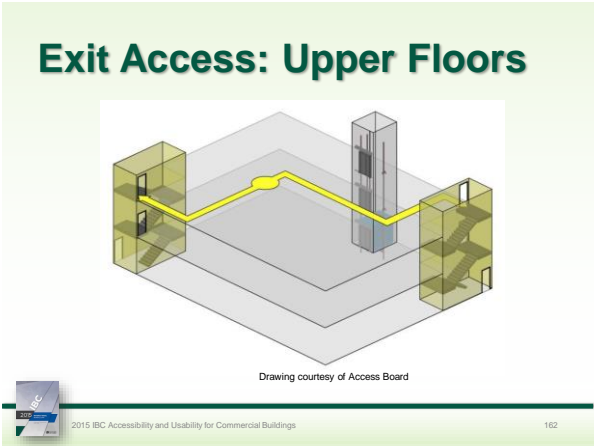
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Exit Access: Upper Floors

Areas of refuge required in non-sprinklered buildings



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Exit Access: Upper Floors

Area of Refuge not required in sprinklered buildings

Drawing courtesy of Access Board

AMOE on floors above or below level of exit discharge connect to exit stairs



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Stairways

- Exit stairway or exit access stairways between stories or mezzanines.
- 48" clear width.
- Accessed from area of refuge.

Fireman's carry



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Exceptions to IBC 1009.3 – Area of Refuge

- Stairway is accessed from a horizontal exit.
- Buildings with an NFPA13 or NFPA 13R sprinkler system.
- Open parking garages.
- Smoke protected seating.
- Group R-2.



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Exceptions to IBC 1009.3 – 48” clear width

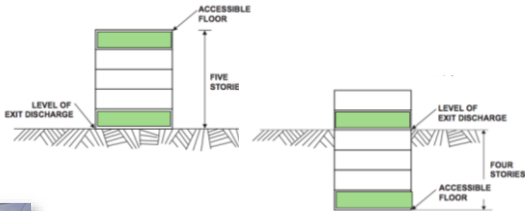
- Buildings with a NFPA13 or NFPA 13R sprinkler system.
- Stairway is accessed from a horizontal exit.



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Elevator with Standby Power

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

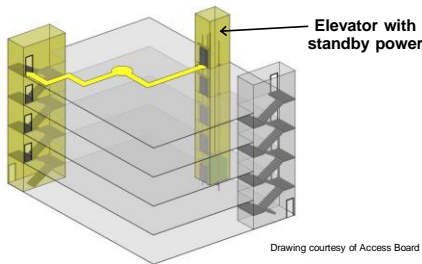


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Elevator with Standby Power

- Required in buildings 5 stories or higher



Drawing courtesy of Access Board



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Elevator

- In building 5 stories or taller
- Accessed from area of refuge.
- Standby power



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Exceptions to IBC 1009.4 – Area of refuge

- Elevator is accessed from a horizontal exit.
- Open parking garages.
- Building sprinklered with an NFPA13 or NFPA13R system.
- The elevator is not in a shaft.
- Smoke protected seating.



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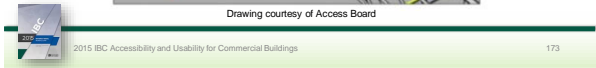
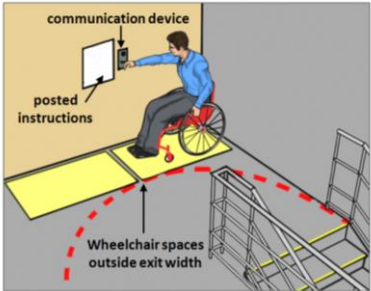
Exceptions to IBC 1009.4 – Standby power

- Buildings with horizontal exits (i.e., defend in place scenarios like a hospital)
- Ramps are proved from all floor levels (i.e., sports facilities or parking garage)



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Areas of Refuge



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Area of Refuge

- Accessed by an accessible route.
- Separated by a smoke barrier.
- Direct access to an exit stairway, elevator with standby power or, on grade level, an exit.

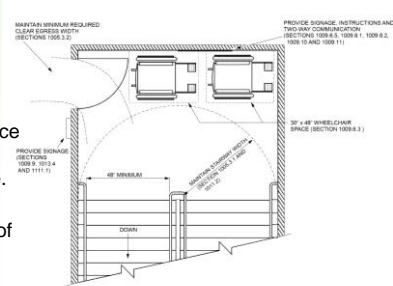


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Areas of Refuge

- 30" x 48" space.
- One space for every 200 occupants.
- Access to a space may be through one other space.
- Do not block general means of egress path.



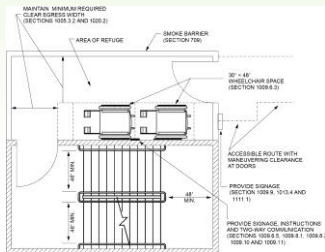
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Area of Refuge

- Two way emergency communication system
- Identification
- Instructional signage



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Good or Bad?



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Good or Bad?






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Good or Bad?






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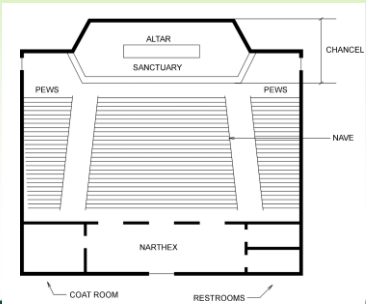
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ACTIVITY

Module 3 Problem

- How many exterior doors are required?
- Which doors will most likely serve as the entrances, and how many are required to be accessible?
- Assuming the occupant load is 750, how many doors will serve as exit doors, and how many are required to be accessible?





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ACTIVITY




Module 3 Answer

How many exterior doors are provided?

- Three

Which doors will most likely serve as the entrances, and how many are required to be accessible?


- One main entrance is indicated. If that entrance is accessible, that will exceed the
- 60-percent accessible entrance requirements (IBC Section 1105.1).



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ACTIVITY



Module 3 Answer

Assuming the occupant load is 750, how many doors must serve as exit doors, and how many are required to be accessible?

- Three exits are required from the space, and at least two must be accessible (IBC Section 1009.1). Designer's choice as to which two, but they must be distinct.



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Module 4

Interior Accessible Route Elements



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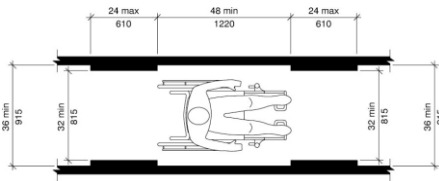
Interior Accessible Route

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



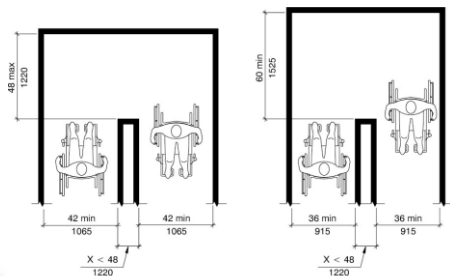
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Minimum Clear Width for Single Wheelchair



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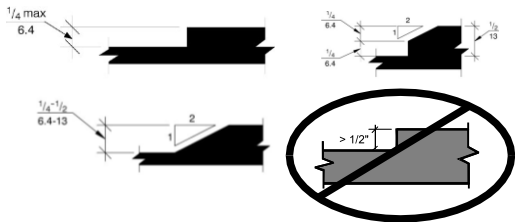
Accessible Route Width for Turns



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Changes in Elevation



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Change in elevation

- Changes at thresholds
- Changes of materials



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Protruding Objects Along A Walking Surface



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Protruding object





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Protruding object

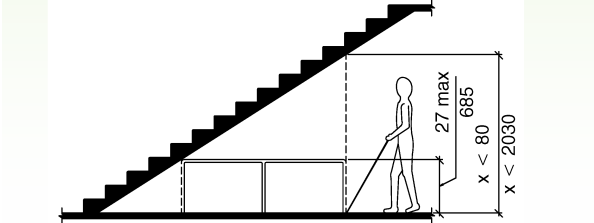





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Overhead Protruding Objects





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Overhead protruding object





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Overhead protruding object






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Doors



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Doors

Door Size
1010.1.1

Door Swing
1010.1.2

Doors in a Series
1010.1.8



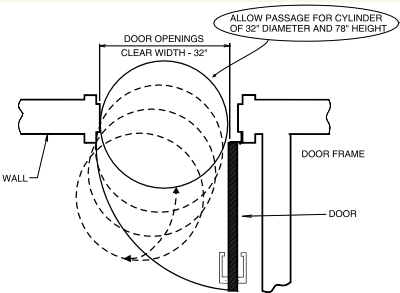



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Door Opening Clearances






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Projections into clear with



- Projections of 4 inches maximum into the clear door width 34" above the floor allows for panic hardware.
- Door closers and door stops can reduce vertical clearance to 78".



