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A collaborative program between the  
ADA National Network and the  
U.S. Access Board



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1



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2

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3



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4



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5



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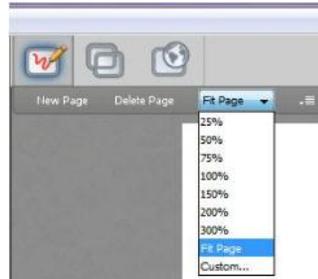
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6



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7



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8

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9



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10

# **“Building Blocks”: A Refresher (ADA & ABA Standards)**

## **Presenters**



**Bill Botten**



**Dave Yanchulis**

12

## Session Agenda

- Operable Parts
- Clear Floor/ Knee & Toe Space
- Turning Space
- Floor & Ground Surfaces
- Protruding Objects

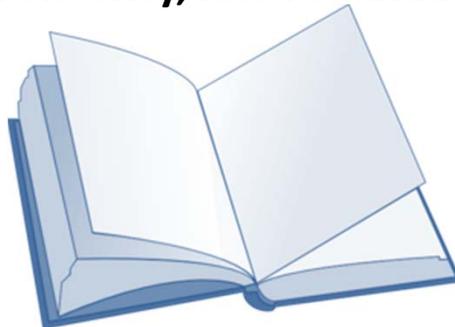


13

## Chapter 3: Building Blocks

**Basic specifications widely referenced throughout standards**

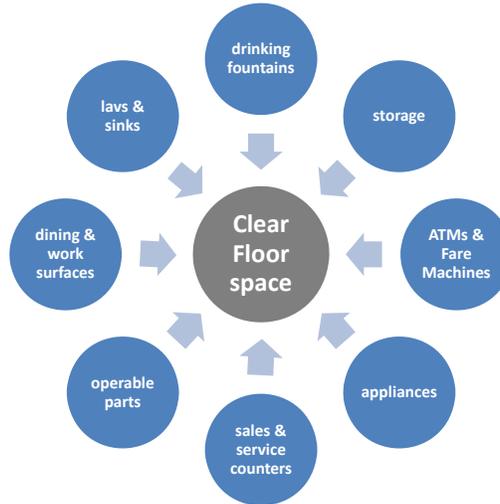
**Organized in one chapter for greater consistency, less redundancy**



14

# Chapter 3: Building Blocks

## Example: clear floor space references



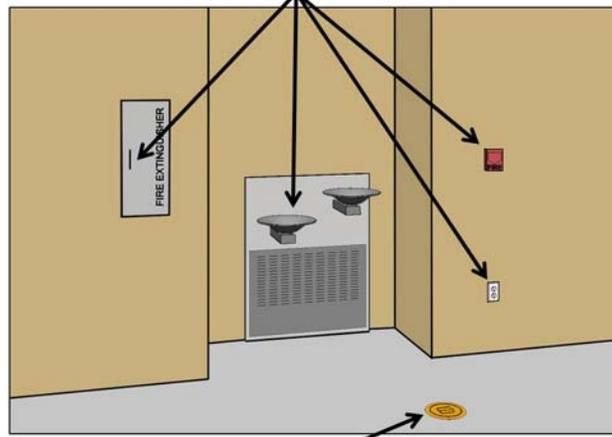
15

# Operable Parts

16

## Operable Parts (§205/ §F205)

### Examples



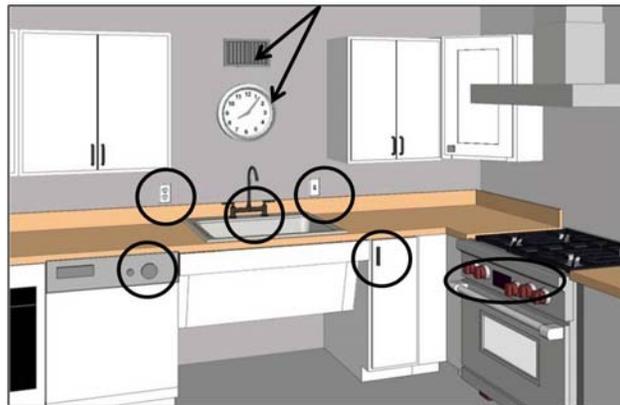
*Exempt: floor receptacles & operable parts used only by service or maintenance personnel*

17

## Operable Parts

### Examples in Kitchens

*Exempt: HVAC diffusers & dedicated electrical/ comm. receptacles*



**Appliance controls, handles to accessible storage, electrical outlets, switches, and faucet controls**

18

## Operable Parts (§309)

- Accessible route
- Clear floor space
- Reach range
- Operability



19

## Connecting Accessible Route



**AR must adjoin one full unobstructed side of the space**

20

## Connecting Accessible Route

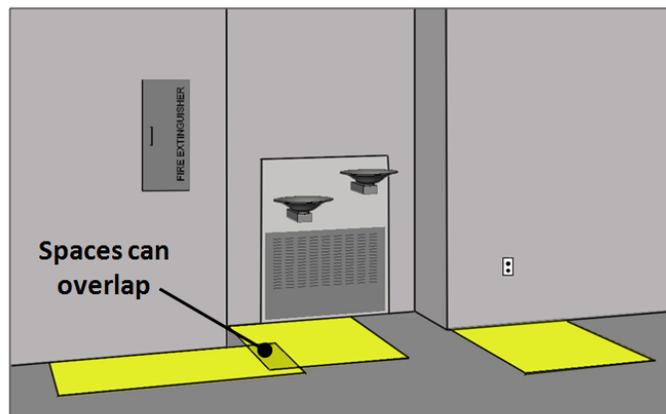


**Alterations - connecting AR to altered elements required:**

- if circulation path to element also altered or
- as part of accessible path of travel to altered primary function area (§202.3/ §F202.3, Ex. 1)

