



Accessibility Compliance for Military Installations

February 2012

Did You Know?

More than 54 million Americans, almost 20 percent of the U.S. population, have disabilities. A disability is a physical or mental impairment that substantially limits a person’s major life activities. There are several laws that protect Americans with disabilities by prohibiting discrimination against them. Three of the laws require newly constructed or altered facilities to be accessible and usable to persons with disabilities. Compliance with these laws is mandatory and will also help integrate those with disabilities into mainstream society. The Department of Defense (DoD) has adopted standards to implement the laws. All military departments, including installations, are directed to meet the standards to the maximum extent feasible.

The Three Laws

What is the ADA?

The Americans with Disabilities Act of 1990 (ADA) is a major civil rights law that prohibits discrimination against persons with disabilities and sets design requirements for construction or alteration of

facilities. It applies to state and local government and private sector facilities. The Department of Justice and Department of Transportation maintain standards under the ADA.

What is Section 504 of the Rehabilitation Act?

Section 504 of the Rehabilitation Act of 1973 prohibits discrimination against persons with disabilities in any Federally-funded program or activity. Requirements include accessible new construction and alterations.

What is the ABA?

The Architectural Barriers Act of 1968 (ABA) requires that buildings and facilities that are designed, constructed, or altered with Federal funds, or leased by a Federal agency, comply with Federal standards for physical accessibility. The ABA applies to Federal facilities including those on military installations. The DoD maintains standards under the ABA.

What’s the Difference between ADA and ABA?

The ADA and the ABA differ in some of the provisions concerning employee work areas, modifications and waivers, definitions, and leased and residential facilities.

The ADA applies to state and local government and private sector facilities, while the ABA applies to Federal facilities. However, for the most part, the ADA and ABA application and scoping requirements are very similar. They also have similar implementing standards. This helps ensure consistency in access to all facilities, whether they are commercial or Federal, State, or local government-owned.

DoD’s Standards

ADA-ABA Accessibility Guidelines

Per the October 31, 2008 Deputy Secretary of Defense (DepSECDEF) Memo, Subject: Access for People with Disabilities, the DoD accessibility standards are based on the 2004 “Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines” (ADA-ABA Guidelines) developed by the U.S. Access Board (<http://www.access-board.gov/ada-aba/final.pdf>). Specifically, DoD’s adopted standards are included in ABA Chapters 1 and 2, and Chapters 3 through 10 of the guidelines, which specify what has to be accessible and how to

In This Issue...

Did You Know?	1	Ramps, Curb Ramps, and Blended Transitions . . .	3
The Three Laws	1	Detectable Warning Surfaces	4
DoD’s Standards	1	Accessible Pedestrian Signals and Pushbuttons . . .	5
Sidewalks	3	Parking Facilities	5

What's Wrong With These Photos?

See page 9 for the answers.



achieve access. Although ADA-ABA are written as guidelines, the October 31, 2008 DepSECDEF Memo states that the ADA-ABA Guidelines are adopted by the DoD. Therefore, since DoD adopted the guidelines, they are now standards with which DoD must comply.

Military installations must adhere to these adopted accessibility standards under the ABA and Section 504 of the Rehabilitation Act. This means that all facilities, worldwide, that are built, altered, or leased with DoD funds, must be made accessible to individuals with disabilities. These facilities include, but are not limited to buildings, structures, pedestrian routes, sidewalks, streets, alleys, driveways, and parking facilities.

The ADA-ABA Guidelines were primarily developed for buildings and site work (including accessible routes, ramps, curb ramps, and parking spaces) but not specifically for sidewalks, street crossings, and other pedestrian facilities in the public rights-of-way. Although ABA covers buildings and other structures, the focus of this bulletin is on transportation-related facilities; particularly sidewalks, parking areas, and traffic signals.

“It is the goal of the Department of Defense (DoD) to make its facilities accessible to persons with disabilities. To achieve that goal, the Department intends to go beyond the minimum requirements of law. Even if a facility is exempt from coverage under the Architectural Barriers Act of 1968 (ABA), compliance with the standards identified in this memorandum is recommended to the maximum extent that is reasonable and practicable without degrading the facility’s military utility.” Source: Deputy Secretary of Defense Memorandum, October 31, 2008.

