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A collaborative program between the
ADA National Network and the
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1



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2



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4



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5



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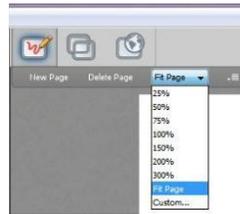
6



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7



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8



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9



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10

Accessible Exterior Routes and Surfaces

11

US Access Board



Bill Botten

12

Types of Facilities

Sidewalks

Accessible Route

Trails

Shared-use Paths

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PEDESTRIAN ROUTE	KEY ELEMENTS OF DESIGN INTENT
ACCESSIBLE ROUTES	Connects accessible elements and spaces of a building or facility on a site
SIDEWALK	Parallel to roadway Designed for pedestrians (not bicycles) Sometimes part of the roadway
TRAIL	Designed for the "recreation experience" Does not connect elements Generally includes a "trailhead" Has limited transportation function
SHARED-USE PATHS	Intended for multi-use Bicycle/Transportation focus Machine "laid" surface (improved) Often located in an "independent corridor" outside of the public right of way

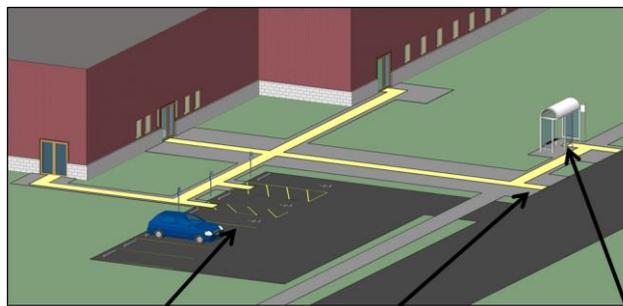
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Accessible Routes

15

Accessible Routes (206)

At least one accessible route to building entrances from site arrival points provided



P parking & passenger loading zones

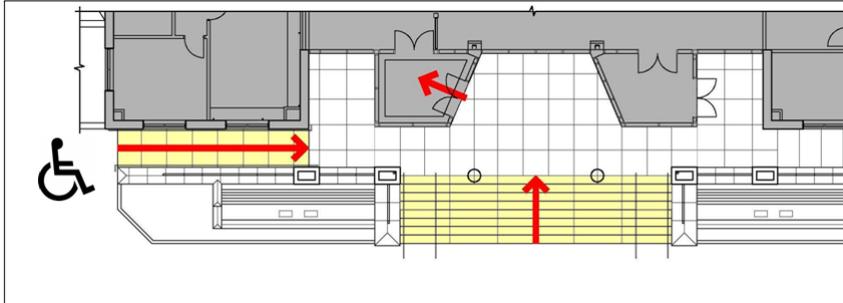
 streets & sidewalks

 transportation stops

16

Accessible Route Scoping

AR must coincide or be located in the same areas as general circulation paths



17

Alterations (202.3)

Within an altered space, standards apply to those elements that are altered



(accessible route not required unless circulation paths altered or path of travel required)

18

Alterations (202.3)

Standards apply based on:

- planned scope of work
- technical feasibility
- primary function areas/ path of travel

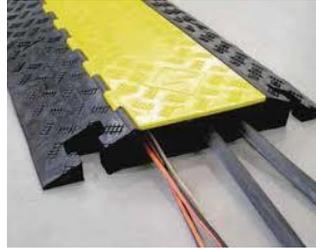
19

Temporary Facilities (201.3)



20

Temporary Facilities



21

Accessible Exterior Routes



22

Accessible Routes and Large Spaces



Site Furnishings;
Benches

23

Common Use Circulation Paths in Work Areas (ADA Only)

206.2.8
Exception 3:
exterior areas
fully exposed to
weather

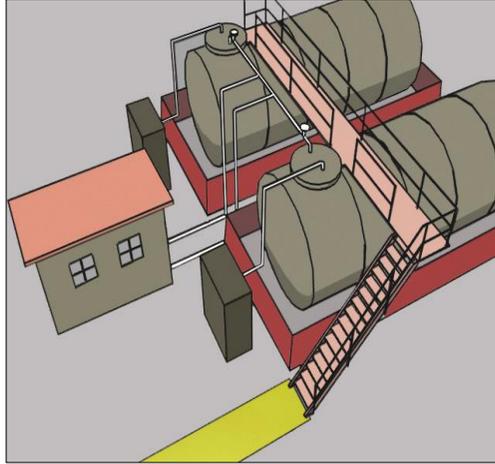


24

Common Use Circulation Paths in Work Areas (ADA ONLY)