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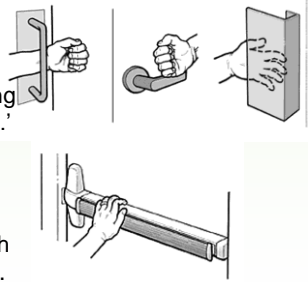
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Hardware

- 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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Door Surface

- The bottom 10" must be clear of obstructions







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Vision lights

- Vision lights, where provided, must have a bottom edge below 43"
- Vision lights above 66" are exempted





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Maneuvering Clearances

Diagram showing the required maneuvering clearance for a door on the pull side. A person in a wheelchair is shown approaching the door. The clearance area is defined by a 60 min (1525 mm) high arc and an 18 min (445 mm) wide arc. The door is 48 min (1220 mm) high.

Diagram showing the required maneuvering clearance for a door on the push side. A person in a wheelchair is shown approaching the door. The clearance area is defined by a 12 min* (305 mm) high arc and a 48 min (1220 mm) wide arc. The door is 48 min (1220 mm) high.

Front Approach, Pull Side

Front Approach, Push Side

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Maneuvering Clearances

Four photographs showing a person in a wheelchair maneuvering through a doorway. The first photo shows the person approaching the door. The second photo shows the person entering the doorway. The third photo shows the person exiting the doorway. The fourth photo shows the person standing in the doorway.

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Maneuvering Clearance at Recessed Doors

Diagram (a) Pull Side: Shows the required maneuvering clearance for a door on the pull side. The clearance area is defined by a 60 min (1525 mm) high arc and an 18 min (445 mm) wide arc. The door is 48 min (1220 mm) high. The distance from the door to the wall is X > 8 (205 mm).

Diagram (b) Push Side: Shows the required maneuvering clearance for a door on the push side. The clearance area is defined by a 12 min* (305 mm) high arc and a 48 min (1220 mm) wide arc. The door is 48 min (1220 mm) high. The distance from the door to the wall is X > 8 (205 mm).

Diagram (c) Push Side, Door Provided with Both Closer and Latch: Shows the required maneuvering clearance for a door on the push side, provided with both a closer and a latch. The clearance area is defined by a 12 min* (305 mm) high arc and a 48 min (1220 mm) wide arc. The door is 48 min (1220 mm) high. The distance from the door to the wall is X > 8 (205 mm).

(a) Pull Side

(b) Push Side

(c) Push Side, Door Provided with Both Closer and Latch

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Maneuvering Clearance

- Required at power assist doors
- Not required a low-power automatic doors and fully automatic doors



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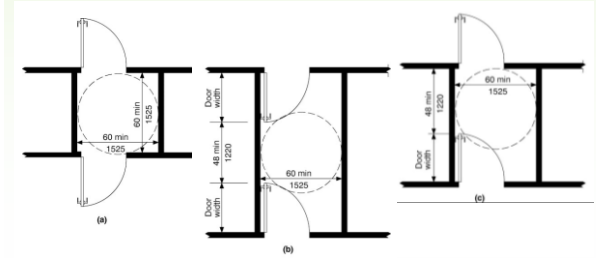
Maneuvering Clearance

- A117.1 Section 404.2.3 – Required door maneuvering clearances shall not include knee and toe clearances.
- The intent is to disallow for sinks or counters to overlap the maneuvering clearance, but allow for items such as handrail extensions or hand dryers.



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Vestibules





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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 2nd 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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Elevators and Platform lifts





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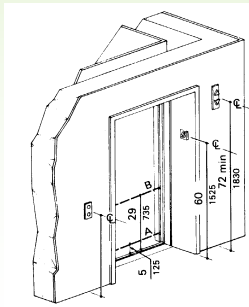
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Elevators

- 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.



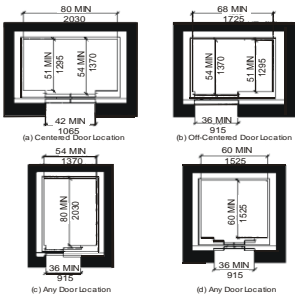
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Elevator Car Size

- 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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LULA Car Size

(a) New Construction

(b) Existing Building Exception

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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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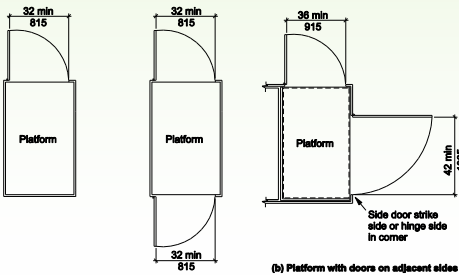
Platform Lifts

- 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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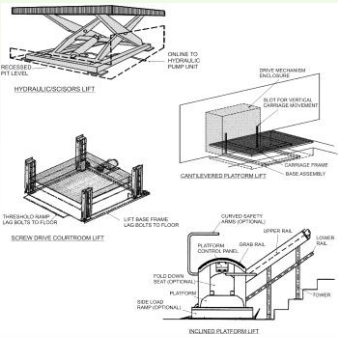
Platform Lifts



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Types

- Scissors lift
- Cantilever
- Screw drive
- Inclined



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When must doors be automatic?

TRAVEL WOULD ALWAYS BE PULL-IN/PULL-OUT THEREFORE THE EXCEPTION IS APPLICABLE

TRAVEL BETWEEN LEVELS (1) AND (2) WOULD RESULT IN A BULLY-BLOCK-OUT THEREFORE THE EXCEPTION IS NOT APPLICABLE

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Controls

- Key access no longer required by the standard.

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Good or Bad?

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Good or Bad?






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Stairways and Ramps




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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.

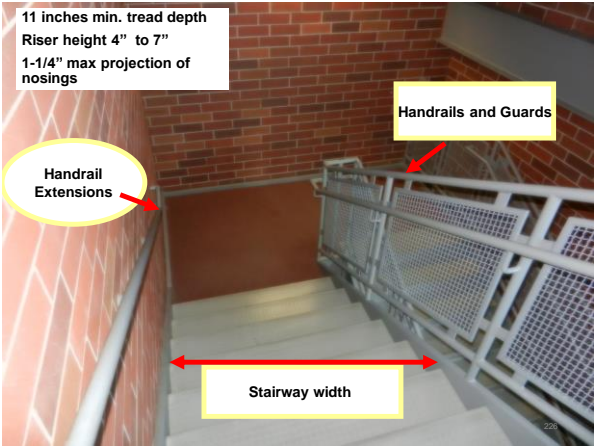


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Handrail Extension

- 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

A diagram showing two views of a staircase. The top view shows a handrail extending horizontally at the top of the stairs, with a dimension line indicating "12 min" and "305". The bottom view shows a handrail extending horizontally at the bottom of the stairs, with a dimension line indicating "x = tread depth".