Proposed Rights-of-Way Guidelines

The current enforceable standard is the ADA-ABA Guidelines (July 23, 2004).

New guidelines are currently being proposed by the U.S. Access Board for pedestrian facilities in the public rights-of-way. These facilities include sidewalks, street crossings, medians and traffic islands, on-street parking, signs, pedestrian signals, curb ramps, and passenger loading zones. The new guidelines, “Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way,” (hereafter called the “rights-of-way guidelines”) provide additional details on pedestrian facilities and supplement the ADA-ABA Guidelines. They can be found at <http://www.access-board.gov/prowac/nprm.pdf>. Once these rights-of-way guidelines are adopted by DoD, they become enforceable standards with which military installations must then comply. They are expected to be adopted in the near future; they are currently available for public comment. Until then, the proposed rights-of-way guidelines are neither mandatory or enforceable, but considered best practices for pedestrian facilities by the Federal Highway Administration (FHWA). They are included in this bulletin where applicable. The ADA-ABA Guidelines address access to buildings and facilities located on sites. Standards based on these guidelines apply within the boundary of covered sites as defined by property lines and public rights-of-ways. For public-rights-of-ways, the proposed public “rights-of-way guidelines” apply.

MUTCD

Accessibility requirements are also addressed in the Manual on Uniform Traffic Control Devices (MUTCD), FHWA/US DOT, 2009 http://mutcd.fhwa.dot.gov/kno_2009.htm. Military installations must comply with the standards presented in the MUTCD in accordance with Multi-Service Regulation (AR 55-80, OPNAVINST 1210.2, AFMAN 32-1017, MCO 11210.2D and DLAR 4500.19): DoD Transportation Engineering Program.

Sidewalks

The proposed “rights-of-way guidelines” require sidewalks to have a minimum width of 4 feet, excluding curb width. This minimum width allows for street furniture and other sidewalk objects. If the sidewalk’s clear width is less than 5 feet, passing spaces must be provided every 200 feet, at the most, to allow for wheelchair passing areas (Exhibit 1). These passing spaces must be a minimum of 5 feet by 5 feet. Also, medians and pedestrian refuge islands must be at least 5 feet wide to allow for passing space.

New sidewalks or reconstructed sidewalks along existing streets may follow the existing street profile at any grade, however ramp guidelines may apply in some cases. For ADA and ABA purposes, the maximum cross slope permitted on sidewalks is 2 percent. Grade breaks in the sidewalk (i.e. the lines where two surface planes with different grades meet) must be flush. The vertical differences in levels between two adjacent surfaces must be less than 0.25 inch, or 0.5 inch if the higher surface is beveled.

Sidewalk surfaces should be firm, stable, slip resistant, generally planar, and smooth. Surfaces should be chosen for easy rollability. Surfaces that are heavily textured or rough will greatly increase wheelchair rolling resistance and subject pedestrians who use wheelchairs, scooters, and rolling walkers to undesirable vibration.

Ramps, Curb Ramps, and Blended Transitions

Curb ramps and blended transitions, or a combination of both, connect the pedestrian access routes at each pedestrian street crossing. Curb ramps and blended transitions must be fully contained within the pedestrian street crossings served. It is typical for two curb

ramps to be provided at each street corner. If physical constraints prevent two curb ramps from being installed at a corner, a single diagonal curb ramp is permitted.

Ramps

Ramps on accessible routes should not be steeper than 1V:12H (8.3%). The cross slopes should not be steeper than 1V:48H (2.0%). The maximum rise for any run should be 30 inches. If the rise is greater than 6 inches, handrails and edge protection are required. The clear width of a ramp run, where handrails are provided, should be 36 inches minimum. Handrails are not required if the running slope is less than 1V:20H. Ramps should have landings at the top and bottom of each run that are as wide as the ramp and at least 60 inches in length. Ramps that change direction between runs should have landings of at least 60 inches by 60 inches.