206.2.8

**Exception 2:
circulation path
is an integral
part of
equipment**



25

Ground & Floor Surfaces (302)

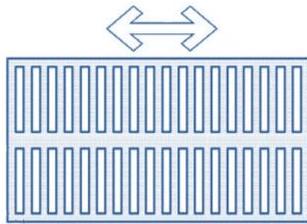


must be firm, stable, & “slip-resistant”

26

Ground & Floor Surfaces

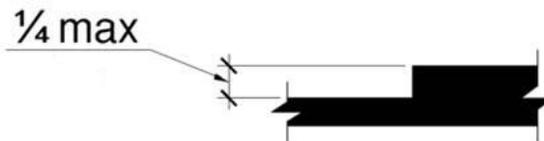
- Slip-resistance: specific value (coefficient of friction) not specified (Except - animal containment, sport activity)
- Carpet
- Openings (prevent passage of $\frac{1}{2}$ diameter sphere; elongated = perpendicular to dominant travel direction)



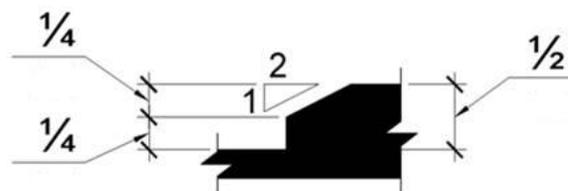
27

Walking Surfaces

changes in level: $\frac{1}{4}$ " max (vertical)

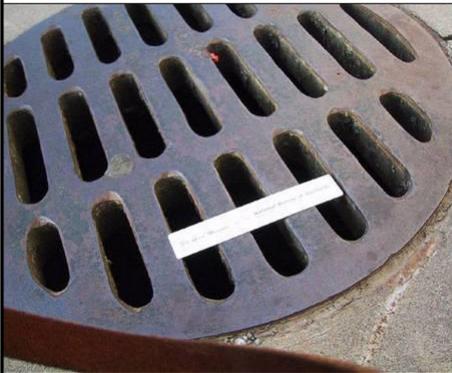


$\frac{1}{2}$ " max (beveled)



28

Grates and Openings



- No more than $\frac{1}{2}$ inch opening in the direction of travel.

29

Ground & Floor Surfaces

Rough surfaces (e.g. cobblestones) make wheelchair travel difficult and uncomfortable.



Recommended: Avoid materials or construction methods that create bumpy and uneven surfaces

30

Public Rights of Way

31

Public Rights-of-Way

New guidelines will address:

- Sidewalks and street crossings
- “Pedestrian access routes”
- Shared-use paths
- Medians and traffic islands
- On-street parking
- Pedestrian signals
- Street furniture and other elements



Board is finalizing guidelines

32

Routes



Pedestrian Access Route. A continuous and unobstructed path of travel provided for pedestrians with disabilities within or coinciding with a pedestrian circulation path.

Pedestrian Circulation Path. A prepared exterior or interior surface provided for pedestrian travel in the public right-of-way.

33

Design Basics

- Surface - firm, stable and slip resistant;
- Clear width – 60” min. or 48” min. w passing spaces;
- Grade – 5% max. or road grade;
- Cross slope - 2% max.;
- Level change max. – ¼” vertical or ½” beveled;
- No large openings or gaps;
- Clear space - 30” x 48” min. at entrances, signal pushbuttons, and other pedestrian features (drinking fountains, parking meters, ATMs...)

34

Running Slope (SNPRM)

R302.5.1 Within Street or Highway Right-of-Way - The grade shall not exceed the general grade of the adjacent street or highway.

R302.5.2 Not Within Street or Highway Right-of-Way - The grade of pedestrian access routes shall be 5 percent maximum.

R302.5.3 Street Crossings - The grade of pedestrian access routes shall be 5 percent maximum.

R302.5.4 Physical Constraints - Where compliance is not practicable due to existing terrain or infrastructure, right-of-way availability, a notable natural feature, or similar existing physical constraints, compliance is required to the extent practicable.

