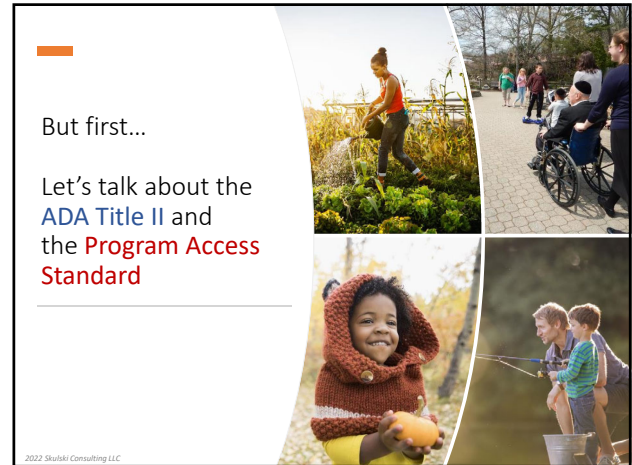




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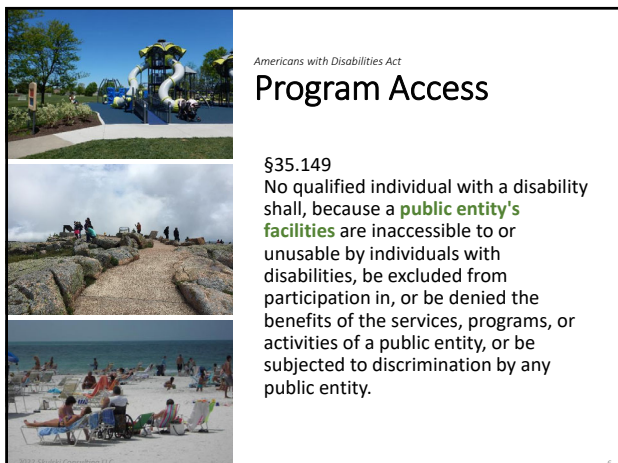
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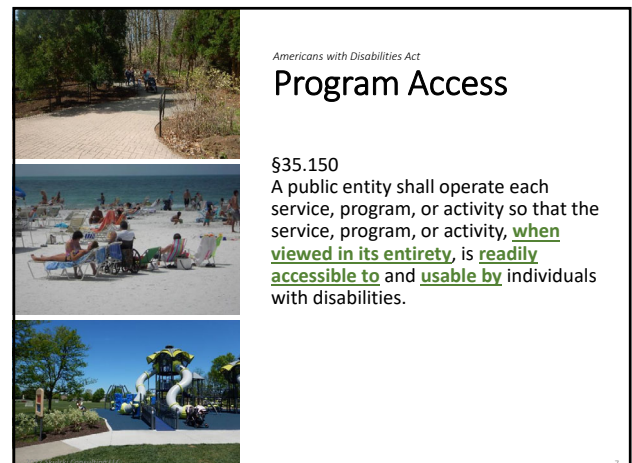
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7

Program Access & Program Spaces

When **viewed in its entirety***,
can visitors participate and
gain the benefits of the program?



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Accessibility Standards

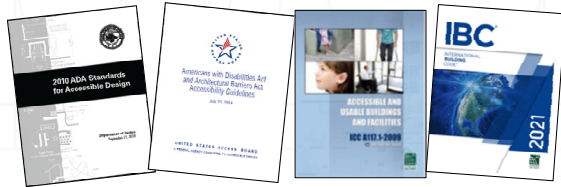
- ADA Title II Regulations
 - https://www.ada.gov/ada_title_ii.htm
- 2010 ADA Standards for Accessible Design
 - <https://www.access-board.gov/ada/>
- Colorado Building Code
 - Colorado has no statewide building code; building codes are primarily adopted and enforced at the local level.
 - City of Fort Collins uses 2021 International Building Code (IBC)
 - For accessibility, the City of Fort Collins and state agencies use: ANSI A117.1 – 2017

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Standards Development

- Purposed to meet the needs of a population
- Minimums “the worst you can do”
- Research
- Technology



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Early Research

- Dr Timothy Nugent
- Graduate student and later Professor of Rehabilitation Education, University of Illinois
- Research on anthropometrics and environmental needs of wounded veterans and people with disabilities
- Established first college-level wheelchair basketball team
- Nugent's research findings contributed to the release of the first voluntary accessibility standards in 1961 by the American National Standards Institute (ANSI) known as A117.1 Accessible and Usable Buildings and Facilities, and later the Uniform Federal Accessibility Standards (UFAS) under the Architectural Barriers Act of 1968.

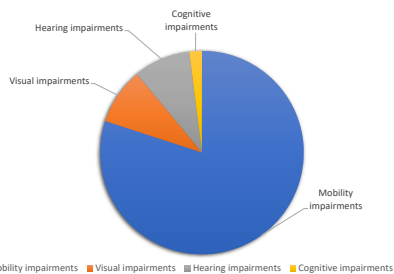


Photo courtesy of the University of Illinois Archives.

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Accessibility Standards & Disability



Estimated 80% for mobility impairments, 9% for visual impairments, 9% for hearing impairments and 2% for cognitive impairments.

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Functional Limitations

Physical & Mobility Impairments

- Arthritis
- Cerebral palsy
- Spinal cord injury
- Head injury
- Stroke
- Loss of limb/digits
- Parkinson's Disease
- Muscular Dystrophy
- ALS

Functional Limitations

- Ambulation
- Stamina
- Balance
- Reach
- Manual dexterity / fine motor skills

ABA-ADA Building Blocks

- Clear width
- Clear floor space
- Ground/floor surfaces
- Access routes
- Reach ranges
- Operable parts

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Functional Limitations

Visual Impairments

- Glaucoma
- Cataracts
- Macular Degeneration
- Diabetic Retinopathy

Functional Limitations

- Visual acuity
- Visual processing
- Orientation
- Navigation

→

ABA-ADA Building Blocks

- Access routes
- Protruding objects
- Detectable warnings
- Visual elements
- Tactile elements
- Audible elements

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Functional Limitations

Hearing Impairments

- Heredity
- Infections
- Tumors
- Accidents
- Aging

Functional Limitations

- Acuity
- Frequency
- Auditory processing

→

ABA-ADA Building Blocks

- Amplification
- Visual alternatives
- Signage

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Functional Limitations

Cognitive Impairments

- Down Syndrome
- Autism
- Alzheimer's Disease
- Stroke
- Head injury

Functional Limitations

- Perception
- Conceptualization
- Processing
- Memory
- Problem solving

→

ABA-ADA Building Blocks

- Signage and pictograms

Designing Beyond the Standards

Simple finishes and displays
Low language loading
Simple and cued sequences

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Enforcement

Federal Legislation

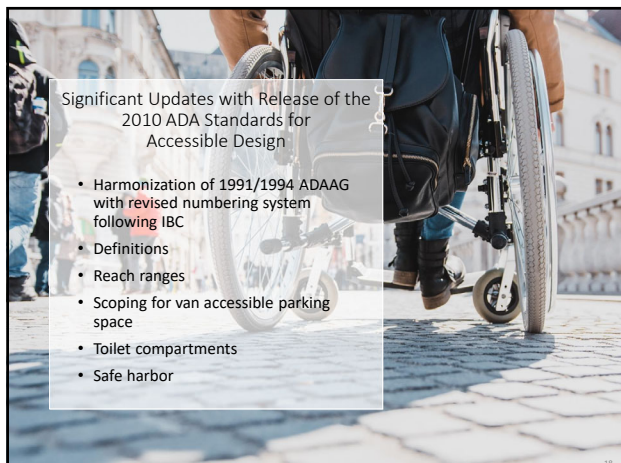
- Complaint driven.
- Civil rights enforcement through federal designated agencies.
 - DOJ
 - DOT
 - HUD
 - DOE
- Private right of action.

