Using the ADA & ABA Standards Series:

Chapter 4 – Accessible Routes

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Session Agenda

- Walking Surfaces
- Doors, Doorways, & Gates
- Ramps
- Curb Ramps
- Elevators
- Limited-Use/Limited Application Elevators
- Residential Elevators
- Platform Lifts

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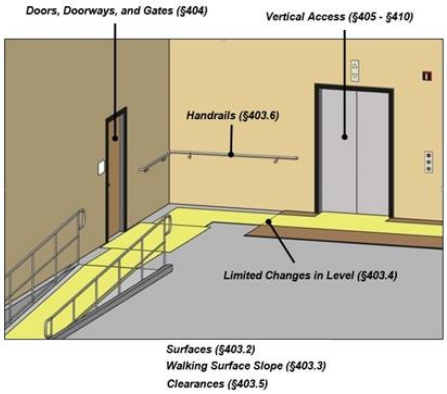
Components of an accessible route



- Walking surfaces (slope ≤ 1:20)
- Ramps (slope ≤ 1:12*)
- Curb ramps excluding the flared sides
- Doorways
- Elevators
- Platform lifts (where permitted)

4

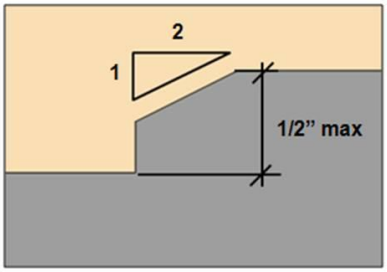
Walking Surfaces

§403

5

Walking surfaces (§403)

- **Floor or ground surface:**
  - Firm stable slip resistant
  - Carpet pile ≤ ½ inch
  - Openings ≤ ½ inch
- **Running slope ≤ 1:20**
- **Cross slope ≤ 1:48**
- **Changes in level**
  - ¼ inch vertical
  - ½ inch beveled



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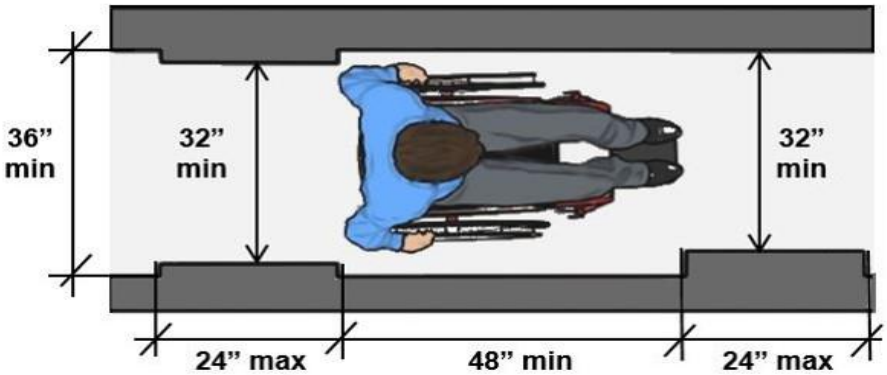
Clear width



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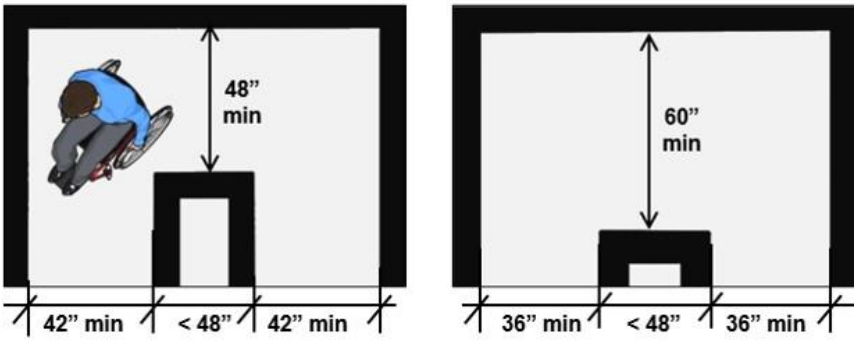
Clear widths around a 180° turn



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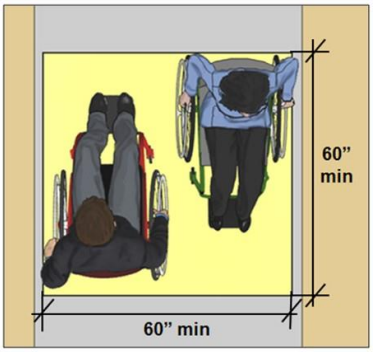
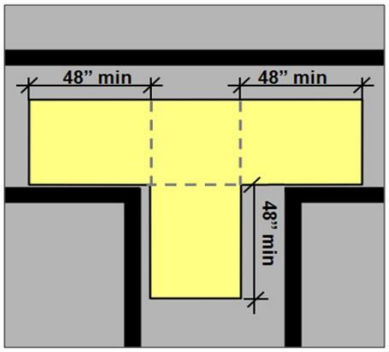
Passing space