R302.5.5 Regulatory Constraints - Where compliance is precluded by federal, state, or local laws where the purpose is to preserve threatened or endangered species; the environment; or archaeological, cultural, historical, or significant natural features, compliance is required to the extent practicable.

35

Running Slope (Grade)



- If the ADA Building Standards slope is applied to the right of way...

36

Sidewalks (PAR)

Beveled edged pavers are an issue for roll ability.



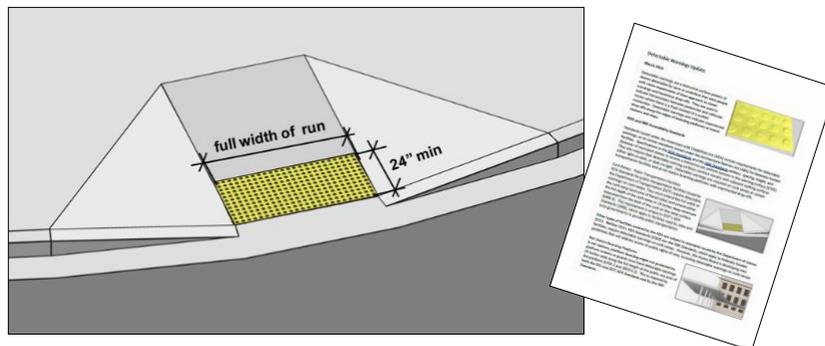
Rollability of Exterior Paved Surfaces (FY 2014)



37

Detectable Warnings

Proposed specifications for location at curb ramps



**PROW guidelines will provide further guidance
(e.g., placement at blended transitions)**

DW Update on Board's website

38

Detectable Warnings (705)

Required on curb ramps at:

- Transit facilities (DOT standards – 406.8)
- FHwy funded projects
- Public sidewalks (recommended – new ROW guidelines will address)



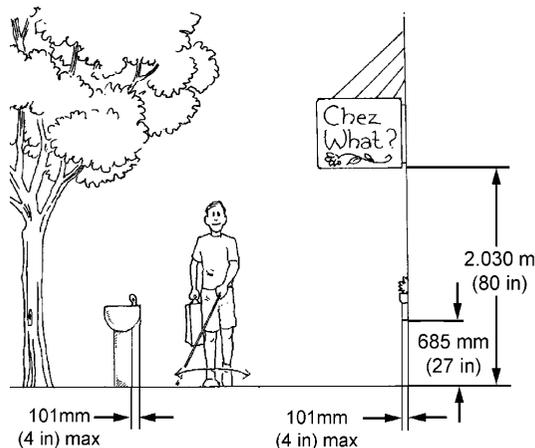
Not required on curb ramps at other facilities or hazardous vehicular areas

Required on rail station boarding platforms (810.5.2)



39

Circulation Path



Protruding Objects

40

Circulation Path (protruding objects)



41

Temporary Route Basics (Work Zones)

- Maintain pedestrian usability;
- Same-side alternate routes if feasible (extra crossings increase risk);
- Consider APS if extra crossings required;
- Cane-detectable barricades;
- PROWAG references MUTCD
- Temporary facilities are also covered (street fairs, block parties, farmers' markets...)

42

Security Barriers (206.8)

Security barriers (e.g., bollards) cannot obstruct ARs



43



44

Shared Use Paths

- Advance Notice of Proposed Rulemaking (published March 28, 2011)
- Differentiates between trails designed for transportation and recreation purposes (bicycle use)
- Comment period ended (June 27, 2011)
- **Supplemental Notice - 2013**
- Rulemaking conducted under the ADA and the ABA

45

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46

Width

- **NO** minimum clear width requirement
Full width must be accessible
- Width based on context, volume, and mix of users
Not Accessibility



Bollards

47

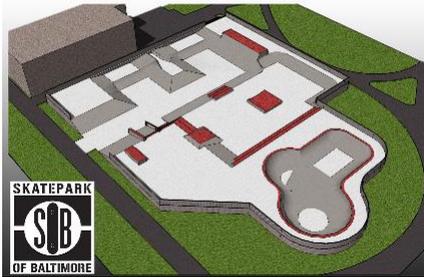
Next steps

- Complete regulatory assessment
- Final rule
- Adoption under the ADA and the ABA



48

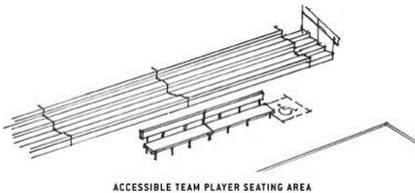
Area of Sport Activity



51

Team player seating areas

- Platform lift permitted



52

Area of sport activity

Court Sports –

Accessible route to directly connect both sides of the court



53

Observation Towers & Zip lines



203 General Exceptions
203.3 Raised Areas.
 Areas raised primarily for purposes of security, life safety, or fire safety.