Curb Ramps

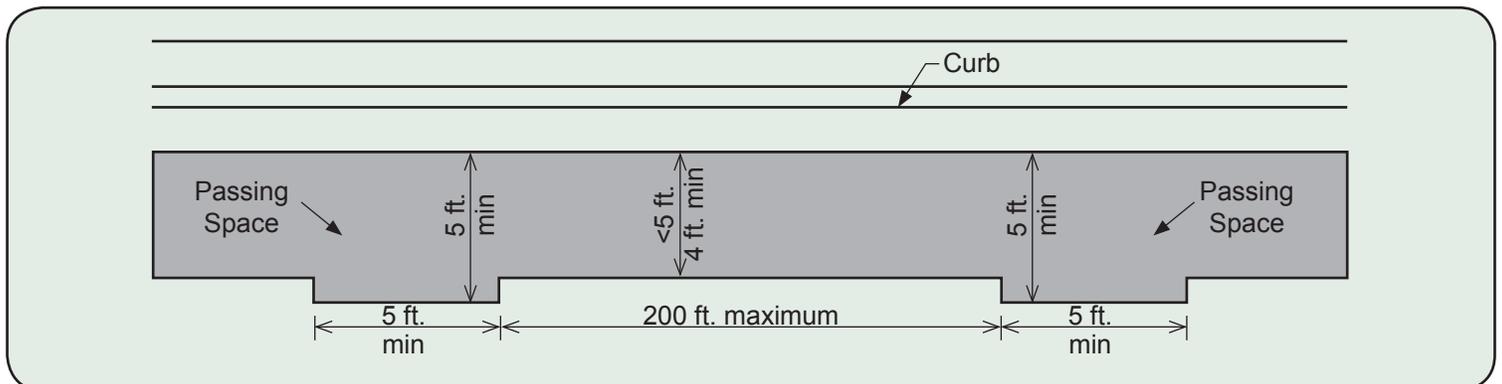
Curb ramps are ramps that are cut through or built up to the curb. Curb ramps can be perpendicular or parallel, or a combination of both. See Exhibit 3 on page 5 for layouts of these ramp styles.

Perpendicular curb ramps have a running slope that cuts through to the curb at right angles where the curb is curved.

Parallel curb ramps have a running slope that is in-line with the direction of sidewalk travel. They lower the sidewalk to a level turning space where a turn is made to enter the pedestrian street crossing. These can be provided where the sidewalk is at least 4 feet wide.

Parallel and perpendicular curb ramps can be combined where the sidewalk is at least 6 feet wide. A parallel curb ramp is used to lower the sidewalk to a mid-landing and a short perpendicular curb ramp connects the landing to the street. See Exhibit 7 on page 7 for common problems with ramps.

Exhibit 1: Guidelines for Passing Spaces on Sidewalks



Blended Transitions

Blended transitions are raised pedestrian street crossings, depressed corners, or similar connections between pedestrian access routes at the level of the sidewalk and the level of the pedestrian street crossing that have a grade of 5 percent or less. Blended transitions are suitable for a range of sidewalk conditions.

The proposed “rights-of-way guidelines” include the requirements for curb ramps and blended transitions as shown in Exhibit 2. Note that the current adopted standard (ADA-ABA Guidelines) does not cover blended transitions, so the requirements for blended transitions are not yet enforceable.

Detectable Warning Surfaces

Detectable warning surfaces benefit pedestrians who are blind or visually impaired by giving them the message that they are about to enter a roadway. They consist of small truncated domes aligned in a square or radial grid pattern that are built in or applied to a walking surface. They indicate the boundary between a pedestrian route and a vehicular route where there is a flush connection.

Detectable warning surfaces should be provided at curb ramps and blended transitions at pedestrian street crossings and pedestrian refuge islands. They are not required where the pedestrian refuge islands are cut-through at street level and less than 6 feet in length. The detectable warning surfaces should extend a minimum of 2 feet in the direction of pedestrian travel (Exhibit 3). They should also extend the full width of ramp runs (excluding flared sides), blended transitions, or turning spaces. They should contrast visually with the adjacent surfaces, either light-on-dark, or dark-on-light. The dimensions for dome size and spacing are shown in Exhibit 4.

Contact Us

Darren J. Guttman, P.E.