Every 200ft:
60” x 60” minimum



Or
T-shaped



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Handrails along walking surfaces

- **If provided, must meet requirements in 505**
  - **34” – 38” high**
  - **Unobstructed top and sides**
  - **Bottom gripping surface: obstructed up to 20%**
  - **Crash rails or bumper guards: full length can be obstructed**
  - **Other requirements in 505**

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Doors, Doorways, & Gates §404

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Types of doors

- **Manual doors**
  - Swinging doors and gates
  - Sliding doors, Folding doors, Doorways
- **Automatic doors**
  - A156.10 Full-Powered Automatic Doors
  - A156.19 Low-Energy Power Operated Doors
  - A156.19 Power-Assisted Doors
- **Interior vs Exterior**
- **Fire doors, Emergency exits**
- **Security doors**
- **Revolving doors**
- **Material: Glass doors**

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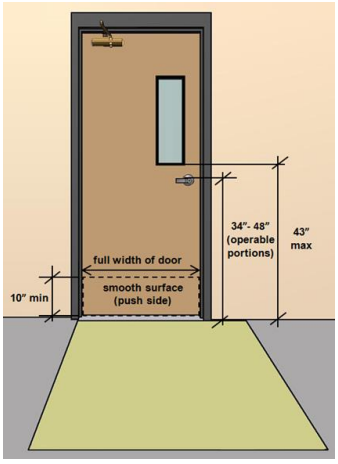
Doors, Doorways, Gates (§404)



- Clear Width (32" min.)
- Closing Speed
- Opening Force (5 lbf max)
- Vision/ Side Lights
- Compliant Hardware
- Smooth Surface
  - Bottom 10", push side
- Thresholds (1/2")
- Maneuvering Clearance
  - Both sides unless usable in 1 direction only

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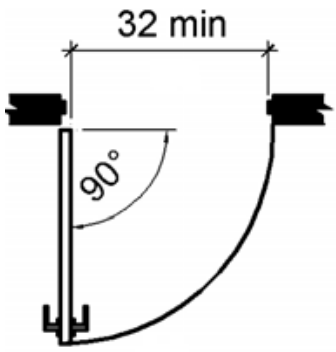
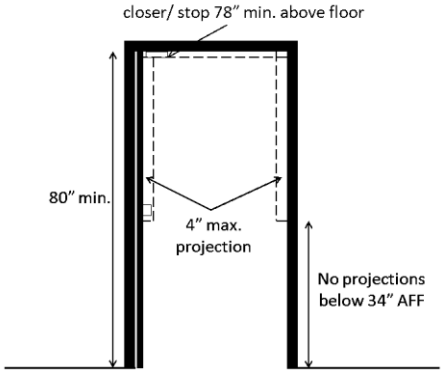
Clear width (§404.2.3)

32" min, 90° open



Allowable Projections



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Maneuvering clearances

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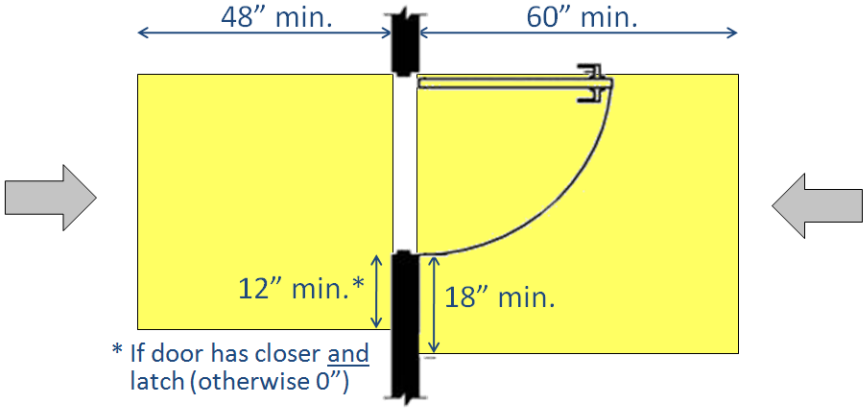
Forward approach



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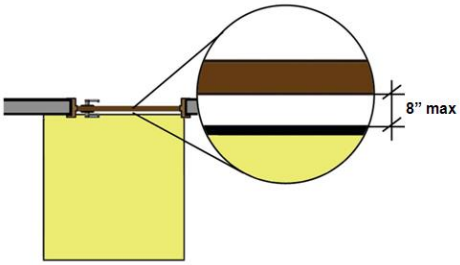
Maneuvering clearances