54

Golf and Miniature Golf (238 & 1006) (239 & 1007)



Golf Car Passage



50% of the holes

55

Fixed Boating Facilities



- 36 inch minimum
- 30 inch maximum rise
- Level landings
- Handrails/Edge Protection
- Change in level
- Openings

56

Floating Facilities - Gangway Slope

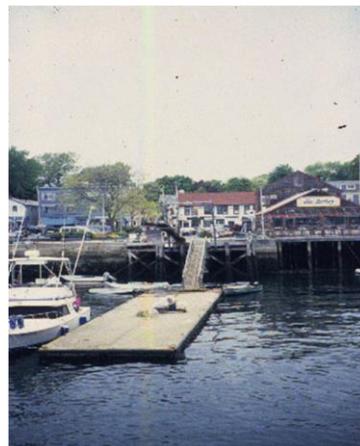
- Gangway slope – connecting floating facilities
 - Design for 1:12 maximum slope OR provide at least an 80 foot gangway



57

Gangway – Small Facilities

Less than 25 boat slips, the slope of the gangway may exceed 1:12 (8:33%), if the gangway is at least 30 feet long



58

Fixed Ramps on Floating Facilities

Follow accessible route requirements - maximum 1:12 slope, landings every 30 feet, edge protection, handrails, etc.



59

Accessible route to a recreational fishing pier?



60

Play Areas



61

Ground Level Accessible Routes

- Clear width
- Clear width reductions
- Changes in level
- Running Slope
- Cross Slope
- Openings
- Vertical Clearance
- Surface



62

Referenced Standards

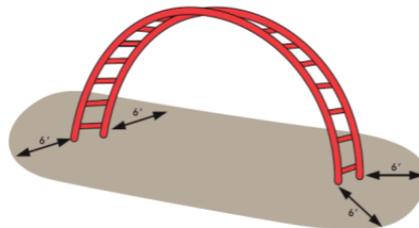


- **ASTM F 1487-01** - Standard Consumer Safety Performance Specification for Playground Equipment for Public Use.
- **ASTM F 1292- 99 or 04** - Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment.
- **ASTM F 1951-99** - Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment
- Use of “Equivalent facilitation” for more recently published versions of these standards

63

ASTM F 1487-01

- Defines the use zone as the ground area beneath and immediately adjacent to a play structure or play equipment .
- Provides for unrestricted circulation around the equipment and on those surfaces where it is predicted that a user would land when falling from or exiting play structures or equipment



64

Accessible Surfaces located in the Use Zone - 1008.2.6.2



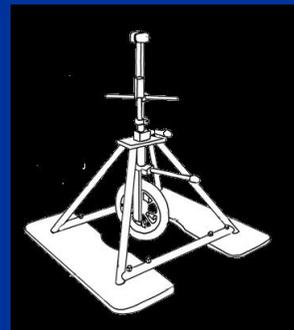
- If located within the use zone, the accessible ground surfaces must also be impact attenuating (ASTM F 1292-99 or 04);
- No value shall exceed:
 - 200 g-max
 - 1000 HIC

65

Accessible Surface Material



- ASTM 1951-99
- Determination of Accessibility of Surface Systems Under and Around Playground Equipment



66

ASTM F 1951-99

- Wheelchair Work Test Method
- A lab test in a controlled environment
- 7% ramp used as baseline
- Measures work per sq. ft. for straight propulsion and turning.
- Records data applied to push rim over 6 ½ ft. distance



67

Surface Inspection and Maintenance

Accessible ground surfaces must be inspected and maintained regularly & frequently to ensure continued compliance with ASTM F 1951-99.