Phone: 618-220-5218

David G. Kirkpatrick

Phone: 618-220-5252

Thomas J. Mannino, P.E., PTOE

Phone: 618-220-5249

Douglas E. Briggs, P.E.

Phone: 618-220-5289

Brenda K. Roth, P.E., PTOE

Phone: 618-220-5290

Mickeal D. Carda, P.E.

Phone: 618-220-5450

David F. Clark, Jr.

Phone: 618-220-7747

**Military Surface Deployment and
Distribution Command
Transportation Engineering Agency**

1 Soldier Way

Scott Air Force Base, Illinois 62225-5006

DSN: 770-5252

Fax: 618-220-5125

Email: sddc.safb.traffic@us.army.mil

Web Site: <http://www.tea.army.mil> for pamphlets,
bulletins, and studies

Exhibit 2: Requirements for Curb Ramps and Blended Transitions

	Perpendicular Curb Ramps	Parallel Curb Ramps	Blended Transition
Turning Space	4 ft by 4 ft at top of ramp 2% max slope	4 ft by 4 ft at bottom of ramp 2% max slope	2% max slope
Running Slope	5%-8.3% (max ramp length is 15 ft)	5%-8.3% (max ramp length is 15 ft)	5% max
Flared Sides	10% max slope		
Cross Slope	2% max	2% max	2% max
Width	4 ft min	4 ft min	4 ft min