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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.

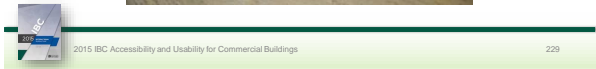
A close-up photograph of a metal grate stair tread, showing the openings between the bars.

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Good or Bad?

- Handrail extensions?



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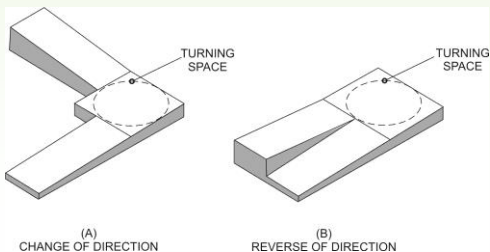
Ramp Technical Criteria

- >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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Ramp Landings



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Ramp Landings

Ramp landing adjacent to lockable doors

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Edge Protection, Handrails & Guards

>30" drop off

No drop off

Curb or rail edge protection with <= 30" drop off

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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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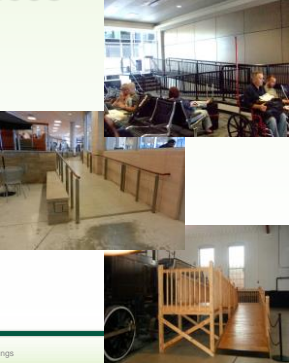
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Ramp Allowances

- 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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Good or Bad?



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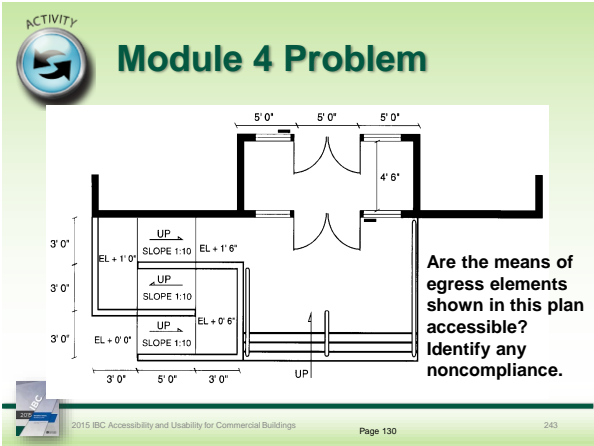
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ACTIVITY



Module 4 Answer

- **Ramps:** The width between handrails is too narrow. While each rise is only 6 inches, the entire ramp has a rise of 18 inches, so they cannot use the handrail exception. (152 mm); the ramp slope is too steep; landings are not of an adequate size (IBC Section 1012, ICC A117.1 Section 405).
- **Doors:** The door leaf does not provide 32-inch (813 mm) clear width. The doors have to be automatic or there is a problem with the space between the doors (IBC Sections 1010.1.1 and 1010.1.8, ICC A117.1 Sections 404.2.5 and 404.3.1).
- **Stairs:** Handrails do NOT have adequate handrail extension at the bottom (IBC Section 1014.6).
- **Controls:** The clear floor space to access the controls must be outside of the swing of the door (ICC A117.1 Section 404.3.5).



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Module 5

Building Features and Facilities



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Building Features and Facilities

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



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Bathrooms

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




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Bathrooms

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




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Exceptions

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




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Bathrooms

- One of each type of fixture provided in each bathroom:
 - 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 enhanced 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 Toilet Rooms

- Family Use toilet room counts toward required fixture count.
- Designers choice to take from men's or women's fixture count.
- 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 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 Bathing Rooms

- Room must include one water closet, one lavatory and one bathing fixture.
- Bathing fixture may be bathtub, transfer shower, roll-in shower or combination transfer/roll-in shower.
- Room must include any amenities provided in men's and women's bathing rooms.



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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.



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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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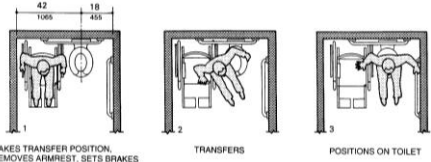
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Clear Floor Space at Water Closet

Allows for side transfer.





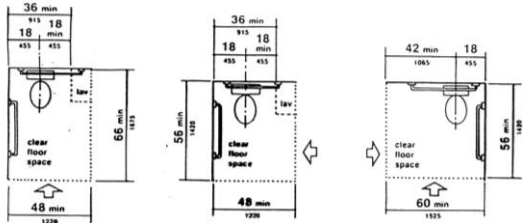
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1991 ADAAG – Fig. 28





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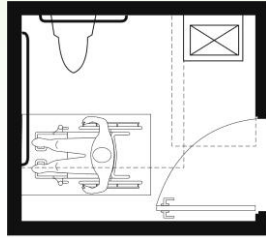
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Single Occupant Toilet Rooms

- 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



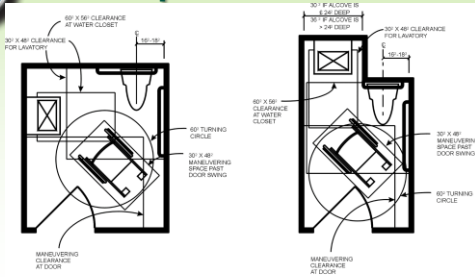
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Examples



NOTES

1. MANEUVERING SPACES CAN OVERLAP.
2. A PLUMBING FIXTURE CANNOT BE IN THE MANEUVERING SPACE OF ANOTHER FIXTURE.



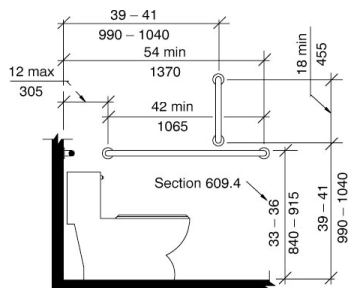
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Water Closet: Side View



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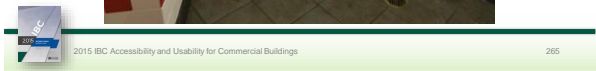
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Good or Bad?



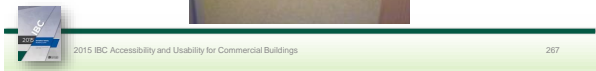
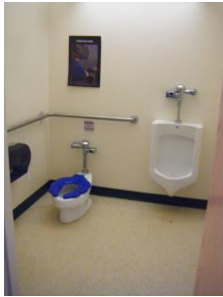
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Good or Bad?



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Good or Bad?

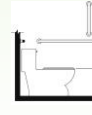
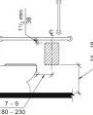

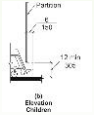


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Children's Water Closets

- See the Adult/Child comparison chart in the workbook.



	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.
- Stall size limits in Table 604.9.3.1.
 - The configurations do not change for minimum size stalls, however the table allows for new options for larger stalls.