21

## Clear Floor/ Ground Space (§305)



**Clear floor space required at operable parts and other accessible elements (e.g., drinking fountains, lavatories and sinks, counters, dining/ work surfaces, etc.)**

22

## Clear Floor/ Ground Space



**Forward Approach:**

Required at dining/ work surfaces, DFs, lavatories, most sinks, urinals



**Side Approach:**

Specified/ usually provided at sales & service counters, beds, and most appliances

Either approach allowed at other elements

23

## Size/ Centering



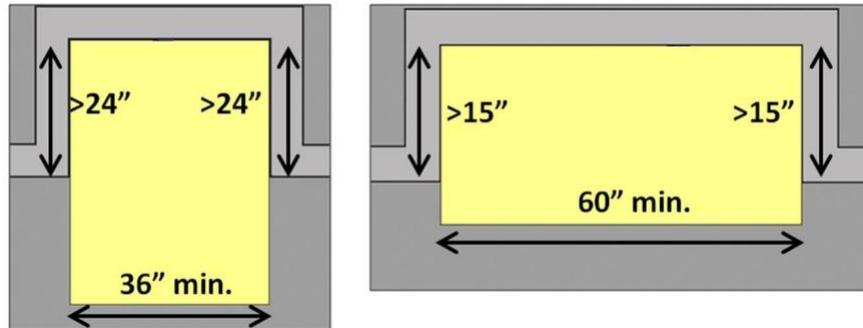
Minimum size:  
30" x 48"  
(unconfined)



Centering = required at only certain elements:  
DFs, kitchen work surfaces, washers & dryers

24

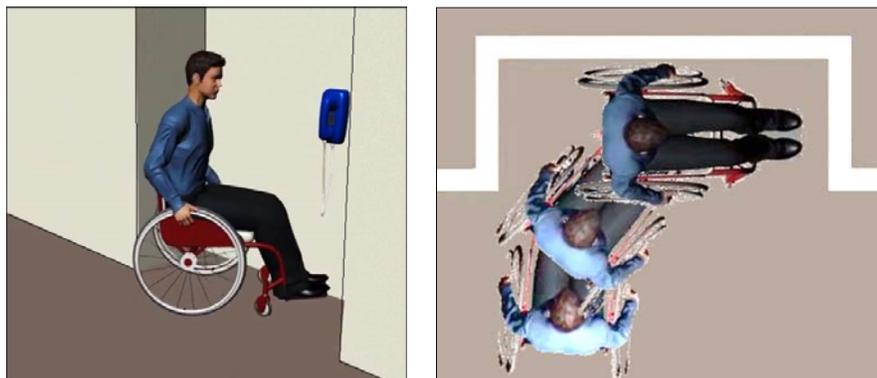
## Size (Confined)



**Additional clearance where space confined on 3 sides  
(and more than half of space depth confined)**

25

## Side Approach



**Parallel approach to element in alcove**

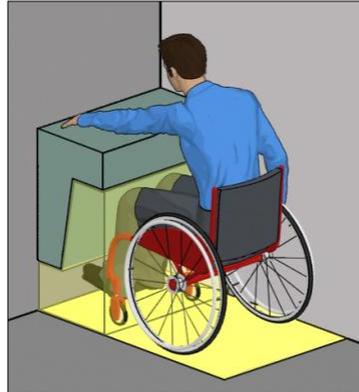
26

## Knee & Toe Space (§306)

Elements providing knee/ toe clearance can overlap space;  
can help reduce reach to operable parts



Toe Space



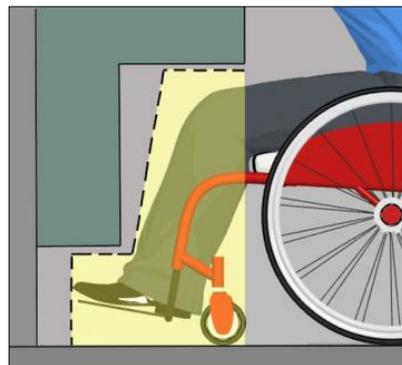
Knee & Toe Space

27

## Knee & Toe Space

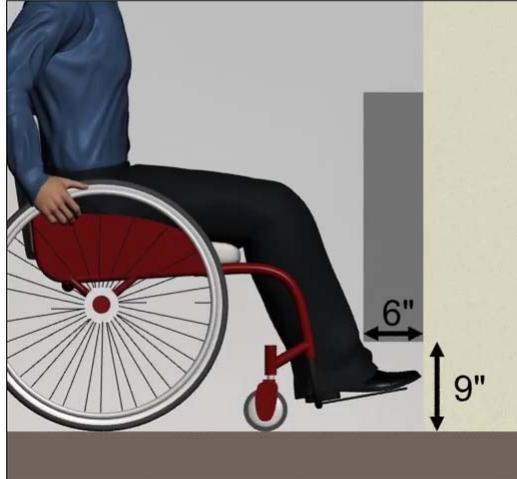
Required at :