Exhibit 3: Size and Placement of Detectable Warning Surfaces

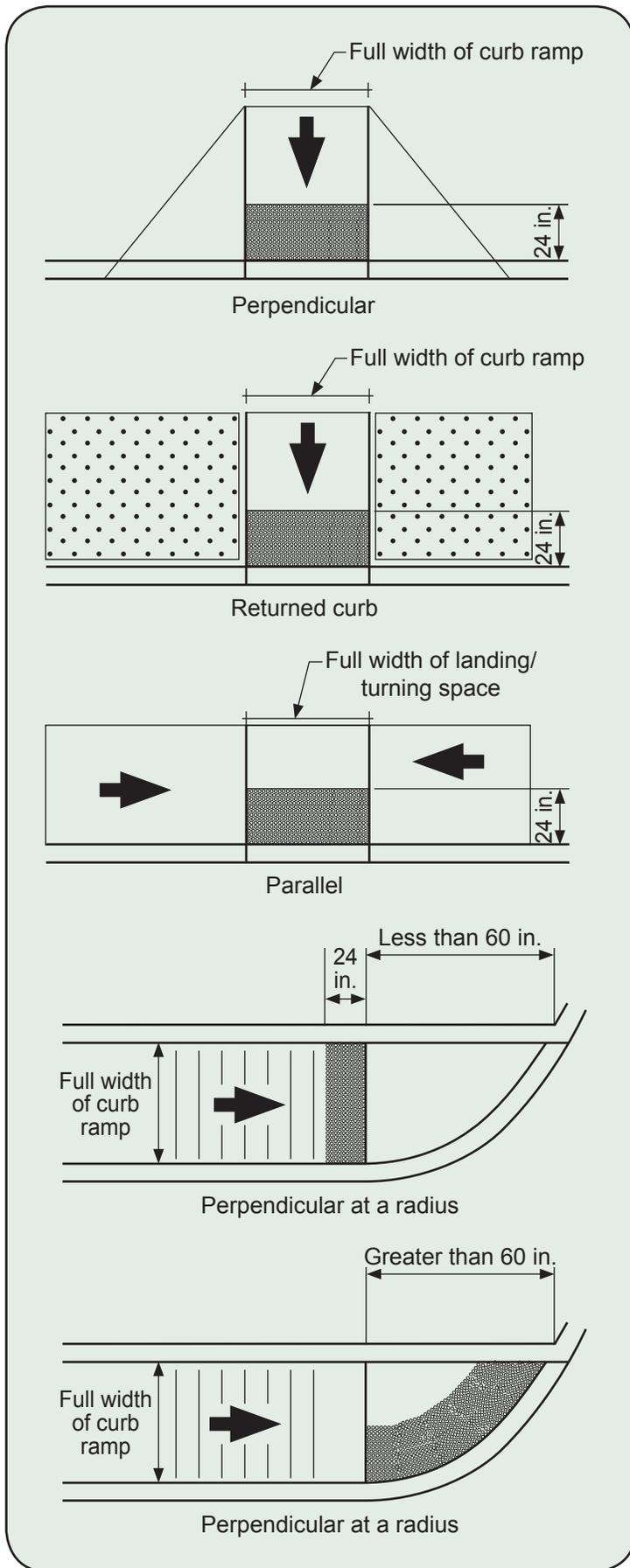


Exhibit 4: Dimensions for Detectable Warning Surface Domes

Dome Base Diameter	0.9 inch - 1.4 inches
Dome Top Diameter	50-65 percent of the base diameter
Spacing (center to center)	1.6 - 2.4 inches

Accessible Pedestrian Signals and Pushbuttons

An accessible pedestrian signal is an integrated device that provides information about the WALK/DONT WALK intervals at signalized intersections, using audible tones, speech messages, and/or vibrating surfaces. These benefit pedestrians who are blind or have low vision. While traditional pedestrian signals are still commonly used, the use of accessible pedestrian signals is optional and should be determined through an engineering study. If needed, they should be provided when new pedestrian signals are installed, altered, or replaced.

When used, the accessible pedestrian signals should comply with Sections 4E.09-4E.13 of the MUTCD. Whether accessible pedestrian signals or traditional pedestrian signals are used, the pedestrian signal phase timing must comply with MUTCD standards and be based on a pedestrian walking speed of 3.5 feet per second or less.

When accessible pedestrian signals are used, the pedestrian pushbutton has a locator tone for detecting the device and a tactile arrow to indicate which pedestrian street crossing is served by the device. All pedestrian pushbuttons must be located no greater than 10 inches from the landing area and mounted at a height of 42 inches from the elevation of the sidewalk.

Parking Facilities

Number of Spaces

Both the currently enforceable ADA-ABA Guidelines and the proposed "rights-of-way guidelines" require a minimum number of accessible parking spaces according to the total number of spaces provided (see Exhibit 5). In general, this amounts to about 4 percent of the total number of spaces within a lot or on-street for the first 100 spaces; 3 percent for 101-200 spaces; and 2 percent for more than 200 spaces. Medical facilities require additional accessible parking: hospital outpatient facilities require 10 percent of patient and visitor parking spaces, and rehabilitation and outpatient physical therapy facilities require 20 percent of patient and visitor parking. One in six (or fraction of six) accessible parking spaces should be van accessible.

Per the current and proposed standards, the minimum numbers in Exhibit 5 are required for all parking facilities built or altered by Federal funds or leased by Federal agencies.

Exhibit 5: Required Number of Parking Spaces

Total Number of Parking Spaces in Parking Lot or Structure, or On-Street Along the Block Perimeter	Minimum Number of Required Accessible Parking Spaces for Parking Lot or Structure	Minimum Number of Required Accessible Parking Spaces for On-Street
1-25	1	1
26-50	2	2
51-75	3	3
76-100	4	4
101-150	5	5
151-200	6	6
201-300	7	4 percent of total
301-400	8	4 percent of total
401-500	9	4 percent of total
501-1000	2 percent of total	4 percent of total
1001 and over	20, plus 1 for each 100 or fraction thereof, over 1000	4 percent of total

Location of Spaces

Accessible parking spaces in lots or structures should be located on the shortest accessible route from parking to an accessible entrance. These spaces can be located in different parking lots or structures if more convenient to accessible entrances. On-street accessible spaces should be located close to key destinations and where the street’s crown and grade are at a minimum.

