

Part B

2010 ADA Standards Text, Exceptions, Advisories, References, Cross References & Comments for Clarification Regarding Recreational Boating Facilities

Color Key: Part B uses six color coded text formats as seen in the text box below.

1. 2010 ADA Standards Text ▼+++++▼ ▲+++++▲	Blue Text ▼+++++▼ ▲+++++▲	(between red ▼++++▲ bars)
2. Exceptions ▼+++++▼ ▲+++++▲	Green Text ▼+++++▼ ▲+++++▲	(between red ▼++++▲ bars)
3. Advisory	Black Text in	Blue Shaded Text Boxes
4. Cross Reference	Black Text in	Gray Shaded Text Boxes
5. Advisory Cross Reference	Black Text in	Orange Shaded Text Boxes
6. <u>DBW Comment(s).</u>	<u>Black, Bold, Underlined</u>	Commentary Heading

NOTES On The Above Color Keyed Text Formats

1. **2010 ADA Standards** text is taken from the **2010 ADA Standards for Accessible Design (2010 ADA Standards)** approved by the **U.S. Department of Justice (USDOJ)** on July 26, 2010; published in the Federal Register on September 15, 2010; and put into effect on March 15, 2011. For more information go to the following website:
http://www.ada.gov/2010ADASTandards_index.htm
2. **2010 ADA Standards EXCEPTIONS** apply in specific contexts as presented in the **text**, providing relief from requirements that would be contrary to the function or nature of a facility.
3. **2010 ADA Standards Advisory** blue shaded text boxes were provided in the **2010 ADA Standards** text to provide clarification, advice and examples.
4. **2010 ADA Standards Cross References** in grey shaded boxes are taken directly from the **2010 ADA Standards** identified in Note 1. above.
5. **2010 ADA Standards Advisories** in orange text boxes appear immediately after cross references cited per Note 4. above.
6. **DBW Comment(s):** are **DBW Boating Facilities Division** staff insights, information, evaluations and suggestions regarding application of the **2010 ADA Standards** for recreational boating facilities.



106 Definitions

106.5 Defined Terms.

Boarding Pier A portion of a pier where a boat is temporarily secured for the purpose of embarking or disembarking.



Boat Launch Ramp A sloped surface designed for launching and retrieving trailered boats and other water craft to and from a body of water.



Boat Slip That portion of a pier, main pier, finger pier, or float where a boat is moored for the purpose of berthing, embarking, or disembarking.

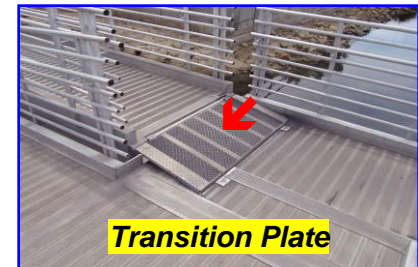


Gangway A variable-sloped pedestrian walkway that links a fixed structure or land with a floating structure. Gangways that connect to vessels are not addressed by this document.

Transition Plate A sloping pedestrian walking surface located at the end(s) of a gangway.



NOTE: The above five defined terms have been identified throughout Part B, pages 15-44, in **yellow highlighted bold italicized text**. These five



terms uniquely address recreational boating **facilities**. This convention, however, has not been applied in Advisory, Cross Reference and Cross Reference Advisory text boxes, or in graphics and tables.

DBW Comments: Section 106.5 Defined Terms provides 69 definitions that cover a wide range of applications. Types of boating **facilities** such as “marinas” are not defined. The term “recreational boating **facilities**” must be understood and correctly used since it is the title of Sections 206.2.10, 235 and 1003. The term embraces marinas, harbors, boat launching **facilities**, and other types of **facilities** where public and private recreational (not commercial) boating **facilities** operate.

Additionally, 13 of the 69 definitions in Section 106.5 are diverse in their application, but are important relative to recreational boating **facilities** in the application of the 2010 **ADA Standards**. On pages 15-44, the 13 terms are identified in **bold italicized text** as seen below. This will also apply to plural words such as **facilities, ramps, sites**, etc.

- | | | | | |
|-----------------------------|---------------------------------|-------------------------|-----------------------|------------------------|
| accessible ramp | alteration running slope | cross slope site | facility space | marked crossing |
| technically feasible | vehicular way | walk | tactile | |



CHAPTER 10: RECREATION FACILITIES

1001 General

1001.1 Scope. The provisions of Chapter 10 shall apply where required by Chapter 2 or where referenced by a requirement in this document (the 2010 ADA Standards).



DBW Comment: The **Chapter 2 Scoping Requirements** include 43 sections that address a comprehensive array of requirements for various situations and applications. For example, Section **206 Accessible Routes** includes **206.2.10 Recreational Boating Facilities** which makes reference to **235.2 Boat Slips** and **235.3 Boarding Piers at Boat Launch Ramps**.

206.2.10 Recreational Boating Facilities. Boat slips required to comply with 235.2 and boarding piers at boat launch ramps required to comply with 235.3 shall be on an accessible route. Accessible routes serving recreational boating facilities shall comply with Chapter 4 (**Accessible Routes**), except as modified by 1003.2.



1003 Recreational Boating Facilities

1003.1 General. Recreational boating *facilities* shall comply with 1003.

1003.2 Accessible Routes. *Accessible routes serving recreational boating facilities, including gangways and floating piers, shall comply with Chapter 4 (Accessible Routes) except as modified by the exceptions in 1003.2.*



CHAPTER 4: ACCESSIBLE ROUTES

- 401 General
- 402 Accessible Routes
- 403 Walking Surfaces
- 404 Doors, Doorways, and Gates
- 405 Ramps
- 406 Curb Ramps
- 407 Elevators
- 408 Limited Use/Limited Application Elevators
- 409 Private Residence Elevators
- 410 Platform Lifts

DBW Comment: There are only five (5) definitions (see top of page 15) that are unique to recreational boating *facilities*. It is critical to know and accurately apply these definitions along with others such as **cross slope**, **ramp**, etc. A **gangway** is not a **ramp**, nor is a **ramp** a **boat launch ramp**. A common error is to mix defined terms and inadvertently create a term or concept that does not exist in the **2010 ADA Standards**.

Example. Where the off-shore end of a **gangway**, or a series of **gangways**, attaches to or rests on the top of a **ramp(s)** provided on a floating dock, there is a tendency for designers to include the length of the **ramp(s)** in the determination of the total length of the **gangway(s)**. This is a confusion of terms and leads to non-compliance with the **2010 ADA Standards**. Under no condition is a **ramp** to be considered part of a **gangway**, or a series of **gangways**. They are separate components that may be adjacent and connected together as defined “elements” of an **accessible** route. But the exceptions in the **2010 ADA Standards**, and the determination of critical lengths, are applied specifically to the defined components addressed. For examples of critical lengths, see **Exceptions 3 and 4** below under **1003.2.1 Boat Slips**. Additional information on definitions is provided below in the Section **106** sub-sections **106.2**, **106.3**, and **106.4**.

106.2 Terms Defined in Referenced Standards. Terms not defined in 106.5 or in regulations issued by the Department of Justice and the Department of Transportation to implement the Americans with Disabilities Act, but specifically defined in a referenced standard, shall have the specified meaning from the referenced standard unless otherwise stated.

106.3 Undefined Terms. The meaning of terms not specifically defined in 106.5 or in regulations issued by the Department of Justice and the Department of Transportation to implement the Americans with Disabilities Act or in referenced standards shall be as defined by collegiate dictionaries in the sense that the context implies.