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



28

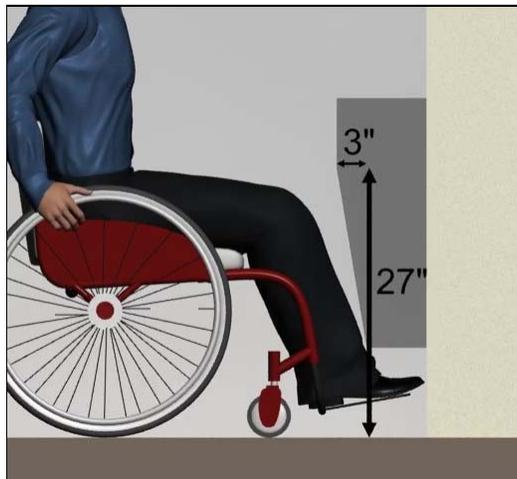
## Knee & Toe Space



Toe space

29

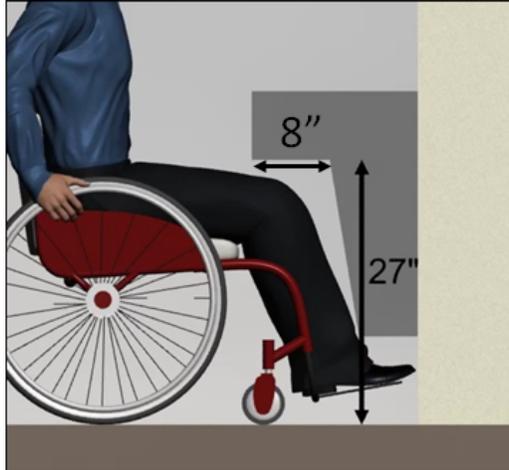
## Knee & Toe Space



Beyond toe space, clearance increases from 9" to 27" min. high over 3" span (6:1 slope)

30

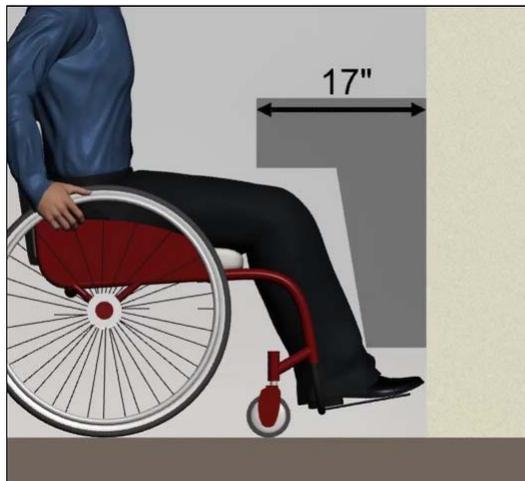
## Knee & Toe Space



**Knee Space (8" deep min. where knee space required)**

31

## Knee & Toe Space



**Required knee & toe space must be at least 17" deep**

32

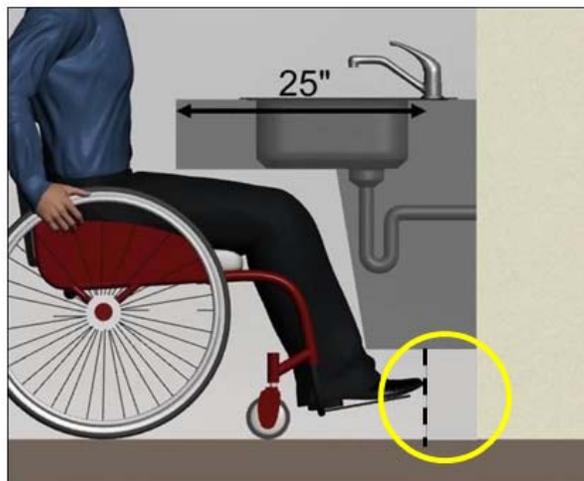
## Knee & Toe Space



**Additional depth must provide 27" min. clearance for knees (max. total depth 25")**

33

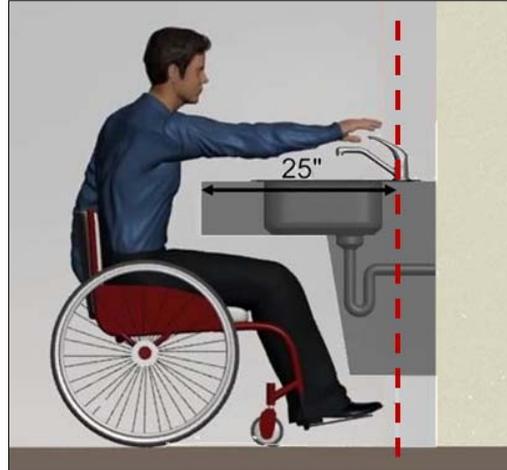
## Knee & Toe Space



**Space beyond 25" depth is not usable**

34

## Knee & Toe Space

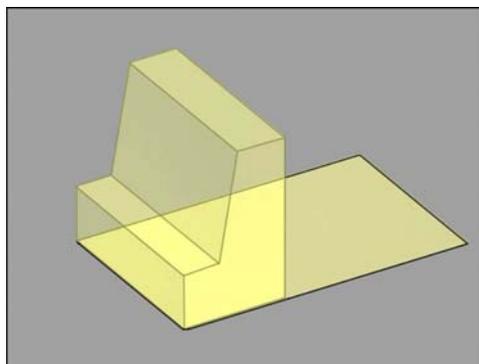


Obstructed reach cannot exceed depth of usable knee & toe space – also limited to 25" max