Maneuvering clearance must be 8” max. from the face of the door



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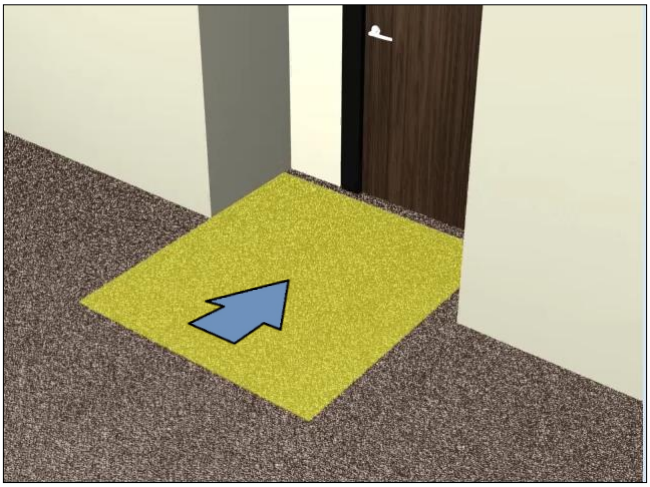
Maneuvering clearances



Recess > 8”: maneuvering clearance for <u>forward approach</u> located 8” max. from face of door

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Doors in series (§404.2.6)

Doors opposite each other where travel through both doors is required.

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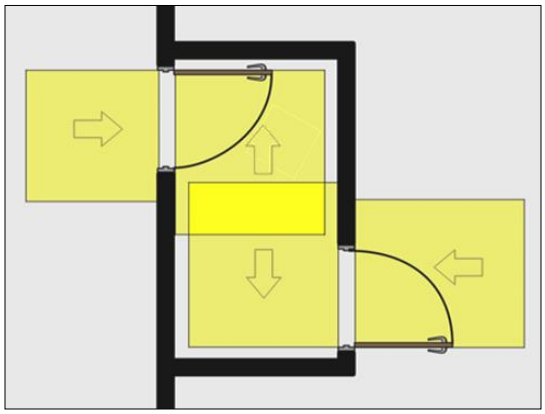
Vestibules

Door maneuvering clearance required at each accessible door based on approach & swing



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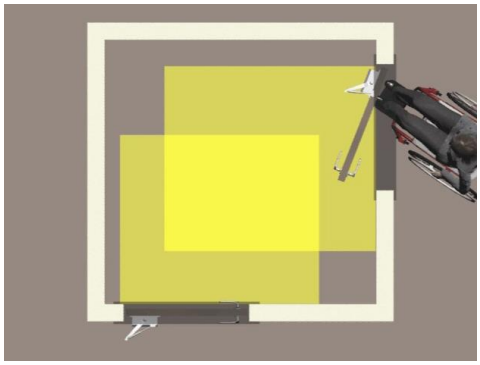
Vestibules

- Door maneuvering clearances can overlap
- Doors can swing into maneuvering clearance of another door



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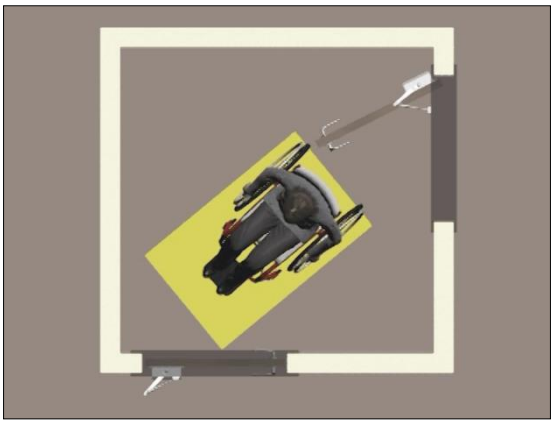
Vestibules

Recommendation:
Wheelchair space beyond door swing



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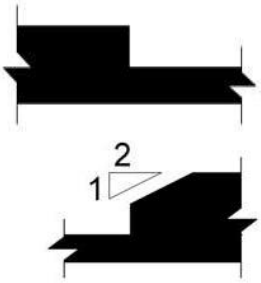
Thresholds (§404.2.5)

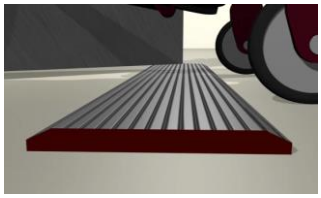
Maximum allowed:

- ¼” vertical
- ½” beveled 1:2



Existing or altered:

- ¾” beveled allowed



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Door hardware (§404.2.7)

- 1 hand operation
- No tight grasping, pinching, twisting of wrist
- 5 lbs max. force
  - Except: Fire Doors, Exterior Hinged Doors
- Height: 34” – 48”

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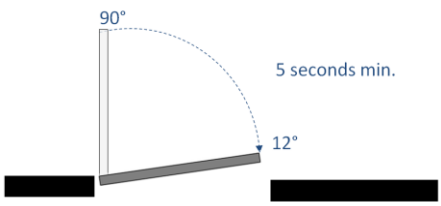
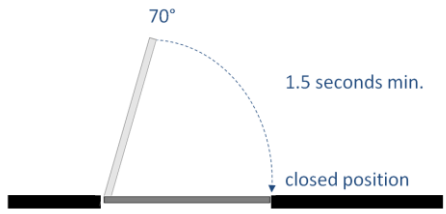
Closing speed (§404.2.8)