68



Longitudinal Assessment NCA Playground Surface Study



Longitudinal Study on Playground Surfaces

Surfacing the Accessible Playground

7 Things Every Playground Owner Should Know About the Accessibility of Their Playground Surfaces

2016 A publication of the U.S. Access Board and the National Center on Accessibility

Selecting an Accessible Play Surface Is One of the Most Important Decisions

The U.S. Census Bureau's American Community Survey (2014) estimates there to be 2.8 million school-aged children with disabilities in the United States. The Census Bureau (2009) estimates that one in every seven American families is affected by disability. For children with and without disabilities, the community playground can facilitate a positive environment for physical activity and inclusion. Today, lack of physical activity is considered one of the leading factors contributing to poor health among children. The neighborhood playground fulfills a critical role in community wellness, enabling children to play with friends and burn calories at the same time.



prohibit adult caregivers with disabilities from engaging with their children and/or responding when a child is in need of assistance.

When the playground has barriers prohibiting use by a child with a disability, the opportunity for play and physical activity is lost. Inaccessible surfaces can pose barriers for children with disabilities who may use canes, crutches, walkers or wheelchairs from amputating through the play area. Pushing a wheelchair over loose gravel or sand requires tremendous physical effort. When so much effort is exerted, little to no energy is left for play.

The presence of physical barriers can prevent children with disabilities from accessing all play elements on the playground. Most significantly, inclusive play between children with disabilities and children without disabilities is threatened when the playground does not have accessible equipment and surfaces. Physical barriers also

Recreation professionals and playground owners are confronted with questions of how to install and maintain safe and accessible public playgrounds that are fun, promote inclusion and physical activity, are cost effective and able to withstand a full life cycle of public use.

Choosing play surfaces that are accessible and that can be maintained as accessible surfaces, becomes one of the most important decisions during the playground planning and design phases. The purpose of this guide is to provide practical information that every public playground owner should know about the accessibility of their playground surfaces.

- 1 Start with comprehensive planning and site selection.
- 2 Follow the Accessibility Standards for Play Areas.
- 3 Review the research findings about accessibility issues for play surfaces.
- 4 Assess during the planning, installation and maintenance phases.
- 5 Compare surface options.
- 6 Recognize that proper installation of play surface systems is key.
- 7 Commit to ongoing maintenance of accessible playground surfaces as a responsibility of ownership.

Loose Fill Surface Material

Advantages

- Generally cheaper per sq ft
- Easy installation
- Durable
- Readily available
- Drainage



Disadvantages

- Requires regular maintenance for accessibility/safety
- Easily displaced outside of containment area
- May be difficult to walk/wheel on
- May be flammable
- May be subject to vandalism
- Conceals trash and foreign objects

71

Unitary Surface Material

Advantages

- Consistent Accessibility
- Low maintenance
- Durable



Disadvantages

- Generally more expensive than loose fill
- More labor intensive installation



72

Sample Values for Various Surface Types*

Surface Type	Firmness	Stability
Concrete	.15 - .17	.17 - .19
Turfgrass	.55 - .65	.69 - .79
Carpet <i>(½ inch cut pile w/ ½ inch pad)</i>	.32 - .43	.41 - .55
Sand	1.13	< 1.13

**The values are from sample surfaces.*

73



74



Outdoor Developed Areas (ABA)



- Trails
- Picnic/Camping
- Beach Access Routes
- Viewing areas



Effective November 2013

Trails

- Pedestrian route developed primarily for outdoor recreational purposes
- Newly constructed/alterd trail directly connected to a trailhead or another trail that substantially complies with guidelines
- Conditional exceptions permitted – new and altered
- Shared use paths to be addressed in separate rulemaking

Trail Slope/Grade

Running Slope of Trail Segment		Maximum Length of Segment
Steeper than	But not Steeper than	
1:20	1:12	200 feet (61 m)
1:12	1:10	30 feet (9 m)
1:10	1:8	10 feet (3050 mm)

Surface Technical Requirements

- **Trails:** The surface of trails and their related passing spaces and resting intervals shall be firm and stable (1017.2).

Advisory 1017.2 Surface. A firm trail surface resists deformation by indentations. A stable trail surface is not permanently affected by expected weather conditions and can sustain normal wear and tear from the expected uses between planned maintenance.

CHAPTER 17: TECHNICAL PROVISIONS OUTDOOR DEVELOPED AREAS GUIDELINES

NPRM for outdoor developed areas

acceptable for the surface to be both moderately firm and moderately stable for trails less than .1 mile in length, and where the trail is moderately level (< 3% slope).