State & Local Building Code

- Local code authority.
- Plan review can affect permitting.
- Non-compliant construction may delay occupancy.

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Significant Updates with Release of the 2010 ADA Standards for Accessible Design

- Harmonization of 1991/1994 ADAAG with revised numbering system following IBC
- Definitions
- Reach ranges
- Scoping for van accessible parking space
- Toilet compartments
- Safe harbor

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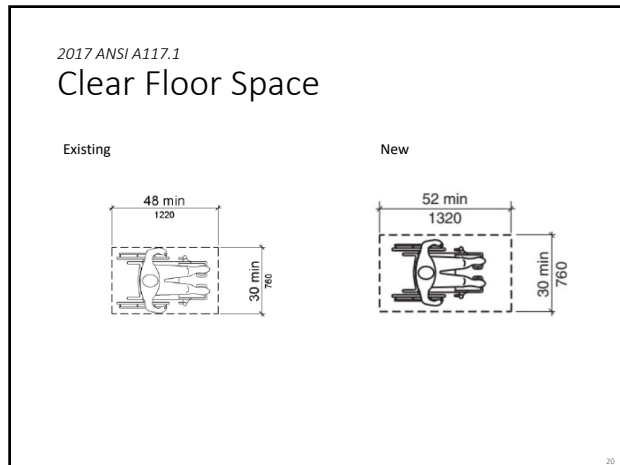


Falling Out of Harmonization

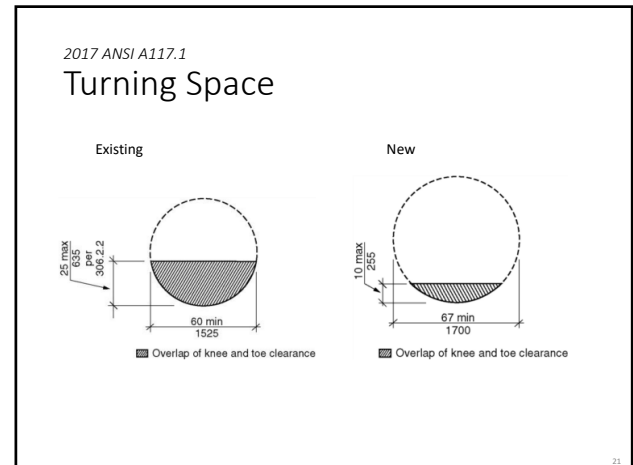
- 2009 ANSI A117.1 / 2012 IBC = harmonized with ADA.
- 2017 ANSI A117.1 Edition = stuff starts to change again.
- Examples where 2017 ANSI A117.1 Edition **EXCEEDS** the 2010 ADA Standards for Accessible Design
 - Accessible routes between stories. Section 1104.4 requires accessible route (e.g. elevator) to connect each accessible story and/or mezzanine.
 - Family or assisted use toilet rooms required in mercantile or assembly with 6 or more water closets required.
 - New spatial dimensions for clear floor space and turning space in new construction.
 - More.....
 - View webinar archive: Harmonization between the ADA Standards and the IBC/ANSI A117.1 (Nov. 2017) presented by Marsha Mazz, Access Board, and Kim Paarlberg, ICC. <https://accessibilityonline.org/ao/archives/110634>

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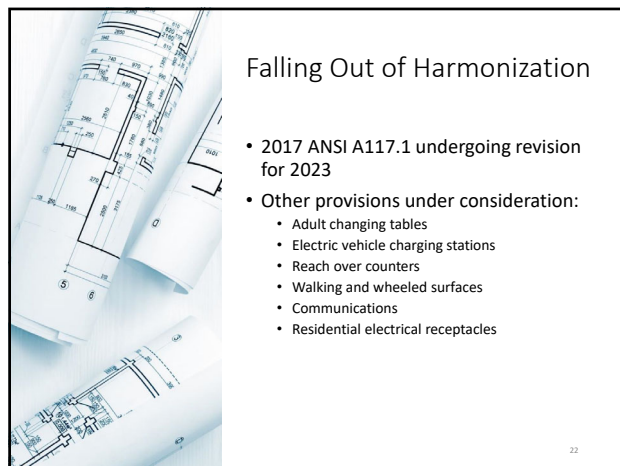
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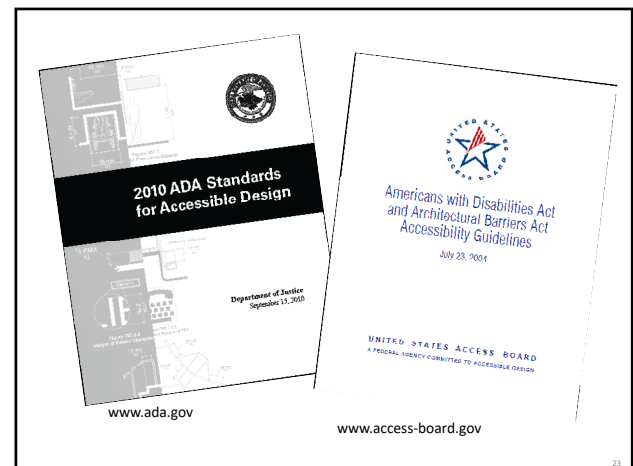
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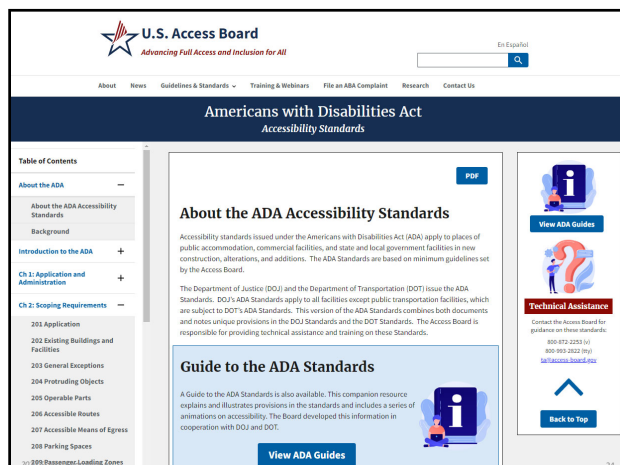
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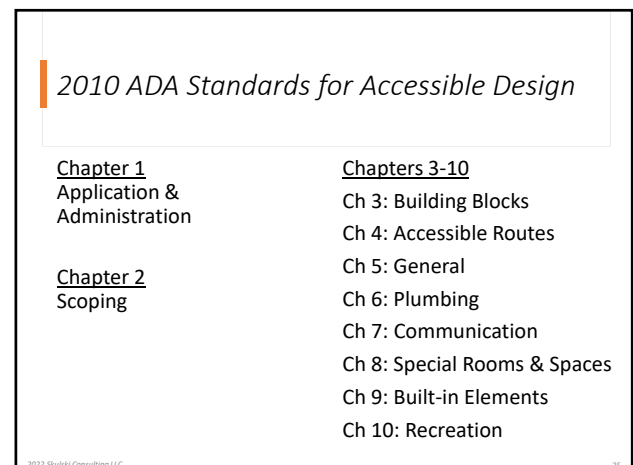
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Accessibility Standards
Beyond the Built Environment

Chapter 10	Outdoor Areas	Other
<ul style="list-style-type: none"> Amusement rides Fitness equipment Boat slips & boarding platforms Sports Courts/Fields Fishing piers & platforms Golf Miniature golf Play areas Swimming pools Shooting positions 	<ul style="list-style-type: none"> Outdoor facilities <ul style="list-style-type: none"> Picnic areas Viewing areas Campgrounds Trails Beaches 	<ul style="list-style-type: none"> Shared use paths Public rights of way