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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	Measured From	Dimension
Front Wall or Partition	From the side wall or partition closest to the water closet	56 inches (1420 mm) minimum
	or	
	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 Wall-Hung 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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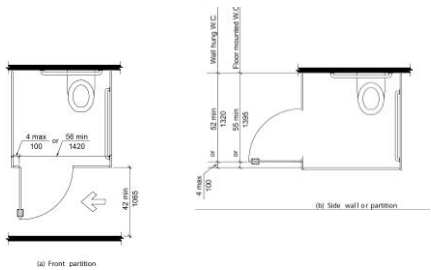
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Wheelchair Accessible Toilet Stall: Door Swings Out

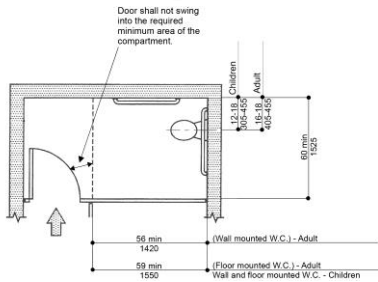


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Wheelchair Accessible Toilet Stall: Door Swings In



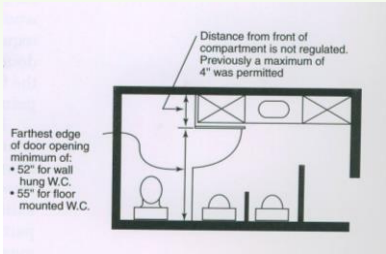
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Multi-stall Toilet Rooms



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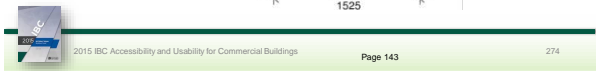
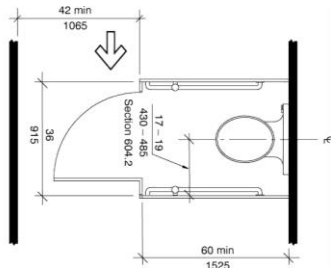
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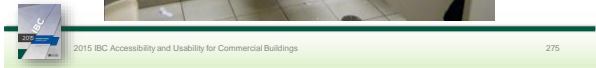
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Ambulatory Accessible Stall



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Good or Bad?



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Good or Bad?



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Good or Bad?



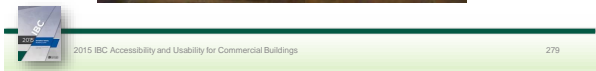
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Good or Bad?



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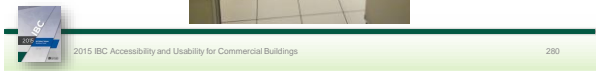
Good or Bad?



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Good or Bad?



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Urinals

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



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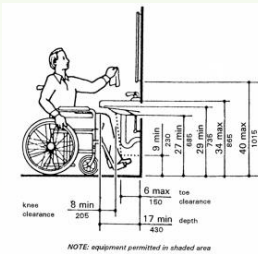
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Lavatories & Sinks

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



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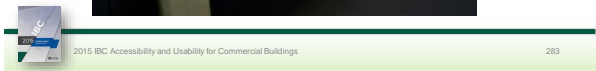
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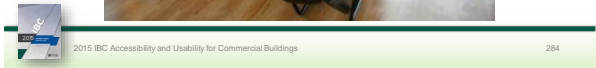
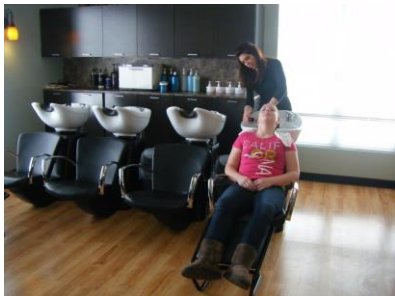
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Good or Bad?



283

Good or Bad?



284

Good or Bad?



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Good or Bad?



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Good or Bad?

- Lavatories with enhanced reach range includes water and soap controls (A117.1 606.5).
- Room requirements include towel dispensers or hand dryers (A117.1 606.7).
- 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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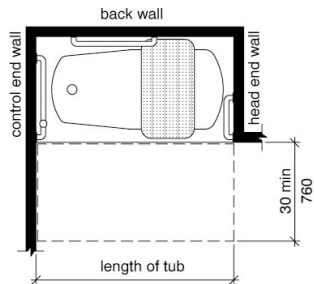
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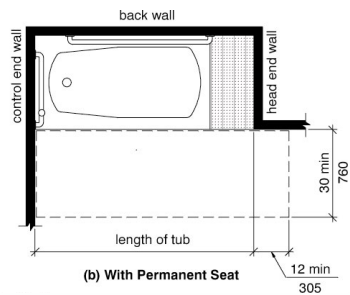
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Bathtub Without Permanent Seat



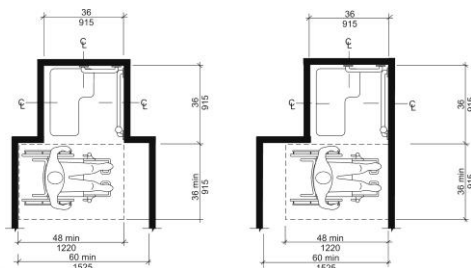
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Bathtub With Permanent Seat



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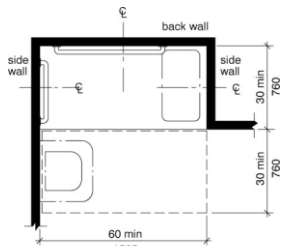
Transfer Shower



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Roll-in Shower



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



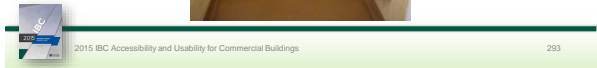
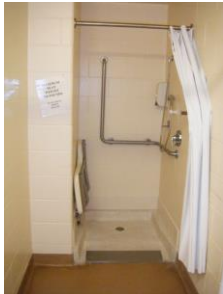
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Good or Bad?



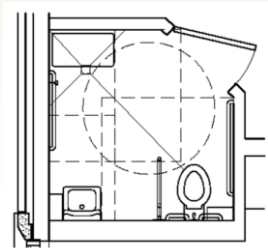
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Good or Bad?

- Hospital patient bathroom with toilet, lavatory and roll-in shower.



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Good or Bad?

- Accessible hotel room



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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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Good or Bad?

- One water supply, but bowls will serve two persons.
- The dog fountain exceeds code.

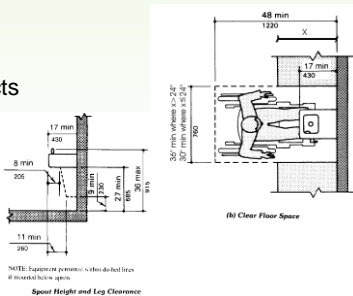


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Drinking Fountains (Technical)

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



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Good or Bad?



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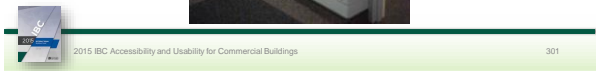
Good or Bad?



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Good
or Bad?

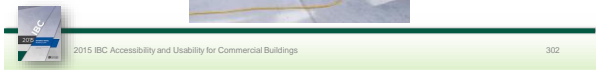


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301

Good
or Bad?



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Dressing Rooms (Scoping)

- 5% minimum.
- At least one of each group.



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Dressing Rooms (Technical)

- Turning circle.
- Bench.
- Same amenities as in other dressing rooms.



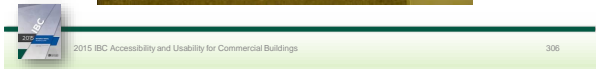
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Good or Bad?



305

Good or Bad?



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Locker Rooms

- All locker rooms accessible.
- 5% of lockers.
- Provide accessible bench.



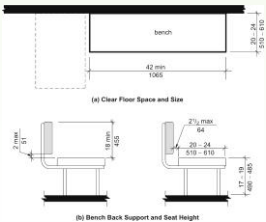
307

Good or Bad?



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Benches



- Against a wall or with a back for support
- Sized to allow for transfer and for a person to raise their legs onto the bench to aid in dressing and undressing
- Should be bolted down or very stable to minimize the chance of tipping

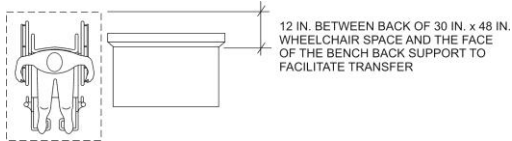


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Transfer to a Bench

- Recommended to ease transfer





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Built-in Counters

- Check out aisles.
 - Table 1109.12.2 based on number provided.
- Sales and service counters.
 - At least on of each type.