106.4 Interchangeability. Words, terms and phrases used in the singular include the plural and those used in the plural include the singular.

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1003.2.1 Boat Slips. Accessible routes serving **boat slips** shall be permitted to use the exceptions in 1003.2.1.

1003.2.1 EXCEPTIONS:

1003.2.1 EXCEPTION 1. Where an existing **gangway** or series of **gangways** is replaced or *altered*, an increase in the length of the **gangway** shall not be required to comply with 1003.2 unless required by 202.4.

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202.4 Alterations Affecting Primary Function Areas. In addition to the requirements of 202.3 (Alterations), an alteration that affects or could affect the usability of or access to an area containing a primary function shall be made so as to ensure that, to the maximum extent feasible, the path of travel to the altered area, including the rest rooms, telephones, and drinking fountains serving the altered area, are readily accessible to and usable by individuals with disabilities, unless such alterations are disproportionate to the overall

Cross Reference 202.4 Continued . . .

alterations in terms of cost and scope as determined under criteria established by the Attorney General. In existing transportation facilities, an area of primary function shall be as defined under regulations published by the Secretary of the Department of Transportation or the Attorney General.

Advisory 202.4 Alterations Affecting Primary Function Areas.

An area of a building or facility containing a major activity for which the building or facility is intended is a primary function area. Department of Justice ADA regulations state, "Alterations made to provide an accessible path of travel to the altered area will be deemed disproportionate to the overall alteration when the cost exceeds 20% of the cost of the alteration to the primary function area." [28 CFR 36.403 (f)(1)]. See also Department of Transportation ADA regulations, which use similar concepts in the context of public sector transportation facilities [49 CFR 37.43 (e)(1)].

There can be multiple areas containing a primary function in a single building. Primary function areas are not limited to public use areas. For example, both a bank lobby and the bank's employee areas such as the teller areas and walk-in safe are primary function areas.

Also, mixed use facilities may include numerous primary function areas for each use. Areas containing a primary function do not include: mechanical rooms, boiler rooms, supply storage rooms, employee lounges or locker rooms, janitorial closets, entrances, corridors or restrooms.

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1003.2.1 EXCEPTION 2. *Gangways* shall not be required to comply with the maximum rise specified in 405.6.

405.6 Rise. The rise for any ramp run shall be 30 inches maximum.

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DBW Comment: This exception clearly shows the difference between a *gangway* and a *ramp*. If the 30 inch maximum rise was not excepted, *gangways* would be limited to 30 feet in length with a maximum rise of 30 inches (a maximum slope of 1:12). A *ramp* is a static, fixed slope walking surface that exceeds a slope of 1:20 (5%), but does not exceed a slope of 1:12 (8.33%). A *gangway* is a dynamic variable slope walkway structure; its slope increases and decreases with changing water levels which frequently exceed 30 inches. Thus, **EXCEPTION 2** relieves *gangway* compliance with the 30 inch maximum rise in **405.6**.

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1003.2.1 EXCEPTION 3. Where the total length of a *gangway* or series of *gangways* serving as part of a required *accessible route* is 80 feet (24 m) minimum, *gangways* shall not be required to comply with 405.2.

405.2 Slope. Ramp runs shall have a running slope not steeper than 1:12.

EXCEPTION:

In existing sites, buildings, and facilities, ramps shall be permitted to have running slopes steeper than 1:12 complying with Table 405.2 where such slopes are necessary due to space limitations.

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

Slope¹	Maximum Rise
Steeper than 1:10 but not steeper than 1:8	3 inches
Steeper than 1:12 but not steeper than 1:10	6 inches

¹ A slope steeper than 1:8 is prohibited.

Advisory 405.2 Slope. To accommodate the widest range of users, provide ramps with the least possible running slope and, wherever possible, accompany ramps with stairs for use by those individuals for whom distance presents a greater barrier than steps, e.g., people with heart disease or limited stamina.



DBW Comments: Advisory 405.2 states in part "... provide *ramps* with the least possible *running slope* ..." By definition a *ramp* is "a walking surface with a *running slope* steeper than 1:20." Therefore, if the slope of a walking surface is 1:20 (5%) or less, it is not a *ramp*. Thus, the least possible *running slope* on a *ramp* would be greater than 1:20.

Advisory 405.2 Slope must be understood in the light of the full spectrum of *site* specific factors and considerations. In some cases it may be **possible** to provide a *ramp* with any slope greater than 1:20 and up to 1:12, the lower and upper slope limits for *ramps*. However, providing a "least **possible** running slope *ramp*" may interfere with doorways, crosswalks, stairways, overhead obstructions and/or other features . . . but still be physically "possible." It is conceivable that an overzealous plan checker working in a building permit office will read **Advisory 405.2** and insist that a *ramp* at a particular project be built to "the least possible *running slope*" --- ignoring the implications and impacts on other nearby *facility* features. Reasonable **access** can be achieved by reasonable people exercising reasonable judgment based on the **2010 ADA Standards**. Advisory statements are for advice, not for required compliance.

Providing *ramps* with the least possible slopes, without consideration of other factors, can lead to increased use of land areas, longer **accessible** routes and higher construction and maintenance costs.

Example: An **accessible** route is to be built between Points A and B, a vertical rise of 72 inches (6 ft). Level landings between *ramps* must be at least 60 inches in length (5 ft) and *ramp* runs cannot exceed 30 feet. 1:20 and 1:12 *ramp* slopes have maximum rises of 18 and 30 inches respectively. Therefore, building 1:20+ slope *ramps* (slightly more than 1:20 slopes) requires four 30 foot *ramp* runs (120 ft) and

three 5 foot long landings (15ft), for a total length of 135 feet. Building 1:12 slope **ramps** would require three 30 foot **ramp** runs (90ft) and two 5 foot long landings (10ft), for a total length of 100 feet. Using the 1:12 slope **ramps** would save 35 feet of **accessible** route construction, a 26% reduction in the length of the **accessible** route. As **Advisory 405.2** indicates, some persons with disabilities need shorter **accessible** routes.

NOTE: The below **Advisory 1003.2.1 Boat Slips Exception 3** appears in Section **1003.2.1** following **1003.2.1 Exception 8**. It has been placed here following **Exception 3** for ease and clarity of reference.

Advisory 1003.2.1 Boat Slips Exception 3. The following example shows how **Exception 3** would be applied: A gangway is provided to a floating pier which is required to be on an accessible route. The vertical distance is 10 feet between the elevation where the gangway departs the landside connection and the elevation of the pier surface at the lowest water level. **Exception 3 permits the gangway to be 80 feet long.** Another design solution would be to have two 40 foot plus continuous gangways joined together at a float, where the float (as the water level falls) will stop dropping at an elevation five feet below the landside connection. The length of transition plates would not be included in determining if the gangway(s) meets the requirements of the exception.

DBW Comments: The above advisory is in error regarding what **1003.2.1 EXCEPTION 3** “permits.” The third sentence (highlighted in pink and yellow in the text box above) of the advisory states, “**EXCEPTION 3** permits the **gangway** to be 80 feet long.” This statement is incorrect. What the exception actually “permits” is relief from the 1:12 maximum slope requirement in **405.2** if the length of a **gangway**, or series of **gangways**, is a minimum of 80 feet. **1003.2.1 EXCEPTION 3** has nothing to say one way or the other regarding the “permitted” length of a **gangway**, or **gangways** in tandem. As long as a **gangway** or a series of **gangways** is at least 80 feet long, the 1:12 maximum slope is not required to be complied with.