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Accessibility Standards
Status of Rulemaking

	ADA (Americans with Disabilities Act)	ABA (Architectural Barriers Act)	Best Available Info
Buildings	✓	✓	
Recreation Facilities	✓ (Chapter 10)	✓ (Chapter 10)	
Outdoor Developed Areas		✓ (Chapter 10)	✓
Public Rights of Way (PROWAG) (Sept 2023)	✓	✓	
Shared Use Paths (Sept 2023)	✓	✓	

2010 ADA Standards = 2015 IBC = 2012 ANSI A117.1

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2010 ADA Standards for Accessible Design
Department of Justice
September 15, 2010
www.ada.gov

Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines
July 23, 2004
UNITED STATES ACCESS BOARD
A FEDERAL AGENCY COMMITTED TO ACCESSIBLE DESIGN
www.access-board.gov

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Chapter 1
Application & Administration

- 101 – Purpose
- 102 – Dimensions for Adults & Children
- 103 – Equivalent Facilitation
- 104 – Conventions
- 105 – Referenced Standards
- 106 – Definitions

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Most Common Myth

- My building is “grandfathered” into the ADA
- Safe Harbor (28 CFR 35.151)(b)(4)(iii)(c)(Path of Travel)
 - If a public entity has constructed or altered required elements of a path of travel in accordance with the specifications in either the 1991 Standards or the Uniform Federal Accessibility Standards before March 15, 2012, the public entity is not required to retrofit such elements to reflect incremental changes in the 2010 Standards solely because of an alteration to a primary function area served by that path of travel.

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Chapter 2 - Scoping

New Construction

Additions

Alterations / Existing Facilities

Historic Properties

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Application (201)

- All areas of newly designed and newly constructed buildings and facilities and altered or leased portions of existing buildings and facilities shall comply with these requirements.
 - State/ local gov't facilities
 - Places of public accommodation
 - Commercial facilities
 - Transportation facilities (DOT's 2006 Standards)
- Exceptions
 - Exempted structures/ spaces
 - Employee work areas
 - Partially scoped spaces

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Existing Buildings & Facilities (202)

- Additions
- Alterations
- Primary Function Areas
 - Path of Travel – access route to primary function area, restrooms, drinking fountains, other amenities serving altered space.
 - “Alterations made to provide an accessible path of travel to the altered area will be deemed disproportionate to the overall alteration when the cost exceeds 20% of the cost of the alteration to the primary function area.” (28 CFR 36.403 (f)(1)).
- Qualified Historic Facilities

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Historic Properties (202.5)

- Must meet accessibility guidelines
- Exception
 - Where the State Historic Preservation Officer or Advisory Council on Historic Preservation determines that compliance with the requirements for accessible routes, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the exceptions for alterations to qualified historic buildings or facilities for that element shall be permitted to apply.
- Program access

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General Exceptions (203)

- Construction sites
- Raised areas (refereeing, judging, scoring, boxing, wrestling, diving platforms)
- Limited access spaces
- Machinery spaces
- Single occupant structures
- Detention & correction facilities
- Residential facilities
- Employee work areas (under ADA)
- Water slides
- Animal containment areas

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Scoping

How many?

Where?

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Chapter 2 - Scoping

- | | | |
|--|--|--|
| • 201 Application | • 216 Signs | • 230 Two-Way Communication Systems |
| • 202 Existing Buildings and Facilities | • 217 Telephones | • 231 Judicial Facilities |
| • 203 General Exceptions | • 218 Transportation Facilities | • 232 Detention Facilities and Correctional Facilities |
| • 204 Protruding Objects | • 219 Assistive Listening Systems | • 233 Residential Facilities |
| • 205 Operable Parts | • 220 Automatic Teller Machines and Fare Machines | • 234 Amusement Rides |
| • 206 Accessible Routes | • 221 Assembly Areas | • 235 Recreational Boating Facilities |
| • 207 Accessible Means of Egress | • 222 Dressing, Fitting, and Locker Rooms | • 236 Exercise Machines and Equipment |
| • 208 Parking Spaces | • 223 Medical Care and Long-Term Care Facilities | • 237 Fishing Piers and Platforms |
| • 209 Passenger Loading Zones and Bus Stops | • 224 Transient Lodging Guest Rooms | • 238 Golf Facilities |
| • 210 Stairways | • 225 Storage | • 239 Miniature Golf Facilities |
| • 211 Drinking Fountains | • 226 Dining Surfaces and Work Surfaces | • 240 Play Areas |
| • 212 Kitchens, Kitchenettes, and Sinks | • 227 Sales and Service | • 241 Saunas and Steam Rooms |
| • 213 Toilet Facilities and Bathing Facilities | • 228 Depositories, Vending Machines, Change Machines, Mail Boxes, and Fuel Dispensers | • 242 Swimming Pools, Wading Pools, and Spas |
| • 214 Washing Machines and Clothes Dryers | • 229 Windows | • 243 Shooting Facilities with Firing Positions |
| • 215 Fire Alarm Systems | | |

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Chapter 2 Scoping

Accessible Routes (206)

- At least one accessible route shall connect accessible building or facility entrances with all accessible spaces and elements within the building or facility which are otherwise connected to a circulation path.
- Where required
 - Site arrival points
 - Within sites
 - Between stories
 - Spaces and elements
 - Specific spaces (i.e. restaurants, cafeterias, performance areas, press boxes, employee work areas, fishing piers, golf, play areas)

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Technical Provisions

What does
“accessible”
look like?

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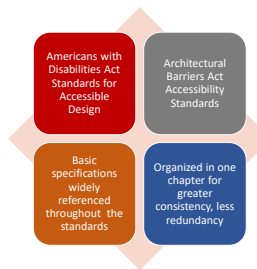
Technical Chapters 3-10

- Ch 3: Building Blocks
- Ch 4: Accessible Routes
- Ch 5: General Site & Building Elements
- Ch 6: Plumbing
- Ch 7: Communication
- Ch 8: Special Rooms & Spaces
- Ch 9: Built-in Elements
- Ch 10: Recreation

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Chapter 3 - Building Blocks



- 302 - Floor & ground surfaces
- 303 - Changes in level
- 304 - Turning space
- 305 - Clear floor / ground space
- 306 - Knee & toe clearance
- 307 - Protruding objects
- 308 - Reach ranges
- 309 - Operable parts

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Building Blocks - Example



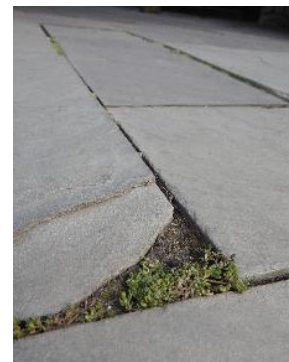
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Chapter 3 Building Blocks

Floor or Ground Surfaces (302)

- Stable
 - Remains unchanged by contaminants or applied force, so that when the force is removed, the surface returns to its original condition.
- Firm
 - Resists deformations by either indentations or particles moving on its surface.
- Slip resistant
 - Provides sufficient frictional counterforce to the forces exerted in walking to permit safe ambulation.