Door closer
90° to 12°, 5 sec min



Spring hinge
70° to closed, 1.5 sec min



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Door surfaces (§404.2.10)

- Push side only
- Surfaces within 10” of floor
- Exceptions:
  - Sliding doors
  - Some tempered glass doors without stiles
  - Existing doors, kickplates with caps
  - Doors / gates not extending to 10” above floor

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Automatic and Power-assisted doors (§404.3)

- ANSI/BHMA Standards (for safety and operation)
- Thresholds (same as manual doors)
- Doors in series (same as manual doors)
- Clear width
- Break Out Opening
- Controls
- Maneuvering Clearance*

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Clear width (§404.3.1)

- 32” minimum in power-on and power-off mode
- If both leaves open when activated the clear width is based on the opening provided by all leaves in the open position

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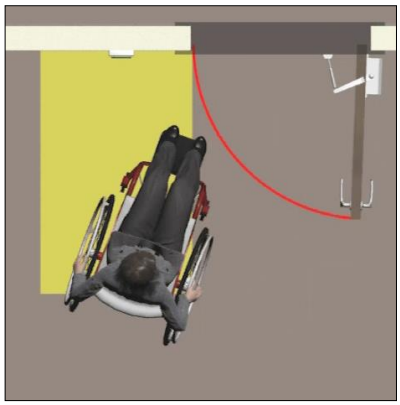
Controls

Operable part, within reach range

Outside swing of the door



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Maneuvering clearance at Automatic/Power assisted doors

A156.19 Power-Assisted Doors

- Compliance with 404.2.4 required

A156.10 Full-Powered Automatic Doors

&

A156.19 Low-Energy Power Operated Doors

- Compliance with 404.2.4 required at doors on accessible MOE that lack standby power or that do not stay open in power-off mode.

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Ramps
§405

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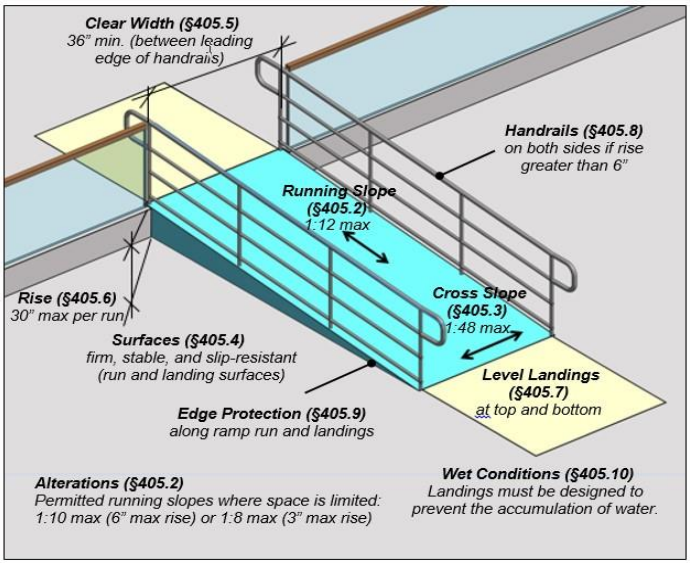
Ramps



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Slopes in alterations

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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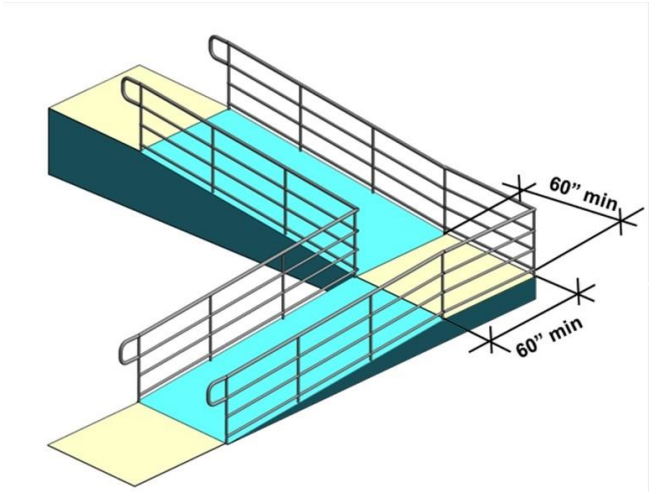
Landings