35

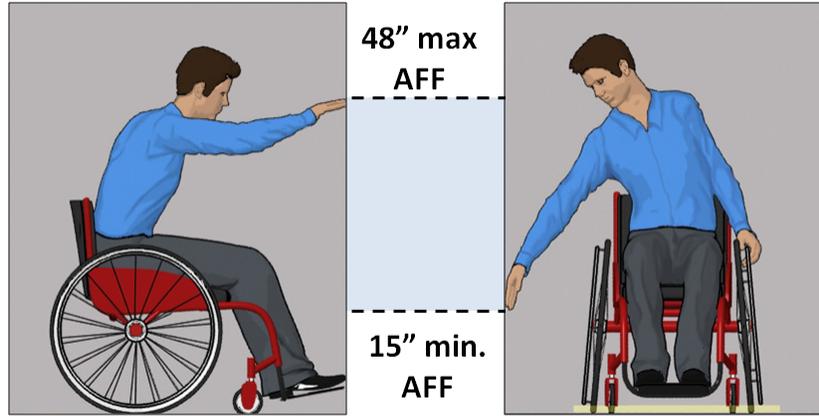
## Knee & Toe Space

No protrusions allowed into minimum knee & toe space (other than dip of overflow at sinks)



36

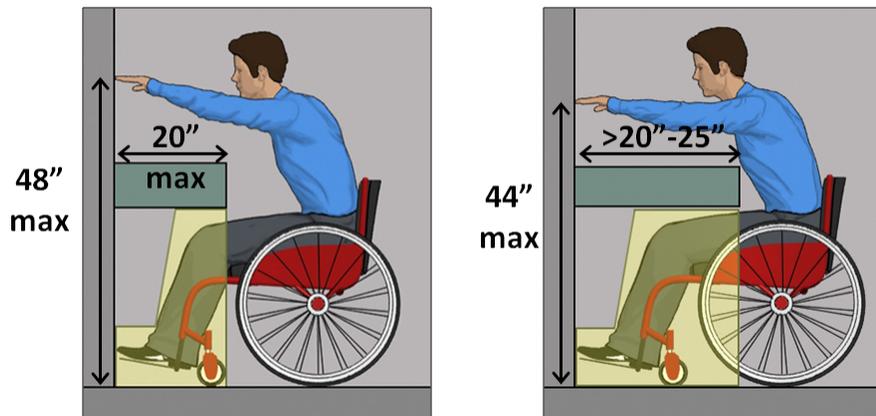
## Reach Ranges (§308)



Unobstructed forward and side reaches

37

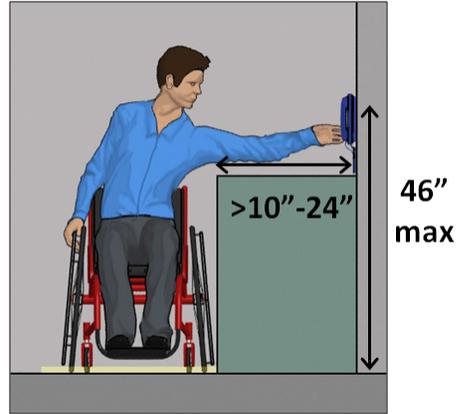
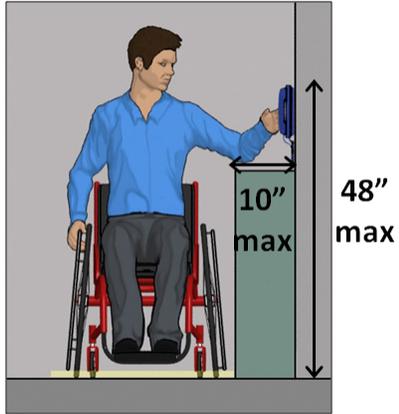
## Forward Reach (Obstructed)



Obstructed reach: 44" max. if reach depth exceeds 20"

38

## Side Reach (Obstructed)

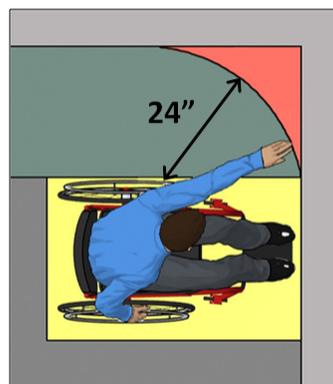
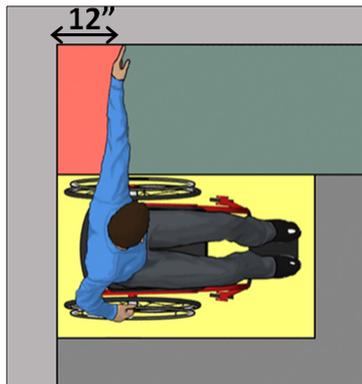