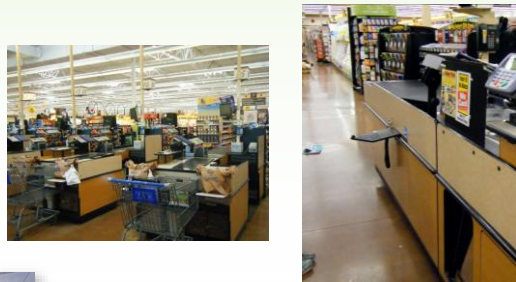
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Check-out Counters – Good or Bad?





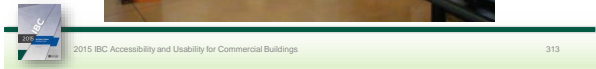
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Check-out Counters – Good or Bad?



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Service Window – Good or Bad?



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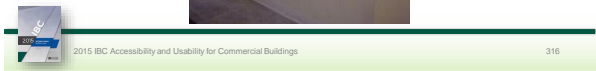
Service Window – Good or Bad?



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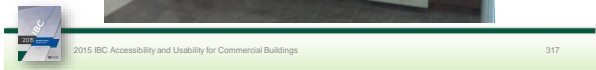
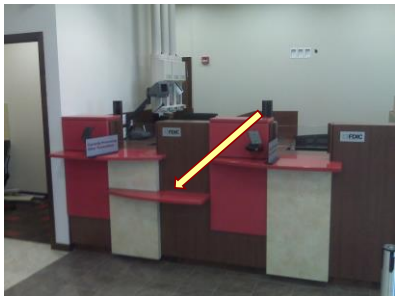
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Service Window – Good or Bad?



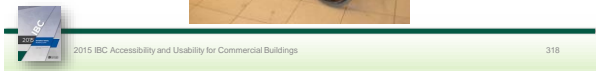
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Service Window – Good or Bad?



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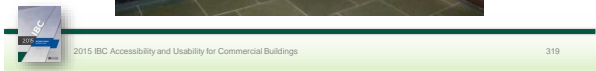
Service Window – Good or Bad?



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Service Window – Good or Bad?



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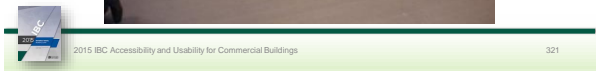
Built-in Counters

- Built-in counters and work surfaces
 - 5% or 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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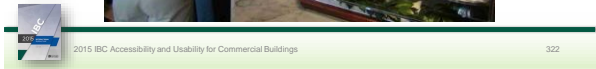
Built-in Work Surface – Good or Bad?



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Food Service Line or Service Window – 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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Queue & Waiting Line - Options

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Queue 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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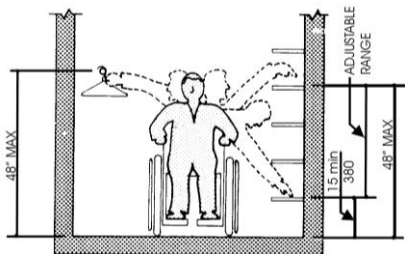
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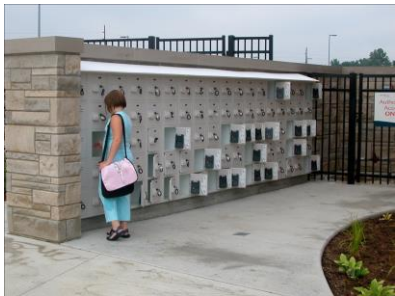
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Storage Shelves and Closets



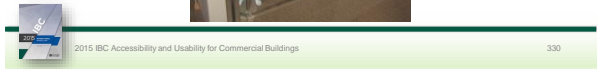
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Lockers – Good or Bad?



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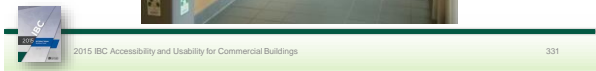
Storage – Good or Bad?



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Mailboxes – Good or Bad?



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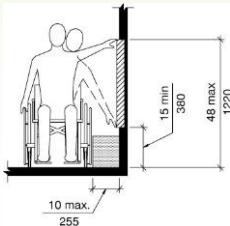
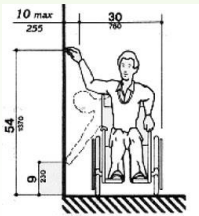
Operable Parts

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



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Control Reach Limitations



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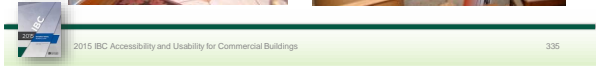
Windows

- 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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Good or Bad?

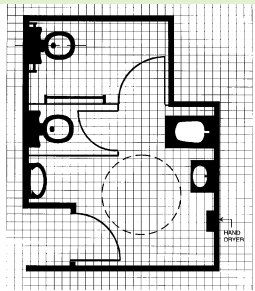


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Module 5 Problem


- Assuming elevations of fixtures and other elements are correct; does the toilet room shown in this plan meet the requirements for accessibility?



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ACTIVITY



Module 5 Answer

Meets requirements:

- The number of accessible fixtures is correct (IBC Sections 1109.2 and 1109.2.2).
- 5 foot (1524 mm) turning circle is required in accessible rooms (ICC A117.1 Section 603.2.1).
- Stall dimensions are adequate (IBC Section 1109.2.2, ICC A117.1 Section 604.9.2).
- The stall door and the door to the room provide 32-inch (813 mm) width (IBC Section 1010.1.1, ICC A117.1 Section 604.9.3).




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ACTIVITY



Module 5 Answer

Meets requirements:

- The center line of the water closet is located 16 to 18 inches (406 to 457 mm) from the wall (ICC A117.1 Section 604.2).
- Grab bars meet length and grab bars unit dimension requirements (ICC A117.1 Sections 604.5.1 and 604.5.2).
- Urinals meet clearance requirements (ICC A117.1 Section 605.3).
- The hand blow dryer is accessible (IBC Section 1109.13, ICC A117.1 Section 309).




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ACTIVITY



Module 5 Answer

Does not meet requirements

- Accessible lavatory does not meet clear floor space requirement (ICC A117.1 Section 606.2).
- Grab bars are incorrectly placed (ICC A117.1 Sections 604.5.1 and 604.5.2).
- The new vertical grab bar was not provided (ICC A117.1 Section 604.5.1).
- The urinal does not meet the alcove provisions for access (ICC A117.1 Section 305.7)



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ACTIVITY



Module 5 Answer

Additional concerns:

- The following requirements are not covered in this unit but should also be considered (refer to the information provided on accessibility for doors): The toilet room itself is not accessible because it does not meet the requirements for accessible door clearance. It is wide enough, but a disabled person may not be able to get to the door handle to open the door from the push side if the door has both a closure and latch (ICC A117.1 Table 404.2.3.1). An alternative would be to provide an automatic door opener.



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Module 6

Special Occupancies Requirements



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Special Occupancies Requirements

- Assembly seating.
- Dining areas.
- Self-service storage facilities.
- Judicial facilities.
- Recreational facilities.

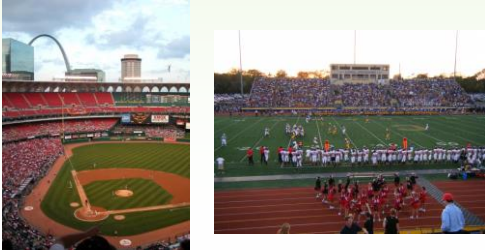



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Assembly Seating - Fixed






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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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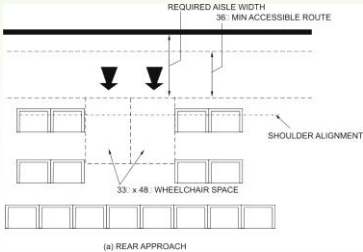
Wheelchair Space

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



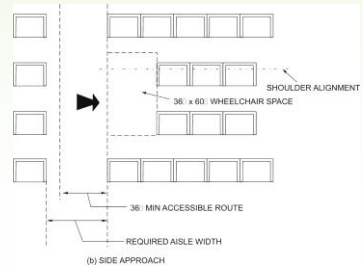
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Wheelchair Space – Size and Access



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Wheelchair Space – Size and Access



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Wheelchair Space

- The wheelchair space must have should alignment with the companion seat to allow interaction.