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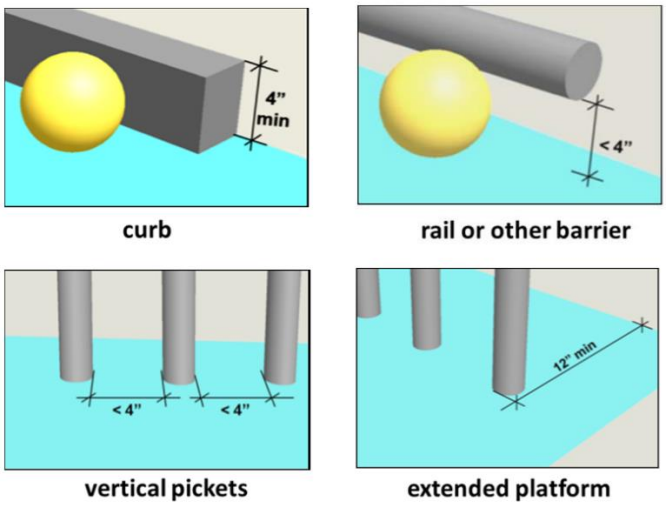
Ramps: edge protection (§405.9)



curb

rail or other barrier

vertical pickets

extended platform

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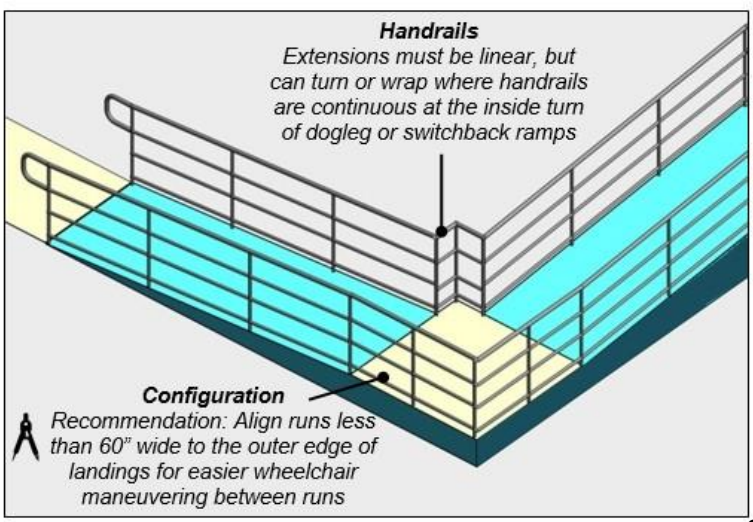
Continuous handrails



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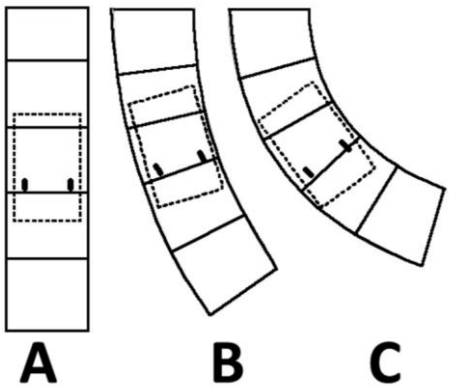
Curved routes

Wider accessible route

Max 1:48 cross slope



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Curb Ramps

§406

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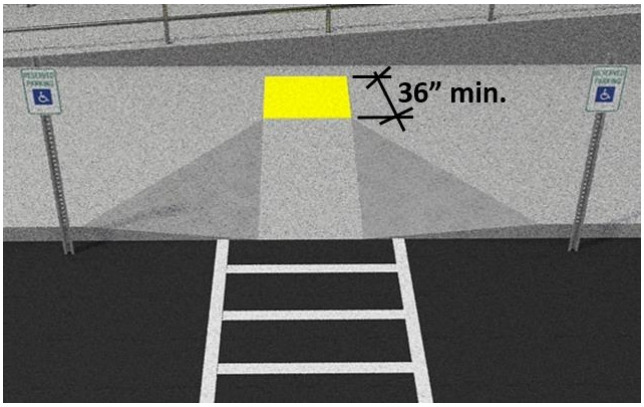
Curb ramps (§406)

- Landing 36” deep min. required at top
- Curb ramp cannot protrude into access aisle



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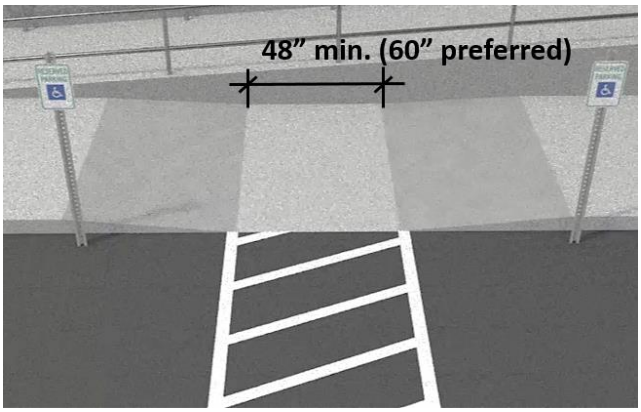
Curb ramps (§406)