**Obstructed reach: 46" max. if reach depth exceeds 10" (height of obstruction 34" max)**

39

## Side Reach (Obstructed)

**Recommendation: consider standard reach radius in locating operable parts accessed from side approach**

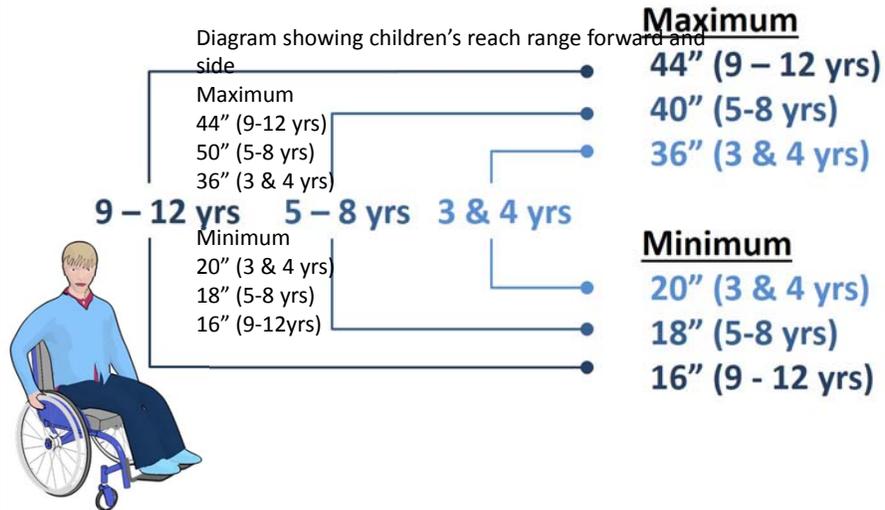


**Elements in corners can be hard to reach from side approach**

40

# Children's Reach Ranges

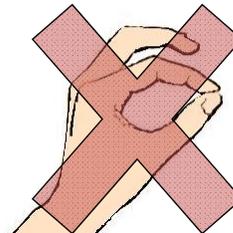
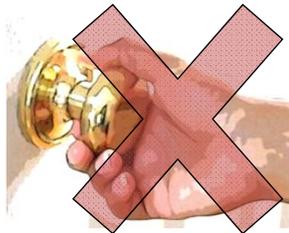
## Advisory (non-mandatory): Forward & Side



# Operability



- 1 hand operation
- no tight grasping, pinching, or twisting of wrist
- 5 lbf max.



## Operability

**Closed fist operation = good, but not mandatory**  
**Many other types comply (e.g., U-shaped pulls)**



43

## Operability

**Recommended:**

- **buttons - raised/flush (not recessed)**
- **no simultaneous action/ movement**
- **operable without hand or finger dexterity, fine motor movement**