Check Out the ADA Hotline

For ADA information, answers to specific technical questions, or free ADA materials contact:

1-800-514-0301 (voice)

1-800-514-0383 (TTY)

<http://www.ada.gov/infoline.htm>

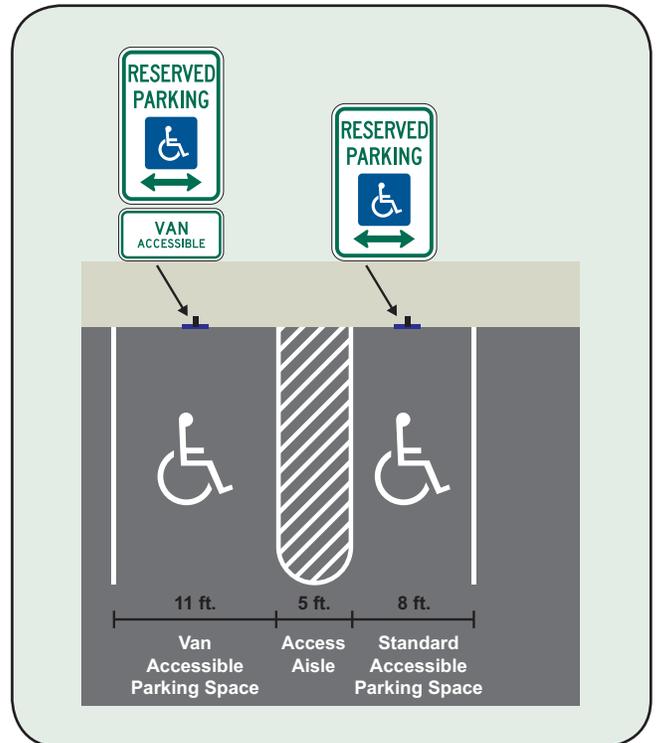
Width

Car parking spaces should be at least 8 feet wide and van parking spaces should be at least 11 feet wide, measured from the centerline of the parking space pavement marking.

Access Aisles

Access aisles should be at least 60 inches wide, extend the full length of the adjacent accessible parking space, and not overlap the vehicular way (Exhibit 6). The aisles should be clearly marked to discourage parking in them. They can be placed on either side of the parking space. However, if van and car spaces share an access aisle, it is preferable to locate the van space so that the access aisle is on the passenger side. Access aisles for angled van parking spaces should be on the passenger side.

Exhibit 6: Vehicle Parking Spaces and Access Aisles



Access aisles should be the same level as the parking space and not steeper than 1:48. Curb ramps should not be built-up in the access aisles because the slopes would be greater than 1:48.

Access aisles for on-street parking are required where adjacent sidewalks are 14 feet wide or greater (Exhibit 8). The aisles should be clearly marked and be a minimum of 5 feet wide or 8 feet for van accessible spaces. If the adjacent sidewalks are less than 14 feet wide, access aisles are not required and the accessible parking space should be located at the end of the block face (Exhibit 9).

	Common Problem	
Landing Areas	Landing areas where ramps change direction (e.g., switchbacks or 90° turns) are too small.	Wheelchair users are unable to use the ramp if there is not enough space. The ramp is unusable.
Curb Ramps	Curb ramp that is located across a circulation path does not have flared sides.	People walking across the path who use wheelchairs or other mobility devices are blocked by the curb ramp's flared sides.
Parking Access Aisles	The built-up curb ramp projects into the access aisle.	When an access aisle is not clear, it is unusable. The wheelchair user is unable to get away from a car or van. The wheelchair user is unable to get out of the vehicle. The wheelchair user is unable to get a wheelchair lift from the vehicle.
	The accessible parking space and access aisle is not level in all directions.	
	There is no accessible route from accessible parking to an accessible entrance.	A person using a wheelchair is unable to get from the accessible parking space to the accessible entrance. Often when there is an accessible route, wheelchair users must be dangerous.
	No van accessible spaces are provided in the parking area.	A person who uses a van is unable to get into the van if there is inadequate space to load or unload the vehicle.

¹The proposed guidelines use the mandatory language “shall” and “requirement” because the guidelines are intended to be adopted, with or without additions and modifications, as accessibility standards in regulations issued by other federal agencies implementing Title II of the Americans with Disabilities Act, Section 504, and the Architectural Barriers Act.” Source: “Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way” July 26, 2011.