Advisory 1003.2.1 also indicates that the length of **transition plates** is not to be included in determining if the overall length of a **gangway** or series of **gangways** is at least 80 feet. This statement is also true of support platforms between **gangways** in a series of two or more **gangways**. The overall length of **gangways** is to be the sum of the lengths of the **gangways** only.

NOTE: See **Section 104.1** below for the conventions used regarding dimensions. A convention is an established customary practice, rule or method for the interpretation, understanding and application of the **2010 ADA Standards**.

104 Conventions

104.1 Dimensions. Dimensions that are not stated as “maximum” or “minimum” are absolute.

104.1.1 Construction and Manufacturing Tolerances. All dimensions are subject to conventional industry tolerances except where the requirement is stated as a range with specific minimum and maximum end points.

Advisory 104.1.1 Construction and Manufacturing Tolerances.

Conventional industry tolerances recognized by this provision include those for field conditions and those that may be a necessary consequence of a particular manufacturing process. Recognized tolerances are not intended to apply to design work.

It is good practice when specifying dimensions to avoid specifying a tolerance where dimensions are absolute. For example, if this document requires "1 inches," avoid specifying "1 inches plus or minus X inches."

Where the requirement states a specified range, such as in Section 609.4 where grab bars must be installed between 33 inches and 36 inches above the floor, the range provides an adequate tolerance and therefore no tolerance outside of the range at either end point is permitted.

Where a requirement is a minimum or a maximum dimension that does not have two specific minimum and maximum end points, tolerances may apply. Where an element is to be installed at the minimum or maximum permitted dimension, such as "15 inches minimum" or "5 pounds maximum", it would not be good practice to specify "5 pounds (plus X pounds) or 15 inches (minus X inches)." Rather, it would be good practice to specify a dimension less than the required maximum (or more than the required minimum) by the amount of the expected field or manufacturing tolerance and not to state any tolerance in conjunction with the specified dimension.

Specifying dimensions in design in the manner described above will better ensure that facilities and elements accomplish the level of accessibility intended by these requirements. It will also more often produce an end result of strict and literal compliance with the stated requirements and eliminate enforcement difficulties and issues that might otherwise arise. Information on specific tolerances may be available from industry or trade organizations, code groups and building officials, and published references.

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1003.2.1 EXCEPTION 4. Where facilities contain fewer than 25 **boat slips** and the total length of the **gangway** or series of **gangways** serving as part of a required **accessible** route is 30 feet (9145 mm) minimum, **gangways** shall not be required to comply with 405.2.
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DBW Comments: 1003.2.1 EXCEPTIONS 3 and 4 both permit relief from the 1:12 maximum slope requirement in 405.2. However, there are key differences:

- EXCEPTION 3** has only one "exception trigger":
 - a **gangway** or a series of **gangways** that is not less than 80 feet long.

- EXCEPTION 4** has two "exception triggers":
 - **facilities** with less than 25 **boat slips**; and
 - a **gangway** or series of **gangways** that is not less than 30 feet in length.

Section 1003.2.1 broadly addresses **accessible** routes serving recreational boating **facilities**. This includes a broad spectrum of boating **facilities** including marinas, harbors, landings, courtesy loading/unloading docks, fuel docks, sewage pump-out docks, temporary boat tie-up docks, boat launching **facilities**, etc.

Questions: What is a **boat slip**? Are **boat slips** only found in marinas?

No. By definition (see page 15) a **boat slip** is: “A portion of a pier where a boat is temporarily secured for the purpose of embarking or disembarking.”

Think About It:

Do boat launching **facilities** typically have less than 25 **boat slips**?

Do small “Mom & Pop” marinas sometimes have less than 25 **boat slips**?

Do side-tie “landing docks” in waterside parks usually have less than 25 **boat slips**?

The answers are all → “Yes.”

Many types of recreational boating **facilities** have less than 25 **boat slips**.

Do such small recreational boating **facilities** ever have any **boat slips**?

Again, the answer is “Yes” because in the absence of delineated **boat slips**, each 40 feet of “**boat slip** edge”, or fraction thereof, of any kind of fixed or floating docks at a recreational boating **facility** constitutes one **boat slip** (see Section **235.2**, page 34).

Example: A long side-tie dock 180 feet long and 10 feet wide, with boat access along both sides and both ends, would have 380 feet of **boat slip** edge ($180' + 10' + 180' + 10' = 380'$). Dividing 380' by 40' equals 9.5 **boat slips**. Round this up to 10 **boat slips** for the purpose of **Section 235.2** and **Table 235.2**, which are used to determine of the number of **boat slips** where they are not defined or identified by finger floats or other physical features. According to **Table 235.2**, only one **accessible boat slip** would be required in this example. Note that these exceptions do not dictate the lengths of **accessible boat slips**. If necessary a 60 foot long yacht, for example, would be allowed to occupy significantly more than 40 feet of a long side-tie dock.

ATTENTION:

The **2010 ADA Standards** do not in any way “require” **gangways** to be of certain lengths. Where an **accessible gangway**(s) is at least 80 feet long, it shall not be required to comply with a 1:12 maximum slope. Where an **accessible gangway** is not less than 30 feet long in a facility with less than 25 **boat slips**, the **gangway** shall not be required to comply with a 1:12 maximum slope.

1003.2.1 EXCEPTION 4 should be applied as follows:

1. **EXCEPTION 4** may be applied to relieve the 1:12 maximum slope for **gangways** that are at least 30 feet long, at boating **facilities** with fewer than 25 **boat slips**.
2. Most **gangways** at recreational boating **facilities** need to be longer than 30 feet for practical reasons. **Accessible gangways** are not provided exclusively for persons with disabilities but for the general public as well. The **2010 ADA Standards** are primarily based on the concept of minimum measurable requirements. However, minimum requirements do not always provide people the comfort and **accessibility** necessary to safely travel up and/or down a steep 30 foot long **gangway** during a “once-in-15-year low tide on a dark night in a blowing rain storm!” Conditions and circumstances can become “barriers” for everyone, and **accessibility** and safety frequently “kiss.” A safety curb can prevent a person in a wheel chair from rolling off

the edge of a dock, but it can also constitute a barrier for the same person attempting to embark or disembark a moored boat. Therefore, comply with the minimum requirements of the **2010 ADA Standards**, but also meet the practical requirements of common sense, usability based on the expected types of boating that will occur, and safety.

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1003.2.1 EXCEPTION 5. Where **gangways** connect to **transition plates**, landings specified by 405.7 shall not be required.

405.7 Landings. Ramps shall have landings at the top and the bottom of each ramp run. Landings shall comply with 405.7.

Advisory 405.7 Landings. Ramps that do not have level landings at changes in direction can create a compound slope that will not meet the requirements of this document (the **2010 ADA Standards**). Circular or curved ramps continually change direction. Curvilinear ramps with small radii also can create compound cross slopes and cannot, by their nature, meet the requirements for accessible routes. A level landing is needed at the accessible door to permit maneuvering and simultaneously door operation.