**Not required to comply: non-fixed portions**  
**(e.g., keys, access cards)**

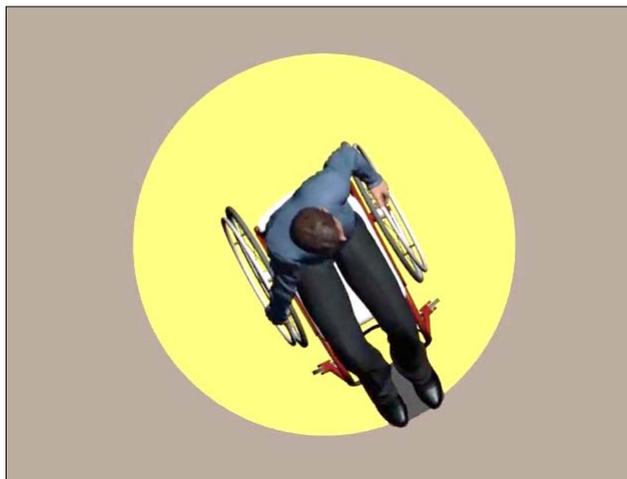


44

# Turning Space

45

## Turning Space (§304)

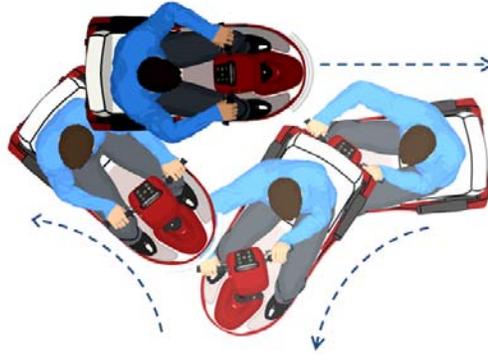


46

## Turning Space



Circular turn



3-point turn

47

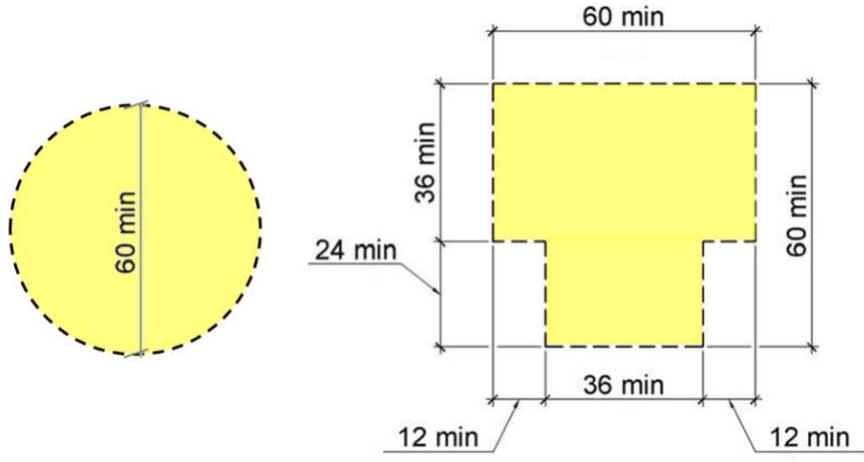
## Turning Space

### T-shaped space



48

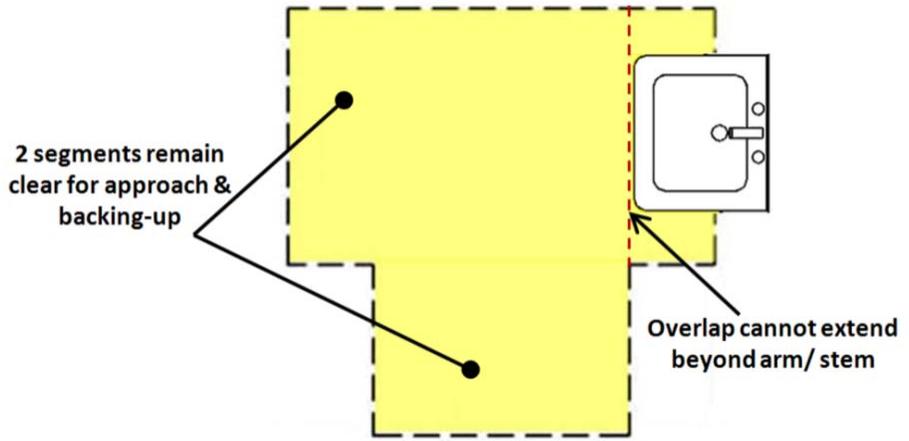
# Turning Space



60" Diameter Circle

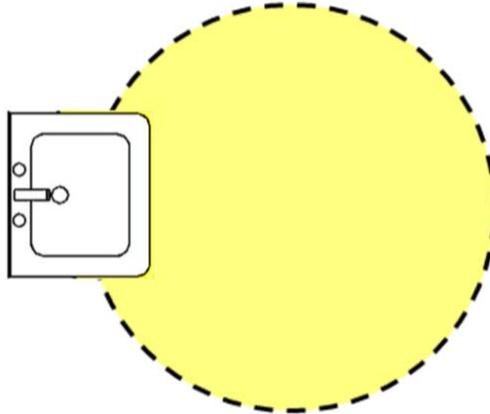
T-Shaped Space

# Overlap of Turning Space



Elements with knee/toe space can overlap either 1 arm or stem

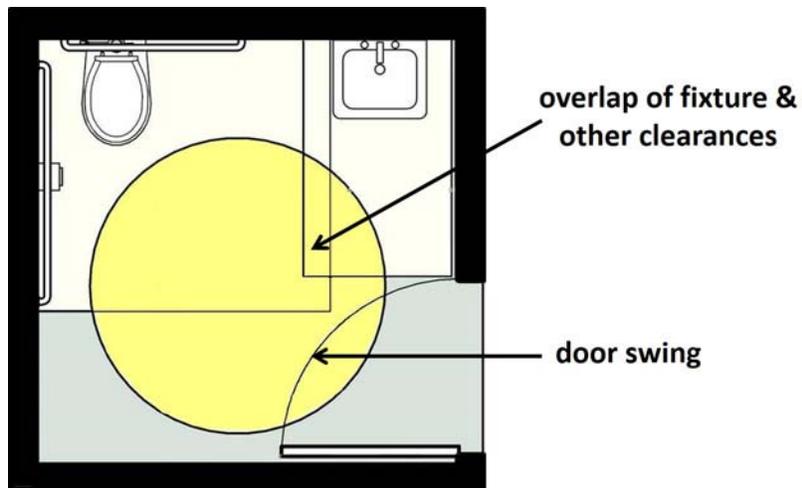
## Overlap of Turning Space



**Overlap of circular space (25" max)**  
**Recommended: avoid any overlap or limit to approximately 12" (wheelchair space remains clear)**

51

## Turning Space



**Turning space can overlap other clearances; door can swing into turning space**

52

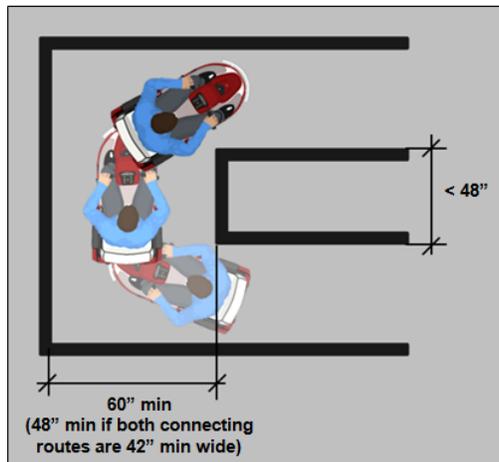
## Where Turning Space is Required

- toilet/ bathing facilities
- dressing/ fitting/ locker rooms
- transient lodging guest rooms
- dwelling units (all rooms on accessible routes)
- patient bedrooms
- holding and housing cells
- saunas and steam rooms
- courtrooms (raised stations served by ramps)
- certain recreation spaces



53

## Where Turning Space is Required



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

54

# Floor or Ground Surfaces

55

## Ground/ Floor Surfaces (§302)



**Firm, stable, and “slip resistant”**

56

## Ground/ Floor Surfaces



### Loose surface materials:

- most do not comply unless properly treated (e.g., binders, consolidants, compaction, and grid forms)
- repeated maintenance often required

57

## Ground/ Floor Surfaces

### Board sponsored longitudinal studies by National Center on Accessibility (NCA):

- **Playground Surfaces (October 2013)**
- **Natural Trail Surface Materials (March 2014)**

Reports available at  
[www.ncaonline.org](http://www.ncaonline.org)



58

## Slip Resistance

**Slip resistance – minimum level (“coefficient of friction”) not specified**



- **Standard practices for minimizing slipperiness often suffice**
- **Specify according to likely conditions (e.g. exposure to moisture)**

59

## Surface Smoothness



**Surface smoothness – changes in level**

**Recommendation: Avoid rough surfaces composed of cobblestones, Belgian blocks, etc. = difficult/ painful to traverse**

60

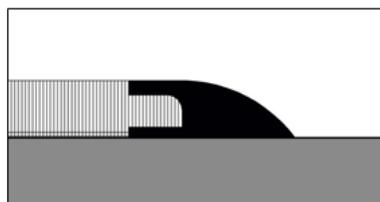
## Carpet

- 1/2" 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

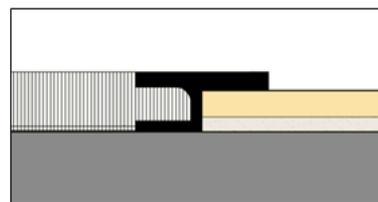
61

## Carpet

Trim required along exposed edges – must be fastened to the floor to prevent curling and meet changes in level specifications.