Table A Calculation and Classification	
Firmness Classification	Amount of Penetration
Very Firm	0.3 inches or less
Moderately Firm	Greater than 0.3 inches and less than 0.5 inches
Not Firm	Greater than 0.5 inches
Stability Classification	Amount of Penetration
Stable	0.5 inches or less
Very Stable	Greater than 0.5 inches and less than 1.0 inch
Not Stable	Greater than 1.0 inch

79

Trails

- 36 inches minimum width
- Passing spaces – every 1,000 feet where less than 60 inches in width
- Tread obstacles – 2 inches maximum, **except concrete, asphalt, or board** = ½ inch
- Openings – ½ inch maximum







Soil Stabilizers

NCA Trails Surface Study

- 11 surface materials (8 organic and 3 aggregate)
 - ¼ inch minus crushed limestone and dust
 - ¾ inch minus crushed limestone and dust
 - ¾ inch minus crushed limestone and dust base and ¼ inch minus crushed limestone and dust top dress
 - Klingstone 400
 - Stabilizer
 - StaLok
 - Soiltac Liquid Mix-in
 - Soiltac Liquid Topical
 - Soiltac Powder Mix-in
 - Soiltac Powder Topical
 - Polypavement



82

Outdoor recreation access route (ORAR)

- Modified accessible route
- Connects outdoor constructed features **within picnic facilities/units, camping facilities/units, designated trailheads or viewing areas - ONLY**



83

Outdoor recreation access routes

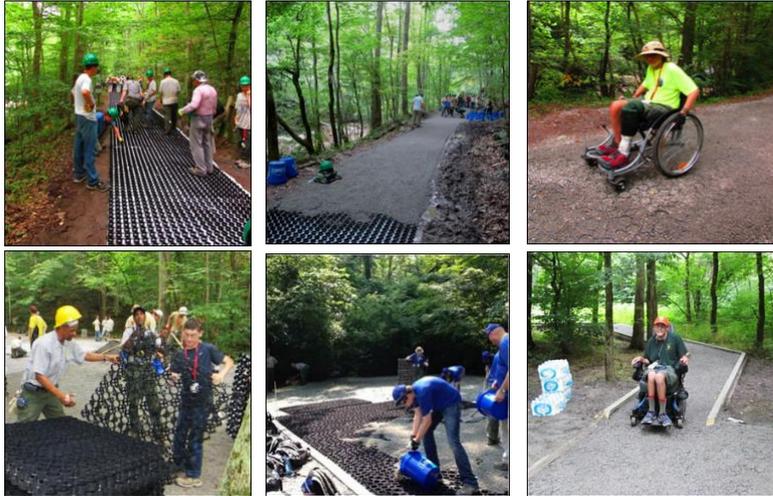
- Surface – firm and stable
- Clear width – 36 inches minimum
- Passing space – required where width is less than 60 inches - 200 ft. max
- Obstacles – 1 inch maximum, **except concrete, asphalt, or boards = ½ inch**
- Openings – ½ inch



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84

Trail and camping unit project



87

Parking



88

Beach access routes

Where required –

The construction or alteration of any of the following facilities to serve the beach:

1. Circulation paths;
2. Parking facilities;
3. Toilet facilities; or
4. Bathing facilities

Exception limits the cost of the beach access route to no more than 20 percent of the cost of constructing or altering the facilities

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89

Beach access routes

- Permanent or removable
- Minimum number – at least one for each ½ mile of shoreline managed by the entity
 - Not required to exceed the number of pedestrian access points to a beach provided by the entity



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90

Beach access routes

- Connections -
 - High tide level
 - Mean high water
 - Normal recreation pool
- Clear width - 60 inches min.
- Obstacles - 1 inch max,
except concrete, asphalt, or
boards = ½ inch



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91

Surface Technical Requirements

- **Beach Access Routes:** The surface of beach access routes and resting intervals shall be firm and stable (1018.3).



92

Questions?

You may type and submit questions in the Chat Area Text Box or press Control-M and enter text in the Chat Area

93

Technical Guides on the Standards

- Available on the Board's website



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94



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95

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Continuing Education

AIA Provider Number: I017
ICC#: 17432

Course Title: Accessible Exterior Routes and Surfaces
Course Number: GL20181101
Date: November 1, 2018



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96

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Common Sources of Confusion

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97