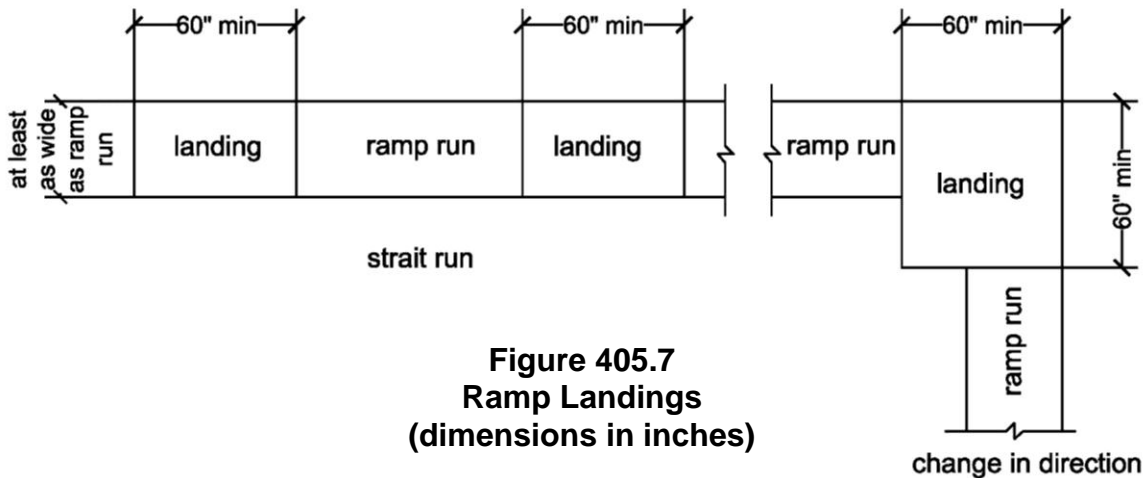


Figure 405.7
Ramp Landings
 (dimensions in inches)

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DBW Comments: Where two **gangways** constitute a series of **gangways** (as per **1003.2.1 EXCEPTIONS 3 and 4** on pages 18 and 21), it is necessary to have a rectangular floating “landing dock” between the **gangways**. The upper end of the upper **gangway** is typically hinged to a secure hinge abutment on shore. The lower end of the upper **gangway** is fitted with rollers and a **transition plate** that move horizontally on the deck of the landing dock as water levels rise and fall. At a specific design elevation the landing dock will come to rest on a submerged platform, or on stop blocks mounted on the sides of support pilings. This will control the lowest elevation of the landing dock, control the maximum allowable slope of the upper **gangway**, and stabilize the landing dock during low water levels. The upper end of the lower **gangway** is usually hinged to the outboard end of the landing dock. The lower end of the lower **gangway** is fitted with

rollers and a **transition plate** that move laterally on the deck of the boat dock. Beginning at the top, there are five elements involved in such an arrangement: (1) a hinged abutment at the top, (2) the upper **gangway**, (3) the landing dock between **gangways**, (4) the lower **gangway** and (5) the boat dock.

1003.2.1 EXCEPTION 5 states that where **transition plates** are provided, landings are not required. However, where a series of **gangways** is used, the "landing dock" at the bottom of the upper **gangway**, and the boat dock at the bottom of the lower **gangway** essentially function as "landings."

Where landings and other **accessible** route components are subject to wet conditions, the interpretation of "level" includes a drainage slope up to 1:48 (2.08%), the same as allowed for **cross slopes** on **accessible** routes. See **405.3**, **405.7.1** and **405.10** below.

405.3 Cross Slope. Cross slope of ramp runs shall not be steeper than 1:48.

405.7.1 Slope. Landings shall comply with 302. Changes in level are not permitted.
EXCEPTION: Slopes not steeper than 1:48 shall be permitted.

405.10 Wet Conditions. Landings subject to wet conditions shall be designed to prevent the accumulation of water.

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1003.2.1 EXCEPTION 6. Where **gangways** and **transition plates** connect and are required to have handrails, handrail extensions shall not be required. Where handrail extensions are provided on **gangways** or **transition plates**, the handrail extensions shall not be required to be parallel with the ground or floor surface.
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DBW Comments: The determination of whether a **transition plate** is required to have handrails is triggered by **405.8** (Handrails) and **505** (Handrails). **Transition plates** must meet the same **access** requirements as **ramps** if they exceed a slope of 1:20, which most **transition plates** do. It is critical that **transition plates** not exceed a slope of 1:12, the upper slope limit for **ramps**.

As per **405.8**, **transition plates** with a rise greater than 6 inches are required to have handrails, and as per **405.9**, where **transition plates** have handrails, they must also have edge protection.

405.8 Handrails. Ramp runs with a rise greater than 6 inches shall have handrails complying with 505.

505 Handrails. **This section is too extensive to insert into this document. See Section 505 Handrails in the 2010 ADA Standards.**

405.9 Edge Protection. Edge protection complying with 405.9.1 or 405.9.2 shall be provided on each side of ramp runs and at each side of ramp landings.

Cross Reference 405.9 Edge Protection Exceptions Continued . . .

EXCEPTION 1: Edge protection shall not be required on ramps that are not required to have handrails and have sides complying with 406.3.

EXCEPTION 2: Edge protection shall not be required on the sides of ramp landings serving an adjoining ramp run or stairway.

EXCEPTION 3: Edge protection shall not be required on the sides of ramp landings having a vertical drop-off of ½ inch maximum within 10 inches horizontally of the minimum landing area specified in 405.7.



1003.2.1 EXCEPTION 7. The *cross slope* specified in 403.3 and 405.3 for *gangways*, *transition plates*, and floating piers that are part of *accessible routes* shall be measured in the static position.

403.3 Slope. The *running slope* of walking surfaces shall not be steeper than 1:20. The *cross slope* of walking surfaces shall not be steeper than 1:48.

405.3 Cross Slope. *Cross slope of ramp runs* shall not be steeper than 1:48.

Advisory 405.3 Cross Slope. *Cross slope* is the slope of the surface perpendicular to the direction of travel. *Cross slope* is measured the same way as slope is measured (i.e., the rise over the run).



DBW Comments: 1003.2.1 EXCEPTION 7 states that *cross slopes* for *gangways*, *transition plates* and floating piers (undefined) on *accessible routes* are to be measured "in the static position." Unfortunately, "static position" is not defined or explained. However, since the word "static" means at rest, stationary and/or inactive--- as opposed to "dynamic" which means active, in motion and/or not stationary--- the reasonable interpretation is that *cross slopes* are to be measured while the specified components are not moving. Thus, the *cross slopes* are not to be measured when under the influence of wind, waves, and abnormal pedestrian traffic on the docks and boat traffic in the water. From a practical standpoint, it would be difficult to make accurate *cross slope* measurements in dynamic conditions, especially when dealing with very slight *cross slopes* of 1:48 maximum.

Illustration: A 1 foot ruler is 12 inches long, consisting of forty-eight (48) ¼ inch increments (4 to the inch x 12). A 1:48 maximum *cross slope* would be ¼ inch for each foot of length. Place a 12 inch ruler on a level table and stack four new US quarters (coins) slightly under one end of the ruler. Newly coined quarters are exactly 1/16th of an inch thick; thus, four stacked quarters are exactly ¼ inch high. Step back and look at the slope of the ruler, and observe a precise slope of 1:48. It is a very slight slope to measure on a *gangway*.

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1003.2.1 EXCEPTION 8. Changes in level complying with 303.3 and 303.4 shall be permitted on the surfaces of **gangways** and **boat launch ramps**.

303.3 Beveled. Changes in level between ¼ inch high minimum and ½ inch high maximum shall be beveled with a slope not steeper than 1:2.