The diagrams illustrate wheelchair space requirements. The side view (a) shows a wheelchair with a 36-inch width and a 12-inch shoulder alignment. The front or back approach plan view (b) shows a 36-inch width and a 12-inch shoulder alignment. The side approach plan view (c) shows a 36-inch width and a 12-inch shoulder alignment range.

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Accessible Route Requirements

- 1:12 maximum slope.
- Guards at drop-offs.
- 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

The diagram shows a person in a wheelchair looking over the heads of seated spectators. The lines of sight are shown as dashed lines originating from the wheelchair and passing over the heads of the seated spectators.

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Line of Sight

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

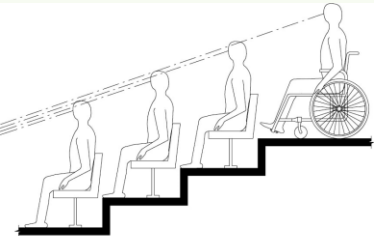



Fig. 802.9.1.2
Lines of Sight between the Heads of Seated Spectators



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Line of Sight

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

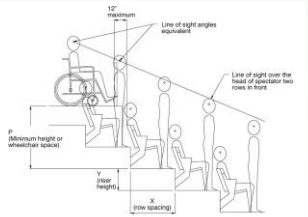



Fig. 802.9.2
Wheelchair Space Elevation




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Allowances

- Companion seats can be moveable provided the 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 wheelchairs 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 1108.2.5.1.
- Some devices hearing-aid compatible.
- Signage.



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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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Tiered seating with tables – Good or Bad?



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Good or Bad?



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Self-service storage





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Self-service Storage

- ≤ 200 units, 5% accessible.
- > 200 units, 10 units plus 2% accessible.
- Dispersed by type.
- Not required to dispersed by location.



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Self-service Storage



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Judicial facilities



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Judicial Facilities



- Access to all services under general accessibility provisions.
- Special criteria for courtrooms, holding cells and lawyer/client consultation areas





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Courtrooms

- Gallery seating is considered same as general assembly seating.
- Jury box
- Witness stand
- Lawyer/client tables



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Courtrooms

- Employee areas, such as judge, bailiff and clerk, are not required to have vertical access provided it is planned for.
- Raised areas must have a turning space and knee and toe clearances under the work surface.





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Holding Cells

- At least one central holding cell for each type provided.
- At least one court-floor holding cell for each type provided.
- Visiting areas must have accessible spaces on both sides.





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Recreational Facilities



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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





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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
- Swimming pools, wading pools, hot tubs and spas
- Shooting facilities





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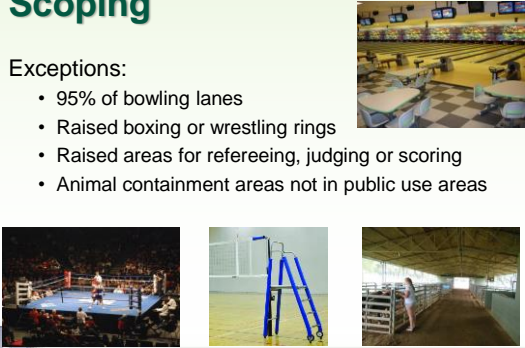
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Scoping

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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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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Amusement Rides

Exceptions:

- Mobile rides
- Controlled by rider
- Primarily for children an 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



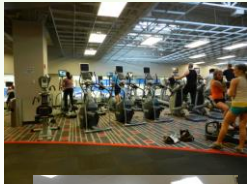
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Exercise Equipment

- 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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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





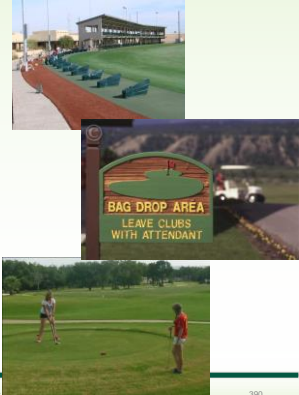
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Golf

- 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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Play areas

- In A117.1 but not specifically scoped.
- 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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Good or Bad?






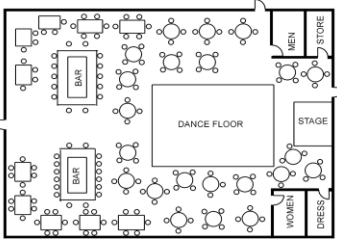
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Module 6 Problem



PLAN - NIGHT CLUB

- The following is a plan of a nightclub. Assume the rectangular tables and bar have built-in seating and the round tables are loose seating.
- What are some of the places you would look for accommodations for accessibility?



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ACTIVITY



Module 6 Answer

IBC

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- Scoping items include:
 - An accessible route throughout the area with dining surfaces (IBC Section 1108.2.9).
 - Count the seats: Five percent these seats shall have wheelchair spaces and dining surface must be at the correct height. These spaces must be dispersed throughout-which may not always be by type.

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ACTIVITY



Module 6 Answer

IBC

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- Scoping items include:
 - Access to the dance floor (IBC Section 1104.3).
 - Access to the stage and dressing room (IBC Section 1108.2.8).
 - Access bathrooms including a family-use/assisted use bathroom if a total of six or more water closets are required (IBC Sections 1109.2, 1109.2.1 and 1109.2.2).
 - Accessible entrances (IBC Section 1105.1).
 - Accessible exits (IBC Section 1009.1).

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Module 7

Dwelling Units and Sleeping Units

IBC

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Dwelling and Sleeping Units

- Institutional:
 - Groups I-1, I-2 and I-3.
- Residential:
 - Groups R-1, R-2, R-3 and R-4.
- Townhouses and congregate residences from IRC:
 - Referenced as Group R-3.



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"SAFE HARBOR"



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"Safe Harbor" means...

- Requirements in the document have been reviewed by HUD and meet or exceed the building construction requirements in the FHA
- 2009, 2012 and 2015 editions of the IBC and 2009 ICC A117.1 are currently under review by HUD.




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Related to Housing Accessibility


Key Terms



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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





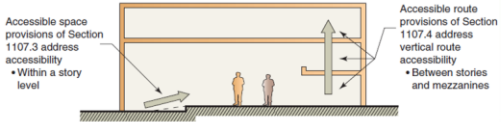



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Accessible routes

- 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)






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Level of Accessibility




Accessible units:

- Constructed wheelchair accessible.
- ICC A117.1 Section 1002.




Type A units:

- Constructed wheelchair adaptable.
- ICC A117.1 Section 1003.



Type B units:

- Matches Fair Housing Accessibility Guidelines.
- Geared towards mobility impaired persons
- ICC A117.1 Section 1004.



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Existing Buildings

- 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 added, there are no extra requirements to improve the accessible route.