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Types of Surfaces

- Unitary surfaces
 - Concrete
 - Asphalt
 - Boards
- Loose fill surfaces
 - Sand
 - Gravel
 - Decomposed granite
 - Crushed limestone
 - Wood chips
 - Engineered wood fiber



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Chapter 3 Building Blocks Floor or Ground Surfaces (302)

- Carpet
 - $\frac{1}{2}$ inch max pile height (measured to the backing, cushion, or pad)
 - Texture: level or textured loop, level cut pile, or level cut/uncut pile
 - Firm backing, cushions, pads (avoid cushions/ pads for greater firmness)
 - Firm securement, edging to prevent rolling or buckling



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Sports Facilities

Exception example:

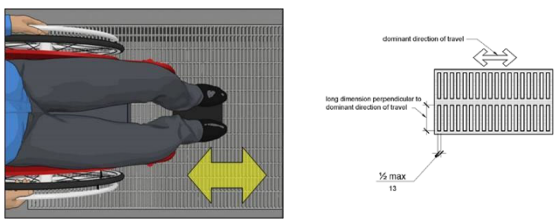
- Area of sport activity: the portion of a room or space where the play or practice of sport occurs.
- Accessible route to each area of sport activity.
- The area within the sports activity (court, field, etc) is exempt from firm, stable, and slip resistant surface provision.



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Chapter 3 Building Blocks Floor or Ground Surfaces (302)

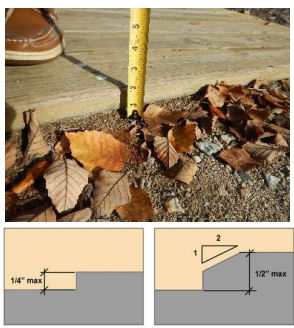
- Openings
 - Max $\frac{1}{2}$ " opening
 - Elongated opening should be perpendicular to path of dominant travel



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Chapter 3 Building Blocks Changes in Level (303)

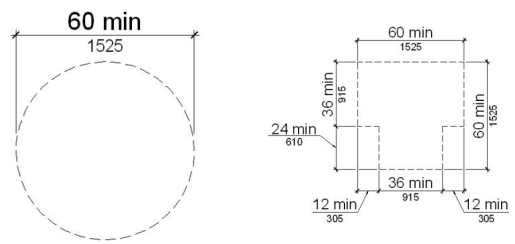
- Changes in level max $\frac{1}{4}$ "
- $\frac{1}{4}$ " to $\frac{1}{2}$ " must be beveled



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Chapter 3 Building Blocks Wheelchair Turning Space (304)

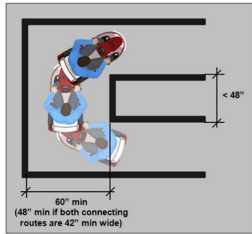
- 60" circular space OR
- 60" T-shaped space



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Chapter 3 Building Blocks Wheelchair Turning Space (304)

- Required at 180 degree turns around obstructions less than 48" long (unless route at least 42" wide)



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Chapter 3 Building Blocks

Wheelchair Turning Space (304)

- Also required at
 - toilet and bathing facilities
 - dressing, fitting, and locker rooms
 - transient lodging guest rooms
 - dwelling units (all rooms on an accessible route)
 - patient bedrooms
 - holding and housing cells
 - saunas and steam rooms
 - raised courtroom stations served by ramps or lifts with entry ramps
 - certain recreation spaces (amusement ride load/unload areas, fishing piers and platforms, play components, and shooting facilities)

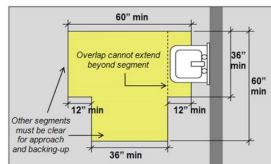
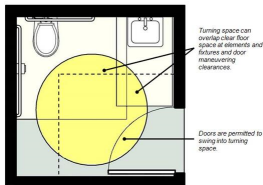
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Chapter 3 Building Blocks Wheelchair Turning Space (304)

- Turning space can overlap
- Overlap of circular space (25" max)
- Recommended: avoid overlap or limit to approx 12" (wheelchair space remains clear)
- Turning space can overlap other clearances; door can swing into turning space.



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Chapter 3 Building Blocks

Wheelchair Maneuvering Space

Wheelchair Maneuvering Space

<https://www.access-board.gov/images/videos/wcmaneuvering-captioned.mp4>

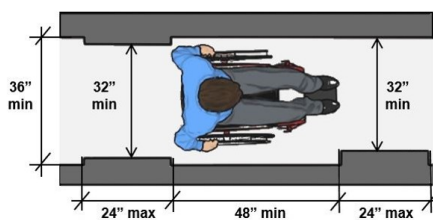
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Chapter 3 Building Blocks Clear Floor or Ground Space (305)

- Minimum clear floor space 30" x 48"
- Minimum clear width 36"
- Can reduce to 32" (for a depth less than 24")
- Slope less than 1:48 or 2.08% in all directions

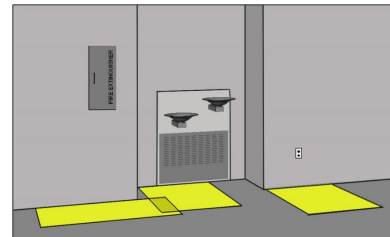


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Chapter 3 Building Blocks Clear Floor or Ground Space (305)

- Required at operable parts and other accessible elements (e.g., drinking fountains, lavatories and sinks, counters, dining/ work surfaces, etc)



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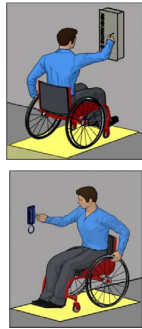
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Chapter 3 Building Blocks

Clear Floor or Ground Space (305)

- Forward approach
 - Required at dining/ work surfaces, drinking, lavatories, most sinks, urinals.
- Side approach
 - Specified/ usually provided at sales & service counters, beds, and most appliances.
- Either approach allowed at other elements.



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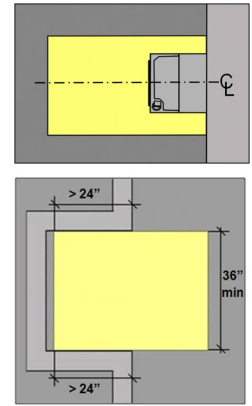
56

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Chapter 3 Building Blocks

Clear Floor or Ground Space (305)

- Centering the clear floor space is only required at certain elements:
 - drinking fountains,
 - kitchen work surfaces,
 - washers & dryers.
- Additional space is required when the space is confined on three sides and is obstructed for more than half the depth, such as when elements are recessed in alcoves.



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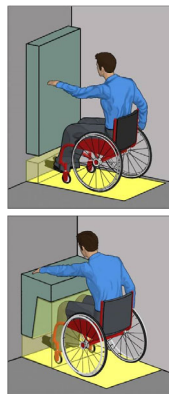
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Chapter 3 Building Blocks

Knee & Toe Clearance (306)

- Toe clearance
 - 9" above the ground
 - 17-25" depth
 - 30" width
- Knee clearance
 - 9-27" above the ground
 - 8-25" depth (depending on element)
 - 30" width



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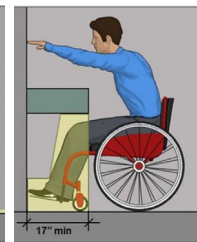
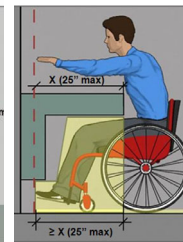
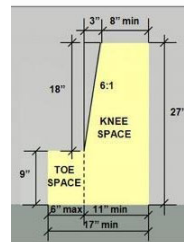
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Chapter 3 Building Blocks

Knee & Toe Clearance (306)

Required at

- drinking fountains
- lavatories & most sinks
- dining/ work surfaces
- sales & service counters
- other elements providing forward approach.