Advisory 303.3 Beveled. A change in level of ½ inch is permitted to be ¼ inch vertical plus ¼ inch beveled. However, in no case may the combined change in level exceed ½ inch. Changes in level exceeding ½ inch must comply with 405 (Ramps) or 406 (Curb Ramps).

303.4 Ramps. Changes in level greater than ½ inch high shall be *ramped*, and shall comply with 405 (Ramps) or 406 (Curb Ramps).

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DBW Comment: 1003.2.1 EXCEPTION 8, 303.3 and 303.4 will rarely be applied on the surfaces of **gangways** and **boat launch ramps**. The decking surfaces on **gangways** and the concrete V-groove surfaces on **boat launch ramps** typically have uniform surfaces and slopes, and should not have “changes in level” such that beveled edges are necessary. **Exception 8** should have been applied to **transition plates**. The hinged connections between **gangways** and **transition plates** should be smooth without any changes in level. There will be on-going changes in slope between **gangways** and **transition plates**, but no vertical changes in level at the hinges that connect **gangways** and **transition plates**. The leading edges of **transition plates** rest on the surface of docks or piers, and typically will have changes of level which should be limited to ½ inch maximum measured under still water conditions, and beveled as per **Advisory 303.3 Beveled** above.

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1003.2.2 Boarding Piers at Boat Launch Ramps. Accessible routes serving **boarding piers** at **boat launch ramps** shall be permitted to use the exceptions in 1003.2.2.

1003.2.2 EXCEPTIONS:

1003.2.2 EXCEPTION 1. Accessible routes serving floating **boarding piers** shall be permitted to use Exceptions 1, 2, 5, 6, 7 and 8 in 1003.2.1.

▲ ++++++

DBW Comments: Unfortunately, the phrase “**boarding piers at boat launch ramps**” in 1003.2.2 is vague and regrettable at best. For clarity, think in terms of a **boarding pier within** or **on a boat launch ramp**. The exceptions in 1003.2.2 apply only to **accessible routes serving boarding piers within or on boat launch ramps** (for example see 1003.2.2 Exception 3 on page 28). There are boat launching **facilities** that have **boarding piers** located 10 to 50 feet off to either or both sides of a **boat launch ramp**. In such cases the benefits of 1003.2.2 Exceptions 1, 2 and 3 are not applicable.

Six of the eight exceptions in **1003.2.1** (exceptions for **accessible** routes serving **boat slips**) are carried over for application to **accessible** routes serving **boarding piers** at (i.e., on) **boat launch ramps**. The following six exceptions (1-2 and 5-8) apply to **boat launch ramp gangways** on **accessible** routes:

- (1) increased length of **gangways** replaced or altered;
- (2) maximum rise of 30 inches;

(3) 80 foot gangways – not carried over from 1003.2.1;

(4) less than 25 boat slips/30 foot gangways not carried over from 1003.2.1;

- (5) landings;
- (6) handrails;
- (7) **cross slope**; and
- (8) changes in level.

Note that **EXCEPTION 3** (80 foot **gangways**/1:12 max slope) and **EXCEPTION 4** (less than 25 **boat slips**/30 foot **gangways**/ 1:12 max slope) highlighted above were not carried over from 1003.2.1. However, **1003.2.2 EXCEPTION 2** below addresses 30 foot **gangways**/1:12 max slope, and **1003.2.2 EXCEPTION 3** on page 28 addresses **accessible** route issues where floating **boarding piers** or skid piers are provided **on boat launch ramps**.

▼ ++++++▼
1003.2.2 EXCEPTION 2. Where the total length of the **gangway or series of **gangways** serving as part of a required **accessible** route is 30 feet minimum, **gangways** shall not be required to comply with 405.2.**

405.2 Slope. Ramp runs shall have a running slope not steeper than 1:12.

Advisory 405.2 Slope. To accommodate the widest range of users, provide ramps with the least possible running slope and, wherever possible, accompany ramps with stairs for use by those individuals for whom distance presents a greater barrier than steps, e.g., people with heart disease or limited stamina.

▲ ++++++▲

DBW Comments: Section **1003.2.2** addresses **accessible** routes serving **boarding piers** at (on/within) **boat launch ramps**. **1003.2.2 EXCEPTION 1** applies only to “**accessible** routes serving **floating boarding piers**...,” whereas **1003.2.2 EXCEPTION 3** on page 28 addresses both **floating boarding piers** and skid piers. Apparently it was thought that the exceptions carried over in **EXCEPTION 1** would not apply to **accessible** routes serving skid piers. Skid piers and **gangways** generally are not compatible components. **Gangways** are typically hinged at the upper end to a stationary abutment above high water; the lower end is typically supported by wheels that roll on a fixed-location floating **boarding pier** that rises and falls with water level changes. Skid piers on the other hand are mobile structures that are periodically “skidded” up and down a **boat launch ramp** in response to rising and falling water levels.

Note in **1003.2.2 EXCEPTION 2** that **gangways** 30 feet long minimum that are part of an **accessible** route serving **boarding piers** on **boat launch ramps** shall not be

required to comply with the 1:12 maximum slope in Section **405.2 (ramps)**. This exception is similar to **1003.2.1 EXCEPTION 4** that applies to boating **facilities** with less than 25 **boat slips** and has a **gangway** or series of **gangways** at least 30 feet in length.

Advisory 405.2 above speaks in part to accommodating the widest range of users, and providing **ramps** with the “least possible **running slope**.” In the context of the advisory, “users” applies to persons with disabilities, not to the public in general. Otherwise, there would have been no reference to distance, barriers, steps, heart disease or limited stamina. Therefore, the advice to “provide **ramps** with the least possible **running slope**” goes beyond the minimum 1:12 maximum slope requirement in **405.2**. Keep in mind that it is an “advisory”, not a “requirement.” See comments on this matter under **1003.2.1 EXCEPTION 3**, on pages 18-21.

▼ ++++++ ▼
1003.2.2 EXCEPTION 3. Where the **accessible route serving a floating boarding pier** or skid pier is located within a **boat launch ramp**, the portion of the **accessible route located within the boat launch ramp** shall not be required to comply with **405**.

405 Ramps	405.1	General	405.6	Rise
	405.2	Slope	405.7	Landings
	405.3	Cross Slope	405.8	Handrails
	405.4	Floor or Ground Surfaces	405.9	Edge Protection
	405.5	Clear Width	405.10	Wet Conditions

▲ ++++++ ▲
DBW Comments. Note that **1003.2.2 EXCEPTION 2** applies to the slope of **gangways**, and **1003.2.2 EXCEPTION 3** applies to an **accessible route** on a **boat launch ramp**.

1003.2.2 EXCEPTION 2 states that 30 foot minimum **gangways** on an **accessible route** (on a **boat launch ramp**) are not required to comply with a maximum slope of 1:12 (Section 405.2). **1003.2.2 EXCEPTION 3**, however, states that the **accessible route serving a floating boarding pier** or skid pier on a **boat launch ramp** shall not be required to comply with the entirety of Section **405 Ramps** in the above reference box.

An interesting question has been raised regarding compliance with **Exception 3**:

Q: If a **boat launch ramp** does not have **boarding piers** or skid piers, does an **accessible route** exist on the **boat launch ramp**?