Parallel curb ramps can be used where top landing space is unavailable



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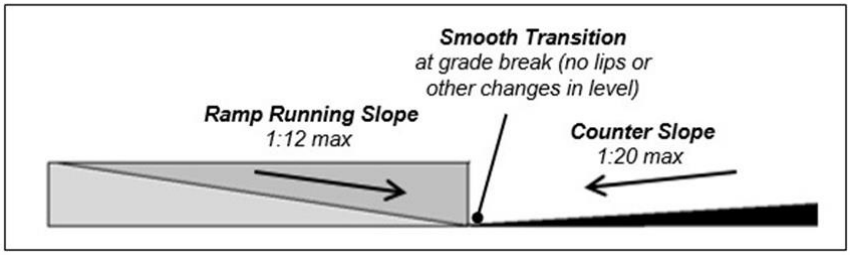
Smooth transition



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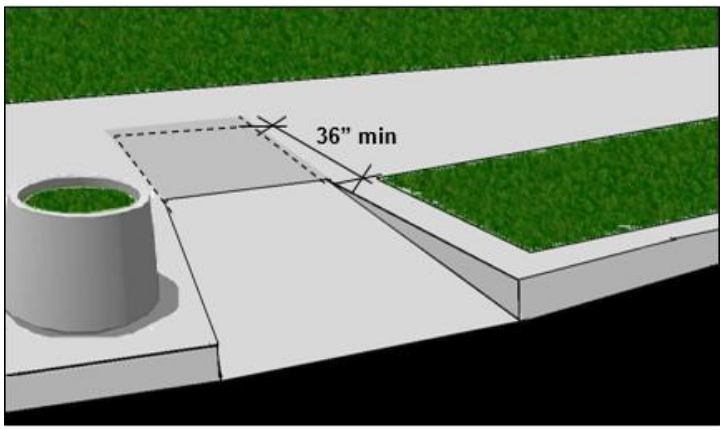
Curb ramps with returned sides

Prevent / discourage foot traffic across ramp



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Detectable warnings (§705)

<u>Required</u> on curb ramps at:

- Transit facilities (DOT standards – 406.8)
- FHWA funded projects
- Public sidewalks* (PROWAG)

<u>Not required</u> on curb ramps at other facilities or vehicular areas within a site

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Vertical Access

Elevators, LULAs, and platform lifts

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When to use which?

Facility or Space	Elevator Type Permitted (if provided instead of ramp)
Facilities required to provide an accessible route to stories/mezzanines	Elevator (§407)
Facilities not required to provide an accessible route to stories/mezzanines	Elevator (§407) or LULA (§408)
Residential Dwelling Units	Elevator (§407), LULA (§408), or Private Residence Elevator (§409)
Spaces permitted to be served by a platform lift	Elevator (§407), LULA (§408), or Platform Lift (§410)

Elevators

§407

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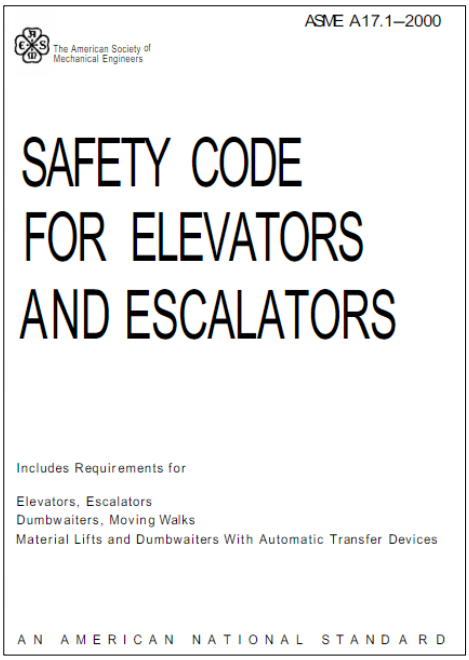
Referenced Standards

- §407.1, §408.1, and §409.1 of the Standards require compliance with the ASME A17.1 - 1999 or 2000 Edition of the Safety Code for Elevators and Escalators.


ASME A17.1–2000

The American Society of Mechanical Engineers

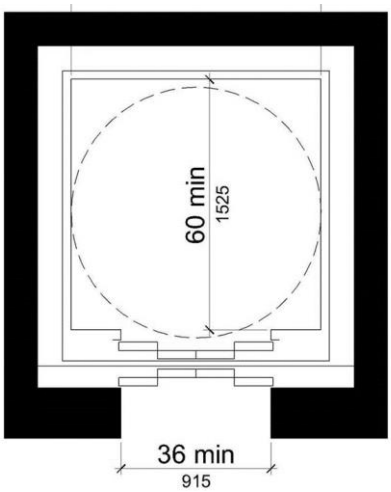
SAFETY CODE FOR ELEVATORS AND ESCALATORS