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Type C/Visitable units

- New to 2009 ICC A117.1, Section 1005
- No scoping in the IBC or IRC
- Intended for adoption by jurisdictions through visitability ordinances






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Type C/Visitable units

Main features –

- One zero step entrance – which can be the front door, the back door or through the garage
- A circulation path through the accessible level
- Allowance for sloped sidewalks that move up with grade
- A toilet room with minimal clearances
- Minimal clearances in kitchens on the accessible level
- Electrical outlets and switches within reach range





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Counting Units



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Breezeways

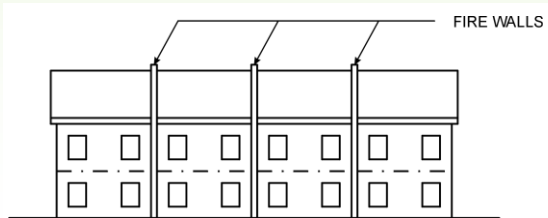


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Fire Walls



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Group R-1

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


Where buildings contain more than 50 units:

- Number of Accessible units determined per individual building
- Must have Accessible units in each building

R-1 Occupancies

Where buildings contain 50 or fewer units:

- All units on site considered to determine number of Accessible units
- Can locate Accessible units in single building or dispersed as desired



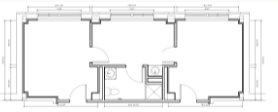
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Suites


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



2 unit suite



3 unit suite





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Institutional





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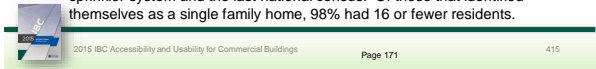
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Group I Occupancy

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	R-4	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.
-  Condition 2 - 10% Accessible units
-  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
-  Remainder Type B units if intended to be occupied as a residence.




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Group I-2 – Nursing Homes

 50% Accessible unit.

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.





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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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Residential




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Group R-1




Number of Accessible unit based on Table 1107.6.1.1.


- New way to add up units on the site.



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



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.

 Remainder Type B units.






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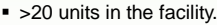
Group R-2 -


**Apartments and Condominiums
Convents and Monasteries**


 2% Type A units.

 Remainder Type B units.











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Group R-3

 All Type B units.






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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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Dwelling and Sleeping Unit Exceptions






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Exceptions – Accessible Units



- No exceptions.



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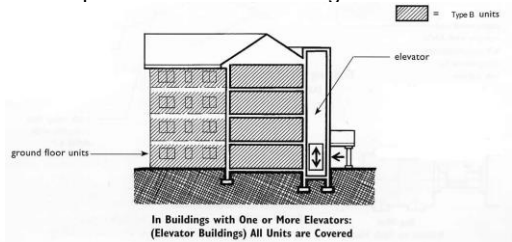
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Exceptions – Type A and B Units

A B

- No exception for elevator buildings.



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Exceptions – Type A and B Units

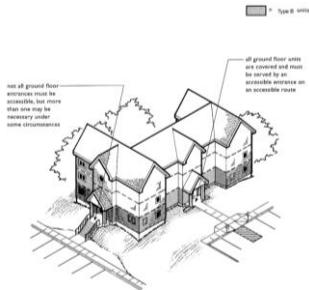
A B

- Type A - ≤ 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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Lowest Level (IBC 1107.1)

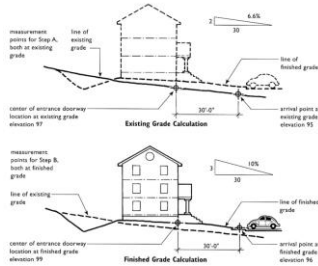
B



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Lowest Level (IBC 1107.1)

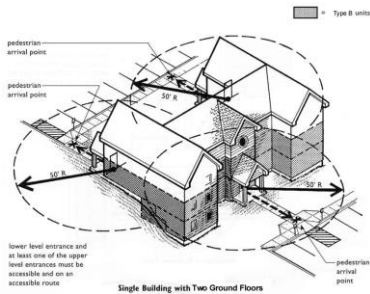


both calculations do not exceed 10%; therefore, the developer must provide an accessible route to the entrance and all units on the ground floor served by the entrance are covered



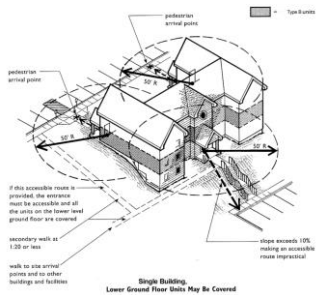
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Lowest Level (IBC 1107.1)



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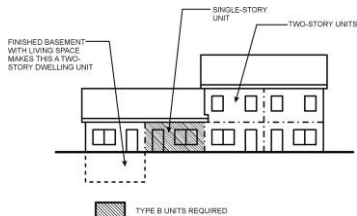
Lowest Level (IBC 1107.1)



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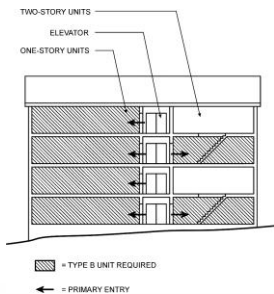
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Multi-story Units (IBC 1107.7.2) B



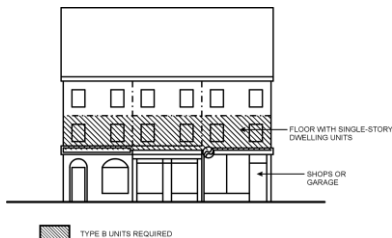
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Multi-story Units (IBC 1107.7.2) B



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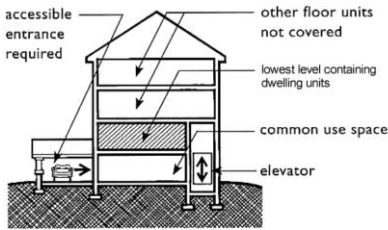
At Least One Story (IBC 1107.7.2) B



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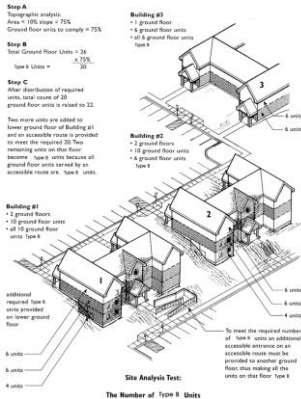
At Least One Story (IBC 1107.1) B



Elevator to First Floor of Dwelling Units Above Grade or Entrance Level Does Not Make an Elevator Building = Type B units

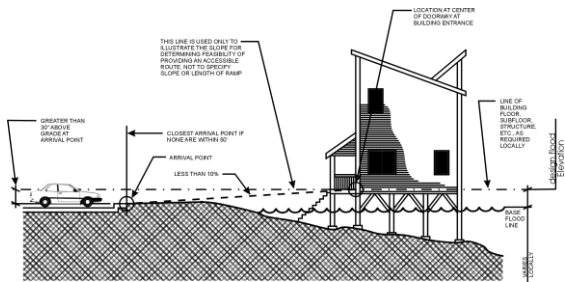
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Steep or Hilly Site (IBC 1107.7.4) B



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Flood Plain (IBC 1107.7.5) A B




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Technical Criteria

**Accessible units:**


- ICC/A117.1 Section 1002.

**Type A units:**

- ICC/A117.1 Section 1003.

**Type B units:**




- ICC/A117.1 Section 1004.
- Consistent with FHAG requirements.



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Technical Criteria



100*.1 Type of unit;

100*.2 Primary entrance;

100*.3 Accessible route;


100*.4 Walking surfaces;

100*.5 Doors and doorways;

100*.6 Ramps;


100*.7 Elevators;

- 100*.8 Platform lifts;
- 100*.9 Operable parts;
- 100*.10 Laundry equipment;
- 100*.11 Bathing rooms;
- 100*.12 Kitchens;
- 100*.13 Windows; and
- 100*.14 Storage facilities.




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**Module 7 Problem**

What are the three types of accessible dwelling and sleeping units required in the IBC?

Of the three types, order them from the most accessible to the least.



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ACTIVITY

Module 7 Problem

Does the following building comply with the exception in IBC Section 1107.7?