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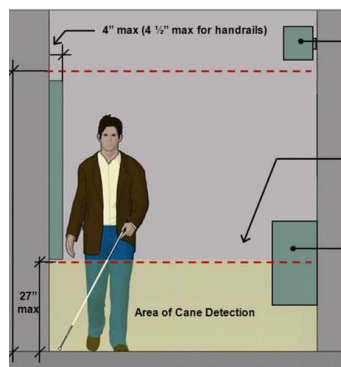
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Chapter 3 Building Blocks

Protruding Objects (307)

- Applies to each circulation path, not just the accessible route
- 4" max projection
- Cane detectable
 - Leading edge 27" max above floor
- Vertical clearance
 - 80" min height



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Chapter 3 Building Blocks

Protruding Objects (307)

- Applies to each circulation path, not just the accessible route
- 4" max projection
- Cane detectable
 - Leading edge 27" max above floor
- Vertical clearance
 - 80" min height



<https://www.access-board.gov/images/videos/protruding-objects-captioned.mp4>

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Chapter 3 Building Blocks
Protruding Objects (307)

- Post-mounted objects
- Objects with leading edges 27"-80" high on posts/ pylons:
- 12 inch max protrusion into circulation paths.

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Chapter 3 Building Blocks
Protruding Objects (307)

- Example:
 - Signs
 - Trailheads
 - Information kiosks

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Chapter 3 Building Blocks
Reach Ranges (308)

- Unobstructed forward and side reach
- 15 inches minimum
- 48 inches maximum

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Chapter 3 Building Blocks
Reach Ranges (308)

- Obstructed forward reach
 - 48 inches maximum not to exceed 20 inch depth
 - Reduced to 44 inch max height for depth 20-25 inch max

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Chapter 3 Building Blocks
Reach Ranges (308)

- Obstructed side reach
 - 48 inches max height if depth is less than 10 inches
 - Reduced to 46 inch max height if depth exceeds 10 inches
 - Obstructions at side reaches are limited to a height of 34 inches.

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Advisory
Children's Reach Ranges

By age group

Max. Reach	Min. Reach
44" (9 - 12 yrs)	20" (3 & 4 yrs)
40" (5 - 8 yrs)	18" (5 - 8 yrs)
36" (3 & 4 yrs)	16" (9 - 12 yrs)

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Chapter 3 Building Blocks Operable Parts (309)

- Placed within reach range
- Operable with one hand
- No tight grasping, pinching, or twisting of the wrist
- Less than 5 lbs force to operate



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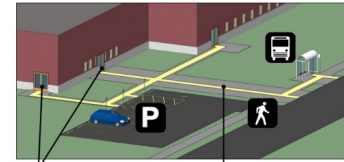
68

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Chapter 4 Accessible Routes

- Accessible routes
- Walking surfaces
- Doors, doorways, gates
- Ramps
- Curb ramps
- Elevators
- Limited use / limited application elevators
- Private residence elevators
- Platform lifts

Site arrival points include accessible parking spaces and accessible passenger loading zones, public transit stops located on sites, and public streets and sidewalks.



An accessible route must connect site arrival points to each accessible entrance.

Accessible routes must coincide with, or be in the same vicinity as, general circulation paths (§206.3).



If no pedestrian route onto a site is provided and site entry is by vehicle only, an accessible route from the site boundary is not required (§206.2.1, Ex. 2). Where a vehicular way does provide pedestrian access, such as a shopping center parking lot, an accessible route is required.

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Chapter 4 Accessible Routes (402)

- Slope not steeper than 1:20
- Cross slope 1:48 max
- 36" min width
- Can reduce to 32" for a length of 24" max



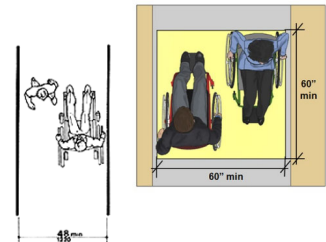
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Chapter 4 Passing Space (403.5.3)

- 36" min width
- 48" requires ambulatory person to twist to pass wheelchair user (ADAAG Advisory)
- 60" preferred
- Routes less than 60" require passing space intervals every 200 ft max



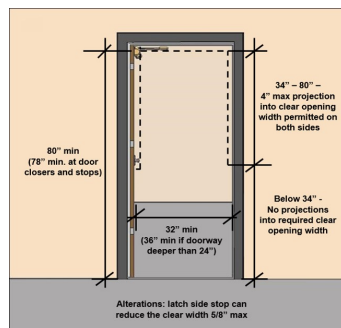
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Chapter 4 Accessible Routes Doors & Doorways (404)

- Clear width 32" min
- Openings more than 24" deep require clear opening 36" min
- No projection into clear opening lower than 34" above finished floor (allowance for panic bar)
- Maneuvering clearance to approach & open door
- Dependent on
 - Push/Pull side of door
 - Hinge/Latch approach
 - Forward/Side approach



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Chapter 4 Accessible Routes Doors

- Operable parts such as handles, pulls, latches and locks mounted 34-48" above finished floor
- Interior doors
 - Opening force less than 5 lbs
- Fire doors
 - Minimum opening force allowable by the appropriate administrative authority



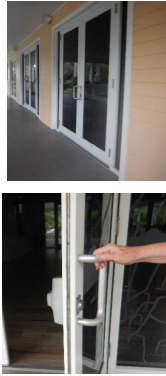
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Some State Building Code Exterior Doors

- Exterior hinged doors must be designed so that such doors can be pushed or pulled open with a force not exceeding **8.5 lbs.**



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Chapter 4 Accessible Routes Revolving Doors (404.3.7)

- Revolving doors, revolving gates and turnstiles **shall not be part of an accessible route**



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Chapter 4 Accessible Routes Ramps (405)

- Routes with slopes exceeding 1:20 must meet the requirements for ramps
 - Handrails
 - Landings
 - Edge protection
- Max slope 1:12, 1:16 preferred
- Rise 30" max



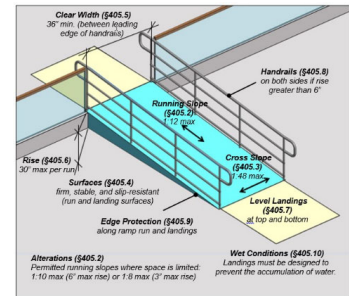
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Chapter 4 Accessible Routes Ramps

- 36" min clear width
- Landings 60" long
- Landings where ramps change direction 60" x 60"
- 1:48 on landing
- Handrails & edge protection on both sides



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Chapter 4 Accessible Routes Ramps Exception (405.2)

- In existing sites, buildings and facilities ramps shall be permitted to have a running slope steeper than 1:12 complying with Table 405 where such slopes are necessary due to space limitations

Table 405.2 Maximum Ramp Slope and Rise for Existing Sites, Buildings, and Facilities

Slope ¹	Maximum Rise
Steeper than 1:10 but not steeper than 1:8	3 inches (75 mm)
Steeper than 1:12 but not steeper than 1:10	6 inches (150 mm)

¹ A slope steeper than 1:8 is prohibited.