Clearly, the answer is, “No.” Look back on page 26 at Section **1003.2.2 Boarding Piers at Boat Launch Ramps**. The first sentence reads, “**Accessible routes serving boarding piers at boat launch ramps** shall be permitted to use the exceptions in **1003.2.2**.” Therefore, if there were no **boarding piers**, would it make sense to require a **boat launch ramp** to have a slope not to exceed 1:12? The primary function of a **boat launch ramp** is to launch and retrieve boats on trailers. The well-established range of **slope** for **boat launch ramps** is 12% (1:8.33) to 15% (1:6.67), considerably steeper than 8.33% (1:12). It is the presence of **accessible routes serving boarding piers**, skid piers and/or **gangways** that precipitates attention to the **accessible route** that serves

those devices and features that will be utilized by persons with disabilities. None of the exceptions cited in 1003.2.2 speak of **accessible** routes serving **boat launch ramps**.

▼ ++++++▼
1003.3 Clearances. Clearances at **boat slips** and on **boarding piers** at **boat launch ramps** shall comply with 1003.3.

Advisory 1003.3 Clearances. Although the minimum width of the clear pier space is 60 inches, it is recommended that piers be wider than 60 inches to improve the safety for persons with disabilities, particularly on floating piers.

▲ ++++++▲
DBW Comments. Advisory 1003.3 Clearances above is a recommendation, not a requirement. The advisory recommends that “clear pier **space**” be wider than 60 inches (5 feet) to improve safety. How much wider a **boat slip** or **boarding pier** needs to be to make it safer is a matter of speculation. Extra width beyond reasonable limits does not necessarily translate into greater safety, considering the purpose and function of **boat slips** and **boarding piers**. If required **cross slopes** are achieved and maintained, additional width of more than 60 inches may not improve or enhance the safety of using a **boat slip** or **boarding pier**.

Contrary to the typical use of static, fixed-slope **ramps** on shore where the primary intent is “staying on” the **accessible** route, **boat slips** and **boarding piers** are dynamic components designed to enable persons with disabilities to “cross over the edge” when moving between a **boat slip** or **boarding pier** and a boat in the water. When a person is traversing that interface between a dock and a boat, it probably doesn’t make much safety difference if the dock is wider than 60 inches. Such advisories can be problematic when dealing with plan checkers and reviewers when applying for building permits.

▼ ++++++▼
1003.3.1 Boat Slip Clearance. **Boat slips** shall provide clear pier space 60 inches wide minimum and at least as long as the **boat slips**. Each 10 feet maximum of linear pier edge serving **boat slips** shall contain at least one continuous clear opening 60 inches wide minimum.

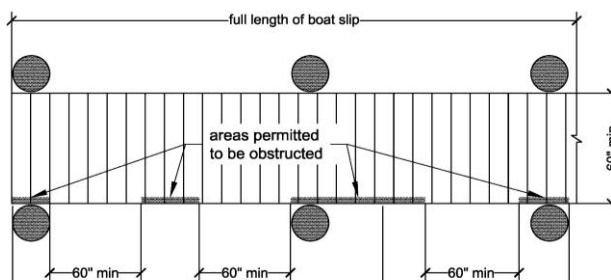


Figure 1003.3.1
Boat Slip Clearance

▲ ++++++▲
DBW Comments. 1003.3.1 Boat Slip Clearance and its three exceptions on pages 30-32 are perhaps the most difficult recreational boating **facility** requirements to understand and apply. Some new terms used are not defined. For example, “What is ‘clear pier’ **space**?” Answer: it is the clear width of **accessible boat slips**.

Section **1003.3.1** requires that minimum 60 inch “clear pier **space**” be provided “at least as long” as the **boat slips**. Since it is impossible to provide clear pier **space** beyond the length of a **boat slip**, the requirement can only be understood to mean that the clear pier **space** shall extend not less than the full length of **accessible boat slips**.

By definition (see top of page 15) a **boat slip** is “that portion of a pier, main pier, finger pier, or float where a boat is moored for the purpose of berthing, embarking, or disembarking.” Thus, a **boat slip** is not the water area occupied by a moored boat, but rather the pier/float that a boat is moored to for wet storage, and for embarking and disembarking to and from a boat. Also, along the “linear pier edge” (i.e., the edge of the **boat slip**), obstructions such as curbs, storage boxes, and piles are permitted as long as each 10 feet maximum (120 inches) of linear pier edge serving **boat slips** shall have at least one continuous clear opening not less than 60 inches. Every 10 feet (120 inches) of dock edge must have at least 50% (60 inches) of the edge unobstructed to facilitate embarking and disembarking a boat tied to a dock. See **Figure 1003.3.1** below.

▼ ++++++ ▼
1003.3.1 EXCEPTION 1. Clear pier space shall be permitted to be 36 inches wide minimum for a length of 24 inches maximum, provided that multiple 36 inch wide segments are separated by segments that are 60 inches wide minimum and 60 inches long minimum.

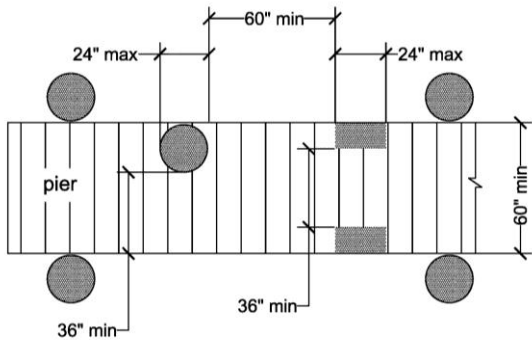


Figure 1003.3.1
 (Exception 1)
Clear Pier Space Reduction at Boarding Piers

▲ ++++++ ▲

DBW Comment. This exception addresses a “width” within a “width.” The minimum 60 inch clear pier **space** (width of the pier, dock, etc.) may be narrowed down to not less than 36 inches for a maximum length of 24 inches along the length of the **boat slip**. Where two or more 36 inch clear pier space segments are required, they must be separated by **boat slip** segments not less than 60 inches wide and 60 inches long. This is another application of the so-called “60 inch invisible circle” within which persons with disabilities can safely and comfortably pass other people on the **boat slip** as well as make 360° turns if necessary, particularly in wheelchairs. These “invisible circles” are commonly seen in (or immediately in front of) **accessible** toilet compartments in restrooms, and along **ramp** runs with 90° turns on **ramp** landings (see **Figure 405.7 Ramp Landings** on page 23).

▼ ++++++ ▼
1003.3.1 EXCEPTION 2. Edge protection shall be permitted at the continuous clear openings, provided that it is 4 inches high maximum and 2 inches wide maximum.

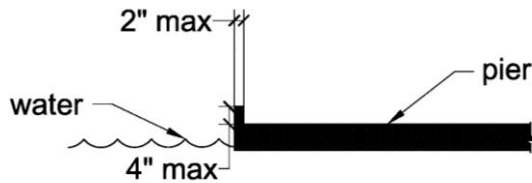


Figure 1003.3.1
 (Exception 2)
Edge Protection at Boat Slips

▲ ++++++ ▲

DBW Comment: 1003.3.1 Exception 1 is permissive in that it allows edge protection along the edges of **accessible boat slips**, and joins **accessibility** and safety. Edge protection is a curb that does not exceed 4 inches in height and 2 inches in width. A curb is a barrier, and the language of the **2010 ADA Standards** is barrier-free **access**. However, exceptions are provided as necessary. In this case a curb along the edge of an **accessible boat slip** can help prevent a person in a wheelchair from accidentally rolling over the edge of a **boat slip** and falling into a boat or the water. No explanation or references are provided for the 4 inch height and 2 inch width maximum dimensions of the edge protection curbs. The verticality of such curbs is a ratio of 2:1, making the curb twice as high as its width. Such a slender “lever arm” curb can be bumped by carts carrying boating gear causing loosening of and/or failure of the tall, slender curb. It would have been better if a 1:1 ratio was allowed; height and width being equal, a much more durable design.