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ACTIVITY

Module 7 Problems

Does the following building comply with the exception in IBC Section 1107.7?

elevator must have stops at all floors containing single-story units and at the primary entry floor of two-story dwelling units

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ACTIVITY

Module 7 Answers

What are the three types of accessible dwelling and sleeping units required in the IBC?

- Accessible, Type A and Type B units (IBC Section 1107)

Of the three types, order them from the most accessible to the least.

- Accessible, Type A and Type B units (IBC Section 1107.2)

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ACTIVITY




Module 7 Answers

Does the following building comply with the exception in IBC Section 1107.7?

- No. If the elevator had served only one level above the garage, this building could have complied with IBC Sections 1107.7.1.1 and 1107.7.3. However, since the elevator serves two levels, an accessible route is required to all four levels above the garage.

Does the following building comply with the exception in IBC Section 1107.7?

- Yes. Level three is exempt if level two contains a living space, kitchen and bathroom with a water closet and lavatory (IBC Section 1107.7.2)




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Module 8

Existing Structures





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Which book to use?

- Chapter 34 was deleted from the 2015 IBC
- The 2015 IEBC has three options –
 - Prescriptive Compliance Method – Chapter 4
 - Work Area Method – Chapters 5 through 13
 - Performance compliance method – Chapter 14



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Where are the accessibility provisions?

- There are accessibility requirements in the prescriptive and work area method. These provisions are intended to be consistent. There are some variations due to the chapters being heard by different code development committees.
- The performance method references the other two methods for accessibility.
- In the prescriptive method, the accessibility provisions are in Section 410.
- In the work area method, most of the provisions are in Section 705, however, they are split up somewhat into the different chapters.



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Existing Buildings

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



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Maintenance

A facility that is constructed accessible must be maintained accessible.



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Extent of Application

When an existing facility is being altered, it is not required to provide a higher level of accessibility than that which would be required for a new building.



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Alterations to Existing Buildings – Part 1

When altering an existing building, everything that is altered must meet new construction requirements for accessibility.



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General Exceptions

- Accessible means of egress.
- 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.
- Physical or site constraints.



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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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Primary Function Area





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Primary Function Area





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Primary Function Area





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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.
 - Windows, hardware, operating controls, electrical outlets, signage.
 - Mechanical, electrical, fire protection systems or hazardous abatement.
- 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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Complete Change of Occupancy

- When a complete change of occupancy occurs and no alterations are planned, at least an accessible route to the primary function areas is required.
- When a complete change of occupancy occurs that includes alterations, bathrooms and drinking fountains that serve the altered area must also be evaluated.
- Partial changes of occupancy are handled the same as alterations.



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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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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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Special Scoping

- Entrances.
- Elevators.
- Platform lifts.
- Stair and Escalators.
- Ramps.
- Dwelling and sleeping units – Accessible, Type A and Type B.



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Special Scoping

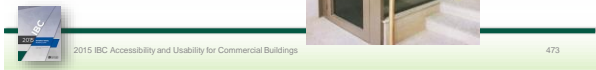
- Jury boxes and witness stands.
- Toilet rooms.
- Dressing, fitting and locker rooms.
- Fuel dispensers.
- Thresholds.
- Amusement rides.



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Platform Lifts

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



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Existing Buildings

- 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.

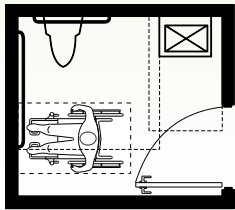


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Toilet Rooms

- When it is technically infeasible to alter 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



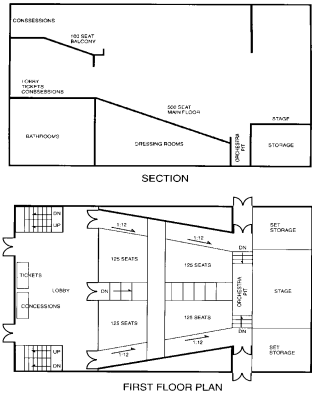
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ACTIVITY




Module 8 Problem

Suppose someone came to you with these sketches of an existing small-town theater, wanting to know how to make the facility more accessible.



SECTION

FIRST FLOOR PLAN




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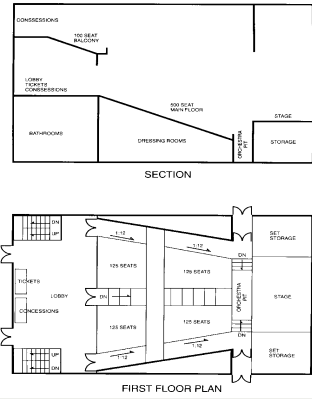
ACTIVITY



Module 8 Problem


What would you suggest in the way of:

- Scoping Requirements
- General Recommendations
- Technical Requirements?



SECTION

FIRST FLOOR PLAN



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ACTIVITY

Module 8 Problem : Topics for Discussion

- Are the ticket and concession counters accessible?
- Is the location for the pick-up of assistive listening devices accessible?
- If a permanent assistive listening system is installed, would there be assistive listening devices available to the wheelchair spaces?
- Is a unisex accessible bathroom on the first floor acceptable?
- If yes, where should the bathroom be located?

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ACTIVITY

Module 8 Problem : Topics for Discussion

- Is dispersal of the wheelchair space locations technically infeasible?
- Where should the wheelchair space locations be located?
- Are the wheelchair spaces on an accessible route?
- Does this wheelchair space dispersal constitute a variety of alternatives as available to the general public (i.e., equal access)?
- Where is the companion seating?

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ACTIVITY

Module 8 Problem : Topics for Discussion

- From which direction is the approach to the wheelchair space: front, rear or side access?
- Is the size of the wheelchair space adequate for this approach?
- Often the public service side of theater is considered for accessibility requirements. Should the stage, orchestra pit and dressing room also be accessible?
- Can a platform lift be utilized in this area?
- Are the catwalks required to be accessible?

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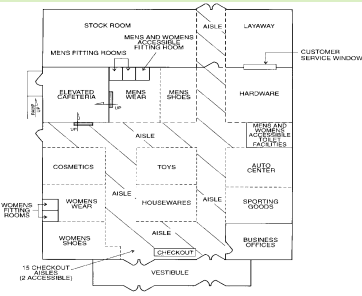
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ACTIVITY




Final Reflection Problem

- Suppose someone came to you with this sketch for a proposed department store inside an existing 150-year-old factory building, and asked how to make the facility more accessible.
- What would you suggest?



DEPARTMENT STORE LAYOUT




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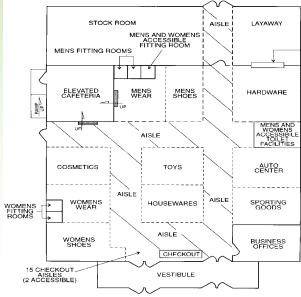
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ACTIVITY




Final Reflection Problem

- If parking is provided, what are the requirements?
- What are customer service facilities, and are they accessible?
- Does the elevated cafeteria meet accessibility entrance and route requirements?
- What percentage of booths and tables must be accessible?



DEPARTMENT STORE LAYOUT




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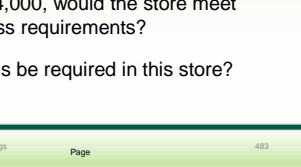
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ACTIVITY




Final Reflection Problem

- Per the 2015 International Plumbing Code (IPC) the store is required to have four water closet fixtures and three lavatories for each sex, and one drinking fountain. Since more than six total water closets are required, at least one unisex toilet room is also required. How many fixtures are required to be accessible?
- With an occupant load of 4,000, would the store meet accessible entry and egress requirements?
- Where would visible alarms be required in this store?



DEPARTMENT STORE LAYOUT




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Thank you for attending.

Questions?

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Post-Test

- This post-test is designed to measure how much you learned in this class.
- Please take your time to answer these questions based on the knowledge that you acquired in this seminar.



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