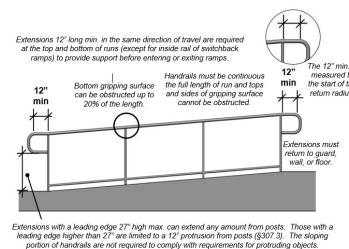
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Chapter 4 Accessible Routes Ramps

- Handrails
 - Both sides for rise more than 6"
 - 1 ¼" to 1 ½" diameter
 - 1 ½" knuckle clearance from wall
- Edge protection
 - Ground surface extend 12" min beyond the inside face of handrails; or
 - Curb or barrier to prevent passage of 4" diameter sphere



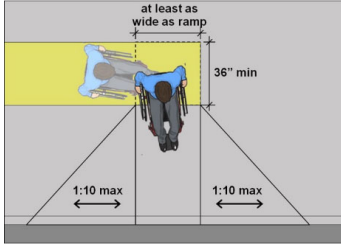
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Chapter 4 Accessible Routes
Curb Ramps (406)

- 1:12 max
- Counter slope of adjoining gutters and road surface no steeper than 1:20
- Flared sides for pedestrian cross traffic 1:10 max
- Should NOT project into vehicular traffic lanes, parking spaces or parking access aisles



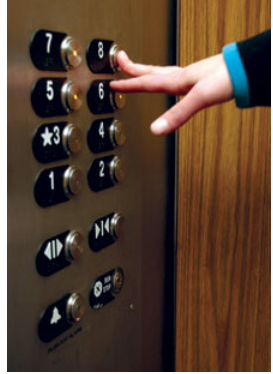
at least as wide as ramp
36" min
1:10 max
1:12 max

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Chapter 4 Accessible Routes
Elevators (407)

- Hall signals
 - Visible & audible signals
- Call controls
- Clear floor space
- Emergency 2-way communication

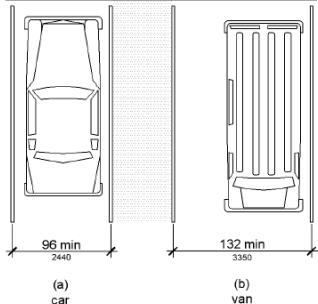


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Chapter 5 General Site & Building Elements
Parking (502)

- # spaces
- 8' min width for car
- 11' min width for van
- 5' min access aisle, adjacent to accessible route
- 1 of every 6 accessible spaces must be van accessible
- Universal 16' space preferred
- Signage




96 min 2440 (a) car
132 min 3360 (b) van

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Chapter 5 General Site & Building Elements
Stairways (504)

- Stairs that are part of the means of egress
- Risers 4" to 7" height
- Tread width 11" min
- No open risers
- Handrails

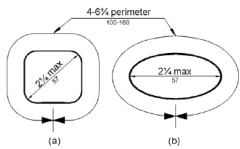


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Chapter 5 General Site & Building Elements
Handrails (505)

- Located on both sides
- Continuous
- 34-38" height
- 1 1/2" between gripping surface and adjacent surface
- Cross section
 - Circular cross section with outside diameter of 1 1/4" to 2" max;
 - Non-circular cross section with perimeter dimension 4" to 6 3/4" and cross-section 2 1/4" max




4-6 3/4" perimeter 100-160
2 1/4" max
2 1/4" max
(a) (b)
Figure 505.7.2
Handrail Non-Circular Cross Section

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Chapter 6
Plumbing Elements & Facilities

- Drinking fountains
- Toilet & bathing rooms
- Water closets & toilet compartments
- Urinals
- Lavatories & sinks
- Bathtubs
- Shower compartments
- Grab bars
- Seats
- Washing machines & clothes dryers
- Saunas & steam rooms

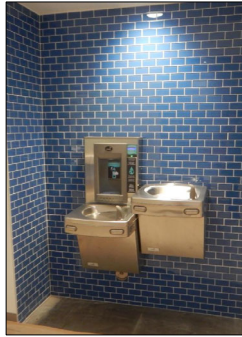


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Chapter 6 Plumbing Elements & Facilities Drinking Fountains (602)

- Wheelchair accessible & standing access or single unit with dual access (hi-low combo)
- Where multi installations, 50% of each type
- Forward approach with clear floor space centered at unit
- Spout 36" height for low unit, 4" high water flow, 5" max from front of unit
- Spout 38-43" height for high standing unit
- Controls



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Chapter 6 Plumbing Elements & Facilities Toilet Rooms (603)

- Clear floor space at toilet
- Turning space
- Door swing & maneuvering clearance at door



<https://www.access-board.gov/images/videos/toiletrooms-captioned.mp4>

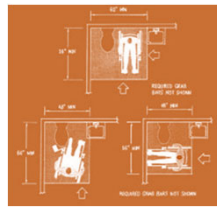
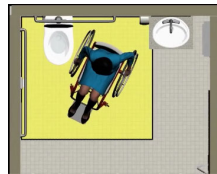
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Chapter 6 Plumbing Elements & Facilities Toilet Rooms (603)

- Types of transfer
 - Side
 - Diagonal
 - Perpendicular



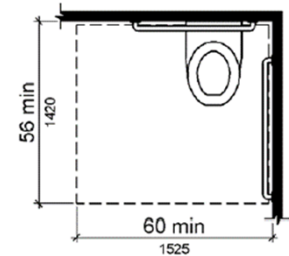
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Chapter 6 Plumbing Elements & Facilities Water Closets & Toilet Compartments (604)

- 60" min perpendicular from side wall
- 56" perpendicular from rear wall (59" for floor mounted toilets)
- 16-18" centerline
- 17-19" seat height
- Flush control located on open side of compartment



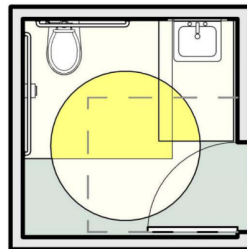
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Chapter 6 Plumbing Elements & Facilities Water Closets & Toilet Compartments (604)

- Clear floor space at toilet
- Turning space
- Door swing & maneuvering clearance at door
- Toe clearance for partitions



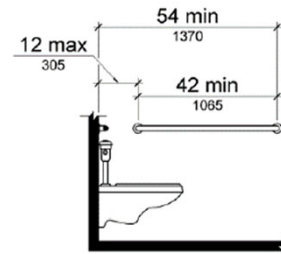
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Chapter 6 Plumbing Elements & Facilities Grab Bars in Toilet Compartments (604.5)

- Grab bars mounted at 33-36" height
- Side wall grab bar 42" min length, 12" max from rear wall, extending 54" min from rear wall



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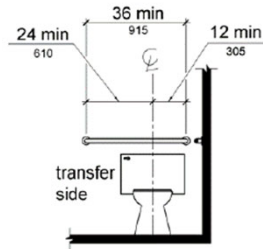
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Chapter 6 Plumbing Elements & Facilities

Grab Bars in Toilet Compartments (604.5)

- Rear grab bar 36" min length, extend from centerline of toilet 12" min on one side and 24" min on other side
- Exceptions
 - Recessed fixture adjacent to water closet
 - Location of flush control dictated by administrative authority – rear grab bar permitted to be split or shifted



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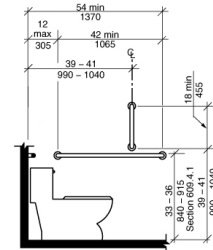
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Chapter 6 Plumbing Elements & Facilities

Vertical Grab Bars (ANSI A117.1 604.5.1.2)

- Vertical grab bars are not specified in ADA accessibility standards.
- ANSI A117.1 / State Codes
 - 18" minimum vertical grab bar at water closets.
 - Bottom of the bar located 39" min and 41" max above the floor, and with the center line of the bar located 39" min and 41" max from the rear wall.
 - ADA standards allow a second grab bar to be within the 12" clearance above the horizontal grab bar if there is a separation of 1 1/2" minimum.