Includes Requirements for

Elevators, Escalators
Dumbwaiters, Moving Walks
Material Lifts and Dumbwaiters With Automatic Transfer Devices

AN AMERICAN NATIONAL STANDARD

Standard elevators



- Car sizes – more alternatives
- Designs providing turning space within car recognized
- Elevator Door Requirements
- Car Controls and Position Indicators
- Emergency Communication

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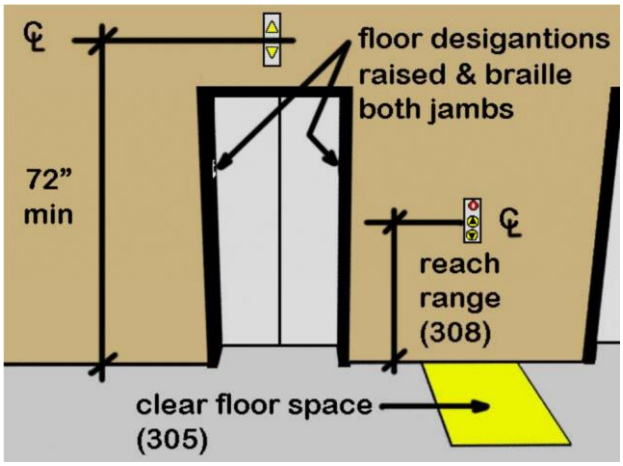
Elevator landing requirements (§407.2)



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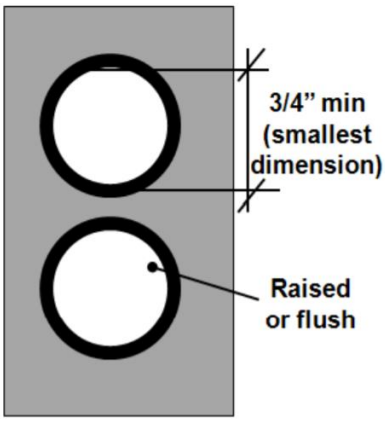
Call controls (§407.2.1)



- Compliant as operable part
- Up button above down button
- Visual indication of call registered, and call answered
- Raised from, or flush with, faceplate / trim ring/ ferrule

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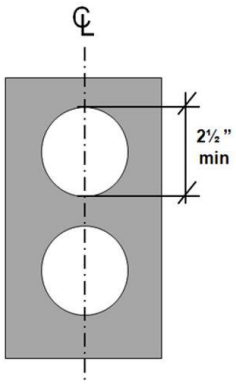
Hall signals (§407.2.2)

- Required at each hoistway (including elevators with only 2 stops)
- Indicate car arrival and travel direction
- Visible indicators can be vertical or side-by-side
- Visible from area of hall call button, including those in cars
- Audible signals: one (up)/ two (down) or annunciator
- Frequency: 1500 Hz max.(300 – 3,000 Hz verbal annunciator)
- Signal level: 10dB min. above ambient, 80 dB max.



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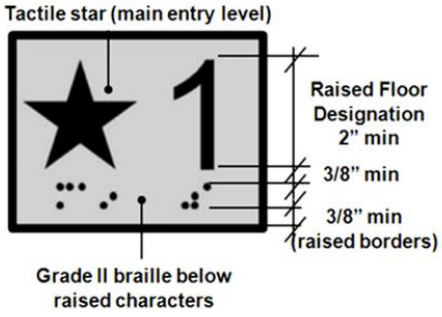
Hoistway signs (§407.2.3)



- Both jambs, 48" – 60" AFF (measured to raised character baseline)
- San serif characters raised 1/32" min.
- Compliant character proportion and stroke thickness

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Alterations to existing elevators

- Existing elevators that are altered must comply
- Standards apply to those “elements” that are altered
- If alterations are made to an existing car, they must also be made to each elevator programmed to respond to the same hall call

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Limited Use/Limited Application Elevators

§408

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LULA elevators *where permitted*

- Permitted where an accessible route between stories or mezzanines is not required
- Permitted as alternative to private residence elevators and platform lifts
- Cannot be used as a substitute where a standard elevator is required

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LULA Requirements

- Must comply with ASME A17.1
- Smaller car sizes, alternative types of doors
- Slower speeds, shorter travel distances
- No requirements for door timing/delay or car position indicators
- Doors must be positioned on the narrow wall of the LULA car

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Residential Elevators

§409

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Private residence elevators

- Permitted only within residential dwelling units
- Elevators located outside dwelling units in residential facilities must comply as standard elevators (§407).
- Similar to enclosed platform lift but have more specific door and control requirements, and must provide emergency communication features

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Platform Lifts

§410

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Platform lifts

- **Alterations**
- **In new construction, only:**
  - wheelchair spaces, performance areas, and speakers' platforms
  - incidental spaces with max occupancy of 5, & not for public use
  - raised courtroom stations
  - levels within transient lodging guest rooms and residential dwelling units
  - certain recreation facilities: amusement rides, play areas, team/player seating areas in sports facilities, recreational boating facilities, and fishing piers and platforms