1/2" max height,  
1:2 max beveled edge



1/4" max high - vertical  
edge permitted

62

## Carpet



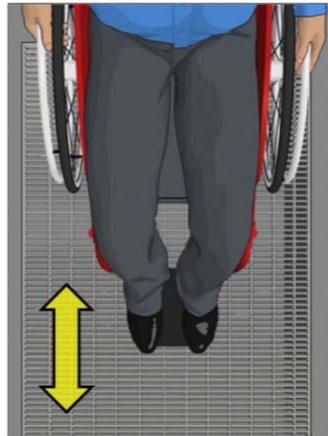
**Securement/ attachment to prevent rolling or buckling (which makes maneuvering difficult)**

63

## Openings

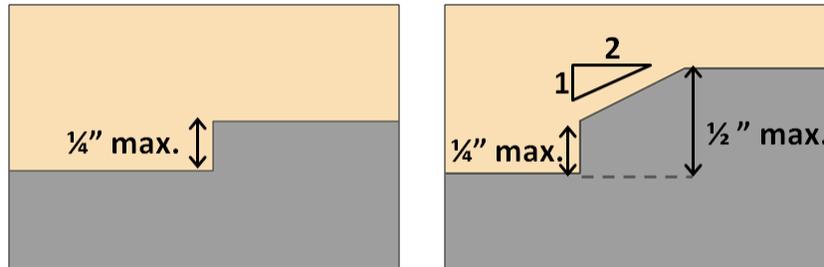
**½" max. in one dimension**

**Long dimension = perpendicular to travel direction**



64

## Changes in Level (§303)



**1/4" max. – no treatment**

**1/2" max. – 1:2 max. bevel**

**> 1/2" – treatment as ramp/ other means of vertical access**

65

## Changes in Level



**Apply to all level changes along accessible routes, including thresholds**

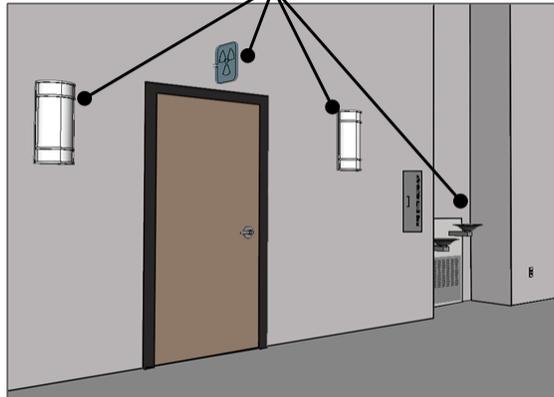
66

# Protruding Objects

67

## Protruding Objects (§307)

Examples of protruding objects

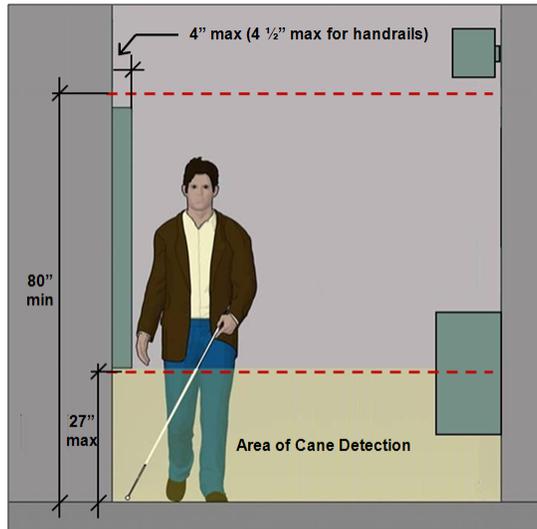


Protrusion limits apply to all areas of circulation  
– not limited to accessible routes

68

# Protruding Objects

Apply to ALL circulation paths, not just ARs



69

# Protruding Objects

Drinking Fountains



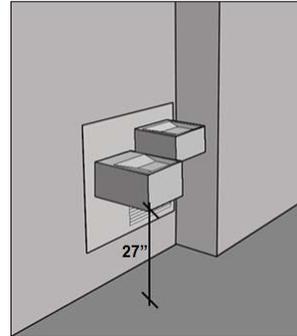
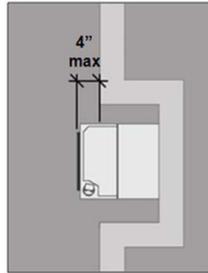
Elements often recessed to comply (e.g., drinking fountains at standard heights)

70

## Protruding Objects



Recessed to limit projection to 4"

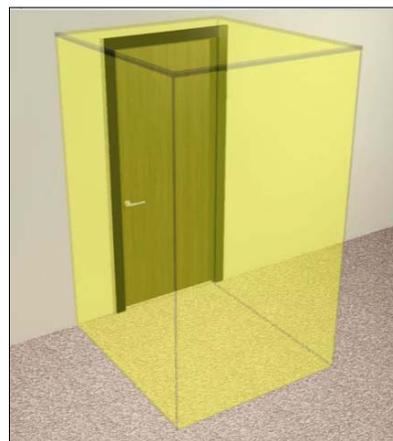


Wheelchair accessible unit (27" high absolute)  
can enclose one side of high units