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Chapter 6 Plumbing Elements & Facilities

Grab Bars in Toilet Compartments (604.5)

- Grab bars 33-36" high
- Circular cross section allows 1 1/4" to 2" outside diameter
- Non-circular cross section allows 2" max dimension and 4" to 4.8" perimeter
- 1 1/2" between wall and inside surface of grab bar
- Must withstand 250 lbs force



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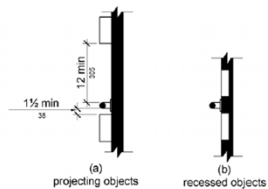
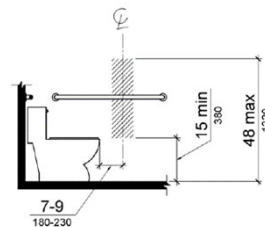
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Chapter 6 Plumbing Elements & Facilities

Dispenser (604.7)

- 7-9" in front of water closet, measured from centerline
- Outlet located between 15" and 48"
- Shall NOT be located behind grab bar
- Continuous paper flow
- 12" clearance above grab bar; 1 1/2" below grab bar



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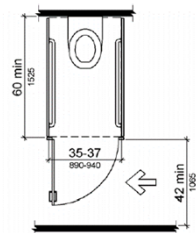
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Chapter 6 Plumbing Elements & Facilities

Ambulatory Accessible Toilet Compartment (604.8.2)

- Where 6 or more toilets compartments (or combined with urinals) are provided, 1 shall be an ambulatory
- 60" min depth
- 35-37" width
- Door shall not swing into minimum required compartment area
- Grab bars on both sides



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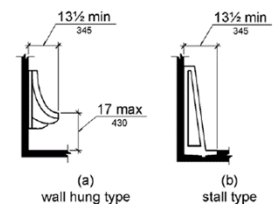
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Chapter 6 Plumbing Elements & Facilities

Urinals (605)

- Where there are 2 or more
- Clear floor space position for forward approach
- Stall type or wall-hung with rim 17" high max
- 13 1/2" min deep measured from outer face of rim to back of fixture



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Chapter 6 Plumbing Elements & Facilities Lavatories (606)

- Clear floor space for forward approach including knee and toe clearance
- 34" max height
- Exposed pipes & surfaces
 - Insulated or configured to protect against contact



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Chapter 6 Plumbing Elements & Facilities Lavatories (606)

- Faucets
 - Within reach range
 - Operable with one hand and without twisting, pinching, grasping
 - Less than 5 lbs force to operate
 - Self metering faucets to remain open for 10 seconds min



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Chapter 6 Plumbing Elements & Facilities Dispensers & Receptacles (205, 309)

- Soap dispensers
- Paper towel dispensers / hand dryers
- Trash receptacles
- At least one of each on accessible route
- Within reach ranges
- Meets requirements for operating mechanisms



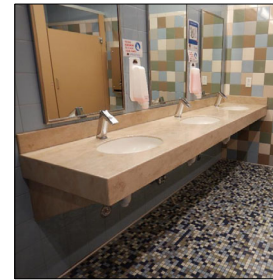
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Chapter 6 Plumbing Elements & Facilities Mirrors (603.3)

- Mirrors located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 40 inches maximum above the finish floor or ground.
- Mirrors not located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 35 inches maximum above the finish floor or ground.



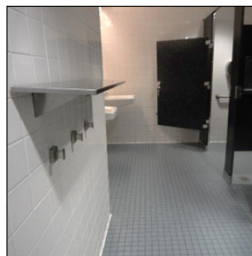
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Chapter 6 Plumbing Elements & Facilities Coat Hooks & Shelves (603.4)

- Coat hooks located within the reach range.
- Shelves, where provided, shall be located 40 inches minimum and 48 inches maximum above the finish floor.

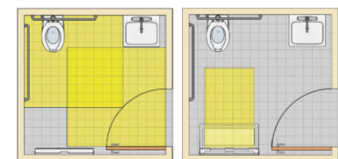
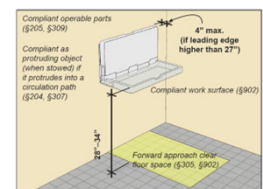


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Chapter 6 Plumbing Elements & Facilities Baby Changing Tables

- If provided, at least one should comply with requirements for work surfaces and protruding objects.
- Baby changing tables cannot overlap fixture clearances or door maneuvering clearances when stowed.
- Clear space for a forward approach to the table is required. This space can overlap fixture clearances and door maneuvering clearances.
- Handle to pull unit open should not exceed 48" height
- Top of work surface 30-34"



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Chapter 6 Plumbing Elements & Facilities
Bathtubs (607) & Showers (608)

- Size & clearances for transfer & roll-in
- Seats
- Controls & handheld shower spray
- Water temperature
- Grab bars




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Chapter 7
Communication Elements & Features

- Fire alarm systems
- Signs
- Telephones
- Detectable warnings
- Assistive listening systems
- ATM's & fare machines
- Two-way communication systems




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Chapter 7 Communication Elements & Features
Fire Alarm Systems (702)

- References National Fire Alarm Code
- NFPA 72 (1999 or 2002)
 - 110 db max
 - Flash rate & pulse duration
 - Location – wall & ceiling
 - Minimum intensity (based on coverage area)
 - Larger coverage area through fewer appliances
 - Many spaces (other than corridors) can be covered by 1 appliance




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Chapter 7 Communication Elements & Features
Signs (703)

- Identifying permanent rooms and spaces
 - Raised letters
 - Braille
 - Pictograms
 - San serif
 - Finish & contrast
 - Mounting location & height (height range based on bottom line of text)




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Chapter 7 Communication Elements & Features
Signs (703)

- Tactile signs required for:
 - Interior and exterior signs identifying permanent rooms and spaces, where provided (§216.2);
 - required door labels at exit stairways, exit passageways, and exit discharge (§216.4.1);
 - required labels for floor levels, car controls, and emergency communication devices at elevators (§407.2.3.1, §407.2.3.2, §407.4.7.1.1, §407.4.9); and
 - rail station identification signs at entrances and platforms or boarding areas (§810.6.1).
- Signs that identify permanent rooms and spaces include:
 - room and floor numbers or letters;
 - room names; and
 - labels for restrooms, locker rooms, cafeterias, libraries, conference rooms, mechanical rooms, and other permanent rooms or spaces.

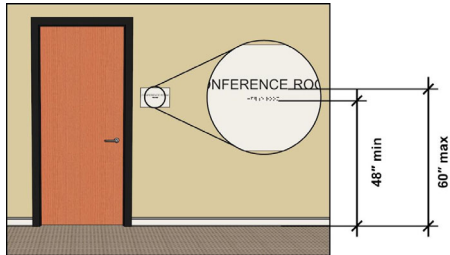


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Chapter 7 Communication Elements & Features
Signs (703)

- Raised characters and braille on signs
- Latch side of door
- Mounted 48" min above the finish floor or ground surface, measured from the baseline of the lowest tactile character, and 60" max above the finish floor or ground surface, measured from the baseline of the highest tactile character.

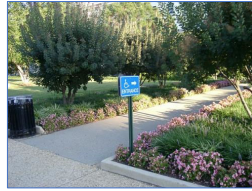


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Chapter 7 Communication Elements & Features Signs

- Directional signage.
- Signage indicating location of accessible features when not all features are accessible.