▼ ++++++ ▼

1003.3.1 EXCEPTION 3. In existing piers, clear pier space shall be permitted to be located perpendicular to the boat slip and shall extend the width of the boat slip, where the facility has at least one boat slip complying with 1003.3, and further compliance with 1003.3 would result in a reduction in the number of boat slips available or result in a reduction of the widths of existing slips.

Advisory 1003.3.1 Boat Slip Clearance Exception 3. Where the conditions in Exception 3 are satisfied, existing facilities are only required to have one accessible boat slip with a pier clearance which runs the length of the slip. All other accessible slips are allowed to have the required pier clearance at the head of the slip. Under this exception, at piers with perpendicular boat slips, the width of most "finger piers" will remain unchanged. However, where mooring systems for floating piers are replaced as part of pier alteration projects, an opportunity may exist for increasing accessibility. Piers may be reconfigured to allow an increase in the number of wider finger piers, and serve as accessible boat slips.

▲ ++++++ ▲

DBW Comments: As an example of applying **1003.3.1 Exception 3**, a moderate size recreational boating **facility** (marina) has 350 **boat slips**. As per **Table 235.2 Boat**

Slips (see page 34), six of those 350 **boat slips** would be required to be **accessible**. And, as per **1003.3.1 Exception 3** above, only one of the six **accessible boat slips** would be required to have the full minimum width of 60 inches throughout the length of the **boat slip**, provided that further compliance would result in either of the two following consequences:

- reduction in the number of **boat slips** available in the boating **facility**; or
- reduction in the widths of the existing **boat slips**.

The other five designated **accessible boat slips** would be permitted to have the minimum 60 inch width laid out perpendicular to the **boat slips**, and extending across the widths of the slips. The exception does not address a minimum width for these **boat slips** except for the first 60 inches. The exception is confusing, but some clarification is provided in **Advisory 1003.3.1 Boat Slip Clearance Exception 3** on page 33.

What is in view in **Advisory 1003.3.1 Boat Slip Clearance Exception 3** on page 31 is the width of **accessible boat slips**. At least one **boat slip** must be fully compliant with **1003.3.1**. The remaining required **accessible boat slips** must have unobstructed edge clearance for at least 60 inches beginning at the head of the slips. This means that most existing **boat slips** that are characterized as “finger piers” will not have to be altered. However, when **boat slips** are altered, replaced or otherwise changed, efforts must be made to bring them into greater compliance with **1003.3.1**.

▼ ++++++ ▼
1003.3.2 Boarding Pier Clearances. **Boarding piers at boat launch ramps shall provide clear pier space 60 inches wide minimum and shall extend the full length of the boarding pier.** Every 10 feet maximum of linear pier edge shall contain at least one continuous clear opening 60 inches wide minimum.

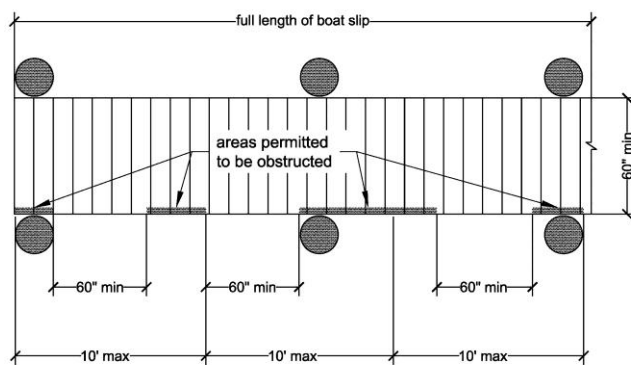


Figure 1003.3.2 Boarding Pier Clearance

1003.3.2 EXCEPTIONS:

1003.3.2 EXCEPTION 1. The clear pier space shall be permitted to be 36 inches wide minimum for a length of 24 inches maximum provided that multiple 36 inch wide segments are separated by segments that are 60 inches wide minimum and 60 inches long minimum.

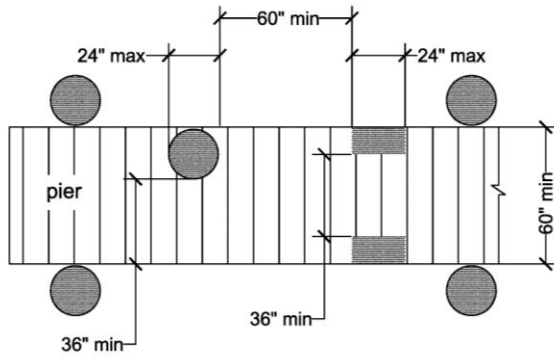


Figure 1003.3.2
(Exception 1)
Clear Pier Space Reduction
at Boarding Piers

1003.3.2 EXCEPTION 2. Edge protection shall be permitted at the continuous clear openings provided that it is 4 inches high maximum and 2 inches wide maximum.

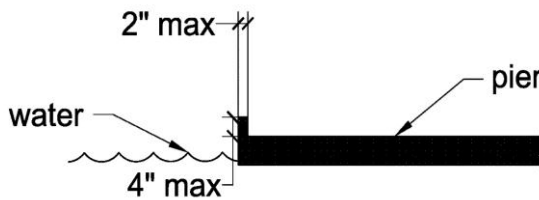


Figure 1003.3.2
(Exception 2)
Edge Protection at Boarding Piers

Advisory 1003.3.2 Boarding Pier Clearances. These requirements do not establish a minimum length for accessible boarding piers at boat launch ramps. The accessible boarding pier should have a length at least equal to that of other boarding piers provided at the facility. If no other boarding pier is provided, the pier would have a length equal to what would have been provided if no access requirements applied. The entire length of accessible boarding piers would be required to comply with the same technical provisions that apply to accessible boat slips. For example, at a launch ramp, if a 20 foot long accessible boarding pier is provided, the entire 20 feet must comply with the pier clearance requirements in 1003.3. Likewise, if a 60 foot long accessible boarding pier is provided, the pier clearance requirements in 1003.3 would apply to the entire 60 feet.

The following example applies to a boat launch ramp boarding pier: A chain of floats is provided on a launch ramp to be used as a boarding pier which is required to be accessible by 1003.3.2. At high water, the entire chain is floating and a **transition plate** connects the first float to the surface of the launch ramp. As the water level decreases, segments of the chain end up resting on the launch ramp surface, matching the slope of the launch ramp.

▲ ++++++▲

DBW Comments. Section 1003.3.2 **Boarding Pier Clearances**, and its **EXCEPTIONS 1 and 2**, are very similar to Section 1003.3.1 **Boat Slip Clearance**. Refer back to pages 29-32 for comments.

The example given in the last paragraph in **Advisory 1003.3.2** above introduces an erroneous concept. The second sentence speaks of a **transition plate** that connects a **boarding pier** to the surface of a "**launch ramp**." By definition in the **2010 ADA Standards**, a **transition plate** is "a sloping pedestrian walking surface located at the

end(s) of a **gangway**." (See definition on page 15.) A **transition plate** is a unique **accessibility** element solely utilized in conjunction with **gangways**. This illustrates the necessity of using and applying the definitions correctly.