Exhibit 8: On-Street Vehicle Parking Spaces for Sidewalks > 14 Feet Wide

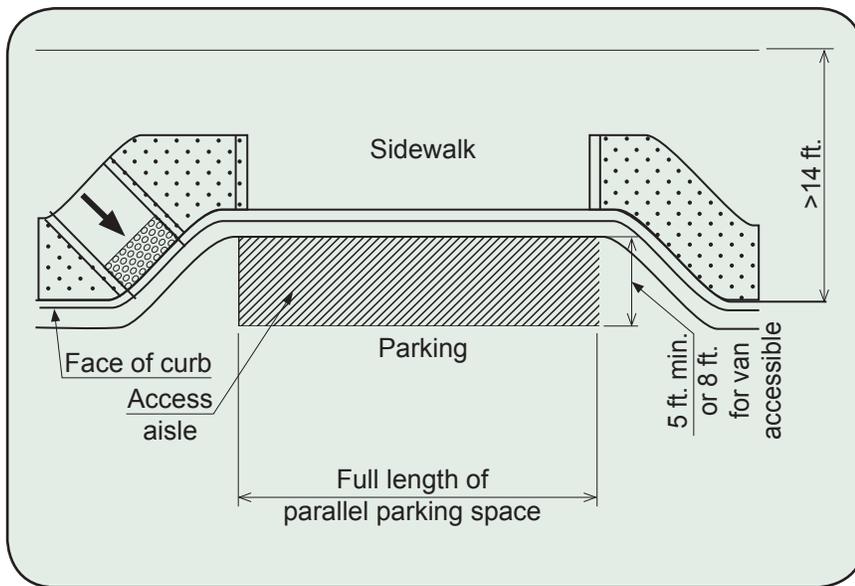
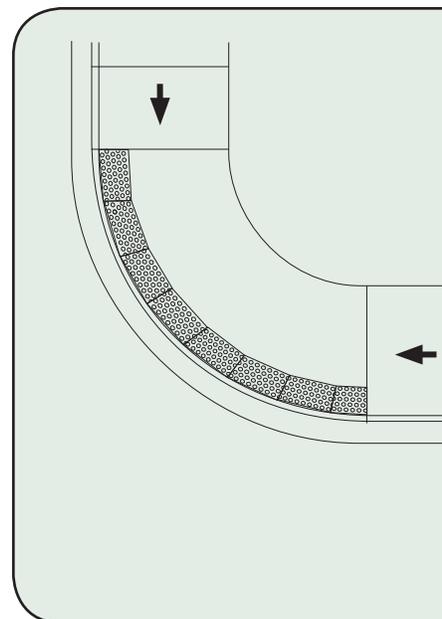


Exhibit 9: On-Street Vehicle Parking Spaces for Sidewalks < 14 Feet Wide



Common Problems

Consequence	Standard
Unable to go up or down the ramp because space to turn on a level surface. This makes the	ADA-ABA Guideline 405.7.4. Ramps that change direction between runs shall have a clear landing 60 inches minimum by 60 inches minimum.
As the curb ramp may trip and be injured. People can tip over if they accidentally roll over the non-	Proposed "rights-of-way guideline" R304.2.3. Flared Sides. Where a pedestrian circulation path crosses the curb ramp, flared sides shall be sloped 10 percent maximum, measured parallel to the curb line. See Exhibit 10. ¹
When on a sloped surface, a wheelchair may roll on preventing the wheelchair user from getting on a sloped surface also prevents a van-mounted wheelchair from fully-lowered to the access aisle surface.	ADA-ABA Guidelines 502.4 Floor or Ground Surfaces. Access aisles shall be at the same level as the parking spaces they serve. Changes in level are not permitted.
A wheelchair, scooter, or walker has no way of accessing the parking space to the building entrance. An inaccessible walkway provided for others, but use a roadway or vehicular route, which can	ADA-ABA Guidelines Advisory 502.3 Access Aisle. Accessible routes must connect parking spaces to accessible entrances. Note that it is acceptable to not provide accessible parking spaces if a different location is better suited for the accessible parking for that facility.
A van equipped with a wheelchair lift has to lower the wheelchair lift and get out of the	ADA-ABA Guidelines 208.2.4 Van Parking Spaces. For every six or fraction of six parking spaces required by 208.2 to comply with 502, at least one shall be a van parking space complying with 502.