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Chapter 7 Communication Elements & Features Telephones (704)

- Applies to all public phones (including courtesy phones)
- 1 per floor/bank
- Clear floor space
- Operable parts located within reach range
- Hearing aid compatible
- Volume control
- TTY



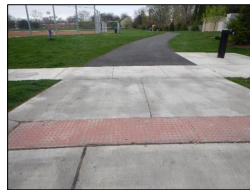
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Chapter 7 Communication Elements & Features Detectable Warnings (705)

- Required where a pedestrian circulation path meets a vehicular way (new PROWAG R208, 305) and at transit station boarding platforms
- Greater range of designs & products allowed
- Dome diameter (range)
- Spacing (range)



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Chapter 7 Communication Elements & Features Assistive Listening Systems (706)

- Receiver jacks
- Hearing-aid compatible
- Receivers (neck loops)
- Sound pressure level
- Signal to noise ratio
- Peak clipping level



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Chapter 7 Communication Elements & Features ATM's & Fare Machines (707)

- Speech output
 - Recorded or digitized
 - Privacy
 - Output instructions
 - User control (volume, repeat)
 - Operable parts (differentiation by sound or touch)
- Tactile features
 - Input controls
 - Numeric keys
 - Function keys
 - Braille instructions



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Chapter 7 Communication Elements & Features Two-way Communication Systems (708)

- Visual and audible signals
- Handsets (cord length)
- Systems serving dwelling units (TTY)



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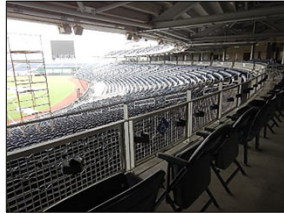
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Chapter 8

Special Rooms, Spaces & Elements

- Assembly areas
- Dressing, fitting and locker rooms
- Kitchens and kitchenettes
- Medical care and long-term care
- Transient lodging
- Prison cells
- Courtrooms
- Dwelling units
- Transportation facilities
- Storage



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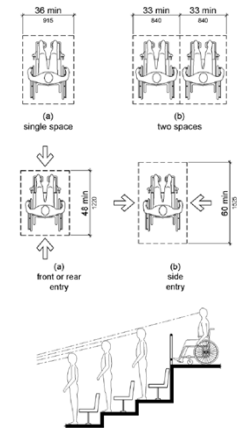
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Chapter 8 Special Rooms, Spaces & Elements

Assembly Areas

- Wheelchair seating locations
- Shoulder to shoulder companion seating
- Depth of space depends on approach from front/rear (48" min) or side (60" min).
- Accessible route shall not overlap area for wheelchair seating.
- Access to any wheelchair space cannot be through another wheelchair space.
- Line of sight.



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Chapter 9

Built-in Elements

- Dining surfaces
- Work surfaces
- Check out aisles
- Service counters
- Dressing Benches



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Chapter 9 Built-in Elements

Dining & Work Surfaces

- Dining surfaces
- Work surfaces
- Top of surface 28" min to 34" max height
- Forward approach with knee and toe clearance = 17-25" depth



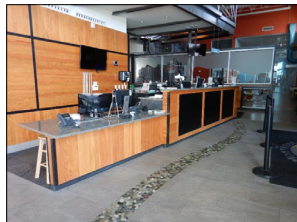
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Chapter 9 Built-in Elements

Sales & Service Counters

- Sales counters
- Reception
- Information
- Concierge
- Registration
- Check-out
- Admissions / ticket counters
- Customer service
- Ordering, pick up, drop off



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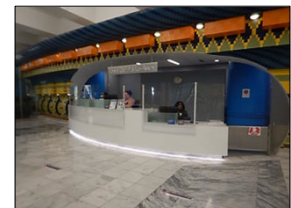
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Chapter 9 Built-in Elements

Sales & Service Counters

- Access to one of each type / function
- Dispersed
- Countertop surface 36" max height, full depth of counter for customer use.
- Folding shelves not permitted in new construction or alterations.
- Allows for forward or side approach
- Forward approach shall include knee and toe clearance below counter.



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Chapter 10

Recreation Facilities

- Amusement rides
- Recreational boating facilities
- Exercise machines
- Fishing piers and platforms
- Golf facilities
- Miniature golf facilities
- Play areas
- Swimming pools, wading pools and spas
- Shooting facilities with firing positions

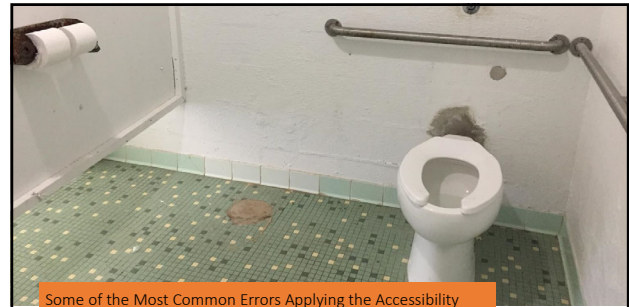
- Outdoor developed areas
 - Picnic areas
 - Trails
 - Campgrounds
 - Scenic viewing areas
 - Beaches



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Some of the Most Common Errors Applying the Accessibility Standards to New Construction and Existing Facilities

- Misinterpretation of the standards
- Trying to take the "easy way out"
- Misuse of "grandfathered"
- Misuse of "technically infeasible"
- Claiming "construction tolerances"

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Common Barriers in New Construction & Alterations

- Accessible route with excessive slope/cross slope.
- Doors with excessive opening force.
- Drinking fountains that lack high standing unit or installed units that result in protruding objects.
- Lack of detail to finishes and furnishings that result in protruding objects, obstructed knee/toe clearance, or out of reach range.



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Most Frequently Cited Recommendations

1. Correct changes in level/openings for accessible route (88)
2. Adjust door opening force and/or evaluate for installation of automatic/power-assisted door system (exterior doors)(87)
3. Install/remount restroom identification signage with braille and raised characters (66)
4. Modify existing pathway (64)
5. Provide picnic units with mobility features (59)
6. Add/replace existing drinking fountain with high-low unit (55)
7. Provide accessible route to sports field/court (48)
8. Insulate exposed pipes at lavatory (42)
Install/remount grab bars (42)
9. Raise/lower toilet paper dispenser (40)
Restripe existing parking lot to include accessible parking spaces and access aisles (40)
10. Provide accessible play surface (36)

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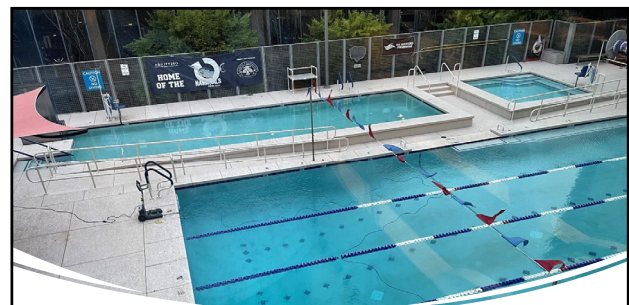
Exceeding the Minimum Standards

- Understand the rationale behind the scoping and technical provision.

National Park Service	Accessibility Standards MAX	NPS Denver Service Center MAX
Accessible Routes	1:20 = 5%	1:21.0 = 4.75%
Ramps	1:12 = 8.33%	1:12.5 = 8%
Parking	1:48 = 2.08%	1:55.0 = 1.8 %

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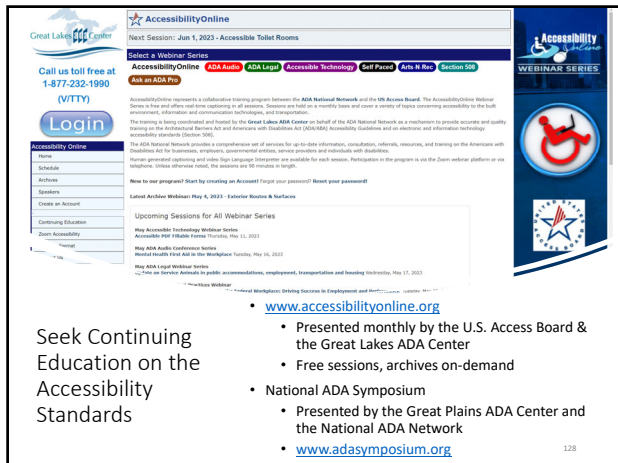


Exceed the Minimum Standards

- Accessibility standards should be considered at the beginning of the planning process, not as add-ons at the end of the design.
- Seek opportunities to apply the principles of universal design.
- Design for inclusion.

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