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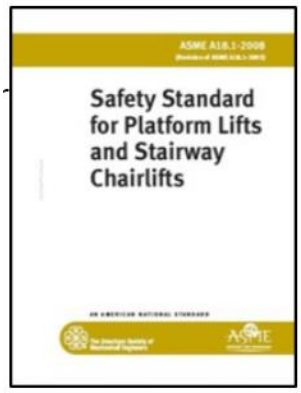
ASME A18.1 Safety Standard (§410.1)

Covers the design, construction, installation, operation, inspection, testing, maintenance, and repair of lifts that are intended for transportation by persons with disabilities



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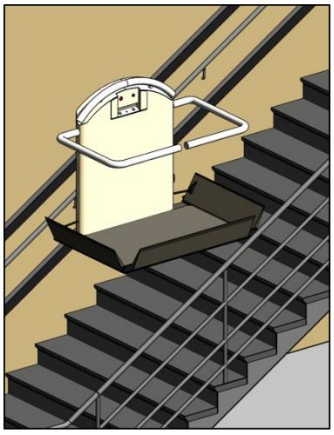
Platform Lifts

- Can be vertical or inclined (utilizing stairways)
- Exposed or enclosed in a shaft similar to private residential elevators
- Lifts that utilize a chair instead of a platform are not permitted



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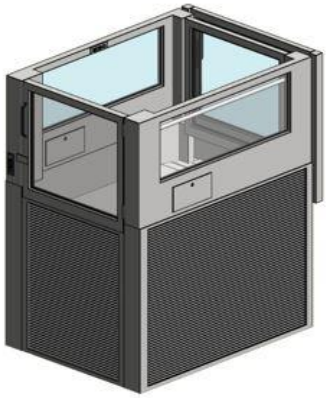
Platform lifts

Platforms (§410.2 - §410.4)
Platforms must meet requirements for clear floor space and floor surfaces, including changes in level, and the clearance between the platform sill and edge of runway landing cannot exceed 1¼" (ASME A18.1 specifies 3/8" – 3 /4").

Doors and Gates §410.6)
Doors and gates must be power-operated, meet criteria for low-energy doors, including the referenced ANSI/BHMA standard (§404.3), and remain open for at least 20 seconds. (Self-closing manual types are allowed at lifts with no more than 2 stops and doors/ gates on opposite ends.)

Standby Power (§207.2)
Platform lifts permitted to be part of an accessible means of egress by the referenced editions of the International Building Code must be equipped with standby power.

Operable Parts (§410.5)
Controls must meet requirements for operable parts, including reach ranges.



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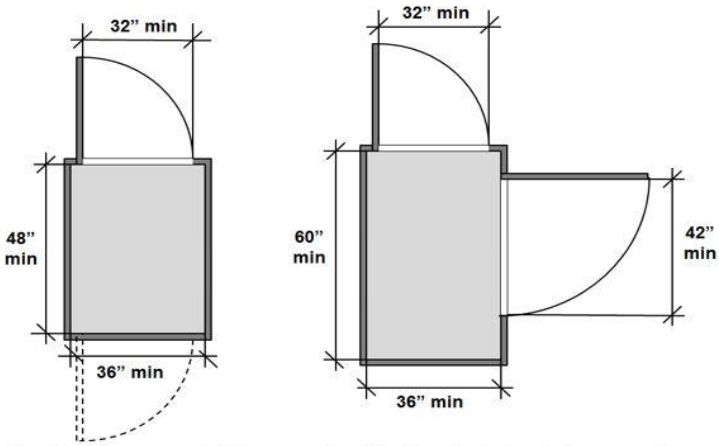
Platform lifts



The clear floor space of platforms must be 36" wide min. If doors/gates are on the narrow end only, the length is 48" min. If a door/gate is on the longer side, the min. length is 60" to accommodate side approach maneuvering.

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Technical Guides on the Standards

Available on the Board's website

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Questions?

You May Type and Submit questions in the **Q&A Box**

(We will NOT be monitoring the Chat area for questions)

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Continuing Education

AIA Provider Number: I017
AICP Provider Name: Great Lakes ADA Center

Course Title: Using the ADA and ABA Standards Series: Chapter 4: Accessible Routes
Course Number: GL20200507
Date: May 7, 2020

Credits earned on completion of this course will be reported to AIA CES for AIA members. Certificates of Completion are available upon request.

This course is registered with AIA and ICC for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the professional organizations of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

Questions will be addressed at the conclusion of this presentation.

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Thank you for participating in today's webinar

Next session:

June 4, 2020

USING THE ADA AND ABA STANDARDS SERIES: CHAPTER 5: GENERAL SITE & BUILDING ELEMENTS

2:30 pm – 4:00 pm EST

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