Vehicle Parking Spaces < 14 Feet Wide

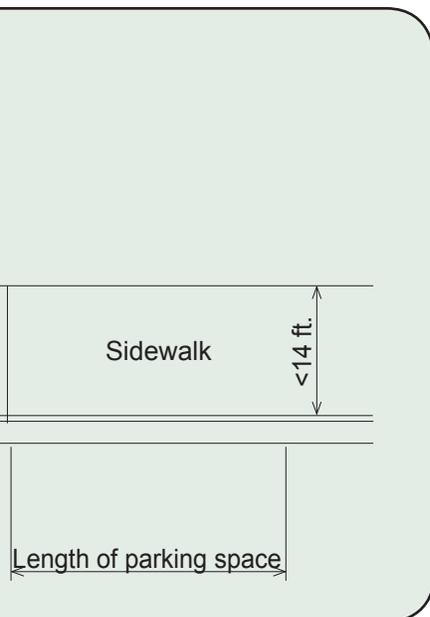


Exhibit 10: Correct Curb Ramp with Flared Sides



Answers from Page 2



This photo shows a diagonal curb cut and detectable warning surface. Although not prohibited, this configuration is not preferred. Though the detectable warning surface is intended to direct visually impaired people into the crosswalk, this style of diagonal curb cut is not aligned with the crosswalk and directs people diagonally into the intersection.



The detectable warning surface is incorrectly located on the curb cut. The detectable warning surface should be located at the entrance to the roadway, not at the toe of the slope if the slope is located within the sidewalk.



The slope of this ramp exceeds the maximum allowed for a ramp, per ADA. Additionally, it lacks the detectable warning surface. The maximum allowable slope is 8.3 percent (or 1V:12H). In this case, there is sufficient room available to lengthen the ramp, thereby reducing the slope.

Signs

Signs, such as those shown in Exhibit 11, displaying the International Symbol of Accessibility (Exhibit 12) are required.

Van parking signs should contain “Van Accessible” for informative, not restrictive, purposes. The bottom of the signs should be at least 60 inches above the ground surface.

Exhibit 11: Parking-Related Signs from MUTCD



R7-8 & R7-8P

Exhibit 12: International Symbol of Accessibility



Vertical Clearance

The vertical clearance for van accessible parking spaces, their access aisles, and the routes serving them should be at least 98 inches.



MR. BRUCE A. BUSLER, SES
Director, Transportation Engineering Agency

DEPARTMENT OF THE ARMY

Military Surface Deployment
and Distribution Command
Transportation Engineering Agency
1 Soldier Way
Scott Air Force Base, Illinois 62225-5006

OFFICIAL BUSINESS

Reference List

- ✓ Americans with Disabilities Act of 1990 (ADA)
- ✓ Rehabilitation Act of 1973, Section 504
- ✓ Architectural Barriers Act of 1968 (ABA)
- ✓ Deputy Secretary of Defense Memorandum, Subject: Access for People with Disabilities, October 31, 2008
- ✓ Federal Highway Administration, Manual on Uniform Traffic Control Devices (MUTCD), 2009
http://mutcd.fhwa.dot.gov/pdfs/2009/pdf_index.htm
- ✓ SDDCTEA Better Military Traffic Engineering, SDDCTEA Pamphlet 55-17, 2011
- ✓ U.S. Access Board, Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines, July 2004 (ADA-ABA Guidelines) <http://www.access-board.gov/ada-aba/final.pdf>
- ✓ U.S. Access Board, Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way, July 2011 (rights-of-way guidelines) <http://www.access-board.gov/prowac/nprm.pdf>
- ✓ U.S. Access Board, Public Rights-of-Way www.access-board.gov/prowac/
- ✓ U.S. Census Bureau www.census.gov

Continuing Education	Phone	Web Site
Pennsylvania State University; The Pennsylvania Transportation Institute	(814) 865-4700	www.pti.psu.edu
University of Maryland; MD Transportation Technology Transfer Center	(301) 403-4623	www.encc.umd.edu/ttcc
Georgia Institute of Technology	(404) 385-3501	www.gatech.edu
Northwestern University Center for Public Safety	(800) 323-4011	www.northwestern.edu/nucps/index.htm
Texas A&M University	(979) 845-3211	www.tamu.edu
University of Washington; College of Engineering	(206) 543-2100	www.engr.washington.edu/epp