71

## Protruding Objects

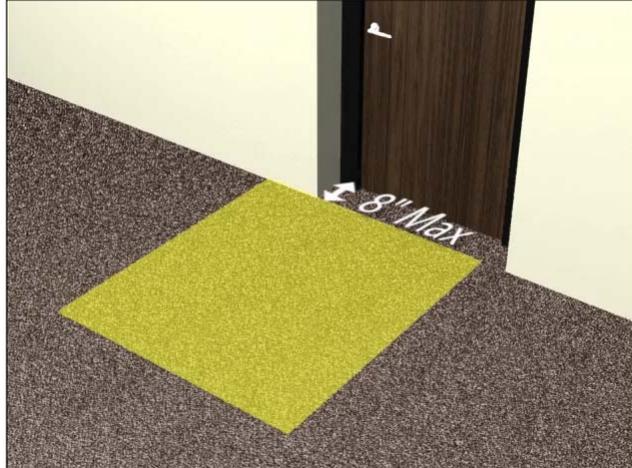
- Cannot reduce min. clear with required for accessible routes
- Cannot protrude into door maneuvering clearance



72

## Door Maneuvering Clearance

Wall thickness, elements can offset maneuvering clearance up to 8" from face of door



73

## Door Maneuvering Clearance

If recess > 8": maneuvering clearance for forward approach must be provided 8" max. from face of door



74

# Protruding Objects

## Post-mounted objects

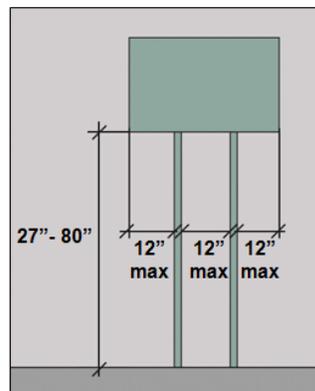
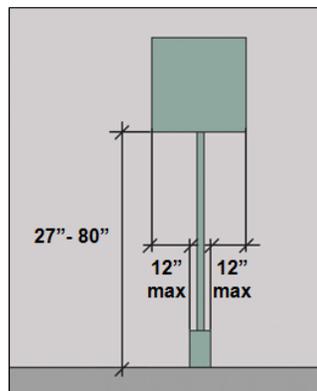


Protrusion limits also apply to objects mounted on posts

75

# Protruding Objects

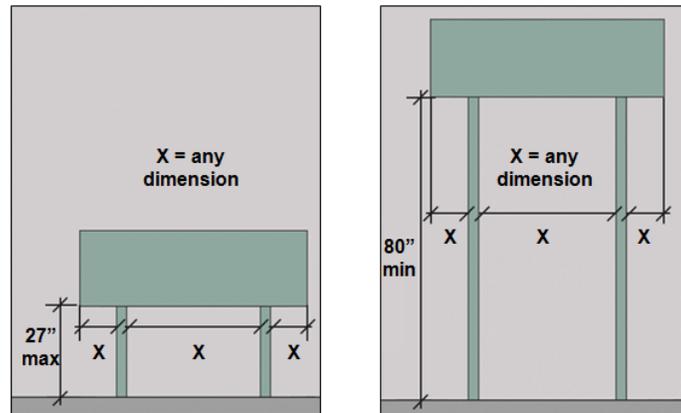
Objects with leading edges 27" - 80" high on posts/ pylons:  
12" max. protrusion into circulation paths.



76

## Protruding Objects

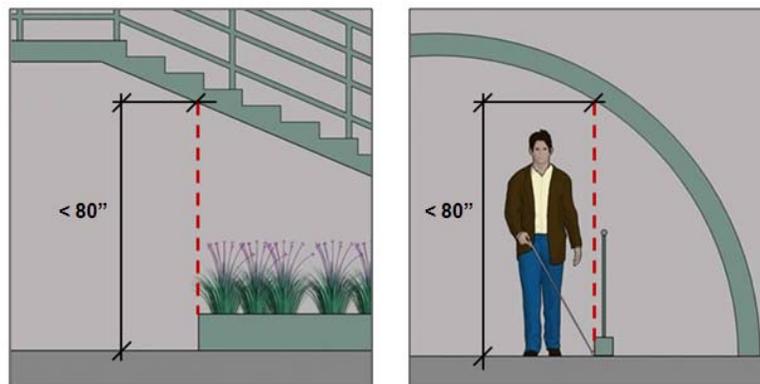
Post-mounted objects with leading edges 27" max or above 80" can protrude any amount



77

## Vertical Clearance

80" min. vertical clearance – guardrails or other barriers required where clearance < 80" (leading edge 27" high max.)



Reduced Clearance  
Below Stairway

Clearance Reduced at  
Curved (or Sloped Walls)

78

# Technical Guides on the Standards Available on the Board's website



78

# Questions?

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Area Text Box or press Control-M and enter text in  
the Chat Area

80



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81



## Continuing Education



**AIA Provider Number:** I017

**LA CES Provider Name:** Great Lakes ADA Center

**AICP Provider Name:** Great Lakes ADA Center



**Course Title:** Building Blocks: A Refresher (ADA & ABA Standards)

**Course Number:** GL20141002

**Date:** October 2, 2014



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Maintenance

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Questions will be addressed at the conclusion of this presentation.

82

**Thank you for participating  
in today's webinar**



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**November 6, 2014**

***Accessible Retail Stores and Spaces - "Advanced Session"***

***2:30 pm – 4:00 pm ET***

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83