Section **1003.3.2 Boarding Pier Clearances** addresses the following:

- 60 inch minimum width shall be sustained throughout length of **boarding pier** ;
- reduction in width allowed by **EXCEPTION 1**; and
- permissive edge protection allowed by **EXCEPTION 2**.

Therefore, the example in **Advisory 1003.3.2** is confusing and does nothing to illustrate **1003.3.2**.

Where **boarding piers** move up and down a **boat launch ramp** with changing water levels, "gangplank" is a term commonly used for the pedestrian structure that spans the gap between the surface of a **boat launch ramp** and the shoreward end of a **boarding pier**. A gangplank is hinged to the **boarding pier** and rides on the surface of the **boat launch ramp** as the entire unit moves up and down along a cable or a rail system.

Where **boarding piers** are permanently secured in one location, they are typically hinged to fixed concrete abutments. The **boarding piers** rotate, rise and fall vertically with changing water levels, but do not move up and down the **boat launch ramp**.

▼ ++++++
206 Accessible Routes

206.2 Where Required.

206.2.10 Recreational Boating Facilities. **Boat slips** required to comply with 235.2 and **boarding piers** at **boat launch ramps** required to comply with 235.3 shall be on an **accessible route**. **Accessible routes** serving recreational boating **facilities** shall comply with Chapter 4, except as modified by 1003.2.

235 Recreational Boating Facilities

235.1 General. Recreational boating **facilities** shall comply with 235.

235.2 Boat Slips. **Boat slips** complying with 1003.3.1 shall be provided in accordance with Table 235.2. Where the number of **boat slips** is not identified, each 40 feet of **boat slip** edge provided along the perimeter of the pier shall be counted as one **boat slip** for the purpose of this section.

Table 235.2 Boat Slips			
Total Number Boat Slips In Facility	Minimum Number Required Accessible Boat Slips	Total Number Boat Slips In Facility	Minimum Number Required Accessible Boat Slips
1 to 25	1	501 to 600	8
26 to 50	2	601 to 700	9
51 to 100	3	701 to 800	10
101 to 150	4	801 to 900	11
151 to 300	5	901 to 1,000	12
301 to 400	6	1,001 and over	12, plus 1 for every 100, or fraction thereof, over 1,000
401 to 500	7		

Advisory 235.2 Boat Slips. The requirement for boat slips also applies to piers where boat slips are not demarcated. For example, a single pier 25 feet long and 5 feet wide (the minimum width specified by Section 1003.3) allows boats to moor on three sides. Because the number of boat slips is not demarcated, the total length of boat slip edge (55 feet) must be used to determine the number of boat slips provided (two). This number is based on the specification in Section 235.2 that each 40 feet of boat slip edge, or fraction thereof, counts as one boat slip. In this example, Table 235.2 would require one boat slip to be accessible.



DBW Comments. The example in the above **Advisory 235.2 Boat Slips** uses a single pier 25 feet long and 5 feet wide. The entire perimeter of the pier would be 60 feet ($[25\text{ft} \times 2] + [5\text{ft} \times 2] = 60$ feet). In the advisory example, **access** to the pier is provided at one end (perhaps via a **gangway**) which would eliminate the 5 foot width at that end, resulting in a 55 foot total length of **boat slip** edge. In the case of a **gangway** that attaches to the side of the pier rather than at the end, the calculation would essentially be the same. Take the total perimeter of the pier (60 feet), subtract the overall width of the **gangway** (which would be about 5 feet), resulting in 55 feet of **boat slip** edge.

Almost never will such calculations be of any consequence. In the above advisory example, a single pier falls in the range of 1 to 25 **boat slips** in **Table 235.2** on page 34. However, if such a pier was one component among many in a large boating facility, and the total number of **boat slips** was at or near the top of one of the total **boat slip** ranges in **Table 235.2**, it could make the difference of one additional **accessible boat slip**. For example, in a boating facility with 50 demarcated **boat slips**, the inclusion of an additional **boat slip** using the 40 foot rule for non-demarcated **boat slips** would raise the total number of **boat slips** to 51 and increase the total number of required **accessible boat slips** from 2 to 3. Usually this will not be a problem, but it should be kept clearly in mind when dealing with these **accessibility** details.



235.2.1 Dispersion. **Boat slips** complying with 1003.3.1 shall be dispersed throughout the various types of **boat slips** provided. Where the minimum number of **boat slips** required to comply with 1003.3.1 has been met, no further dispersion shall be required.

Advisory 235.2.1 Dispersion. Types of boat slips are based on the size of the boat slips; whether single berths or double berths, shallow water or deep water, transient or longer-term lease, covered or uncovered; and whether slips are equipped with features such as telephone, water, electricity or cable connections. The term "boat slip" is intended to cover any pier area other than launch ramp boarding piers where recreational boats are moored for purposes of berthing, embarking, or disembarking. For example, a fuel pier may contain boat slips, and this type of short term slip would be included in determining compliance with 235.2.



DBW Comment. The **Advisory 235.2.1 Dispersion** on page 35 includes 12 examples of types of **boat slips** (size, single berths, double berths, utilities, etc.). The application of this dispersion requirement is difficult unless rational assumptions are made. It is not uncommon for medium sized marinas to have all 12 of the types of **boat slips** mentioned in the advisory. However, looking at **Table 235.2** on page 34, it would take a marina with 901 or more **boat slips** to trigger the requirement for 12 **accessible boat slips**. Obviously, most marinas will have more types of **boat slips** than the minimum number of required **accessible boat slips**. If, for example, a 350 berth marina has 12 types of **boat slips**, but is only required to provide six **accessible boat slips** as per **Table 235.2**, which of the 12 types are the six required **accessible boat slips** to be disbursed among? **Section 235.2** does not require that the minimum number of required **accessible boat slips** be increased to address the total number of types of **boat slips**. It must be assumed that this decision has been left in the hands of individual boating **facility** owners and/or operators.

▼ ++++++
235.3 Boarding Piers at Boat Launch Ramps. Where **boarding piers** are provided at **boat launch ramps**, at least 5 percent, but no fewer than one, of the **boarding piers** shall comply with 1003.3.2.

▲ ++++++
DBW Comments. **Boarding piers** are not required to be provided on **boat launch ramps**. However, **235.3 Boarding Piers at Boat Launch Ramps** was not intended to discourage state and local entities from providing them. Thus the liberty to exercise the various exceptions in Sections **1003.2.2**, **1003.3.1** and **1003.3.2** (see pages 26-34).

Where **boarding piers** are provided, at least five percent, but not less than one, shall comply with **1003.3.2**. The five percent factor will probably never be applied at a boat launch **facility**, even a very large one. It would take 21 or more **boarding piers** at a boat launch **facility** to trigger the requirement to make two of them **accessible**.

For practical reasons, it is recommended that all **boarding piers** at boat launch **facilities** be made **accessible**. Even a large multi-lane **boat launch ramp** will not have more than a few **boarding piers**. An eight-lane **boat launch ramp** with **boarding piers** between pairs of launching lanes, and along the two outside launching lanes, would require five **boarding piers**, 15 short of the five percent criteria in **235.3**. Making all **boarding piers accessible** will add very little to the original construction and installation costs, will provide a uniform float system with interchangeable parts, will help control maintenance costs, and will enhance **accessibility**.

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The following sections address **accessible** parking.

ADA Chapter 2: Scoping Requirements	
Section 208 Parking Spaces	pages 37-39
Section 216.5 Parking Signs	pages 39-40
ADA Chapter 5: General Site And Building Elements	
Section 502 Parking Spaces	pages 40-44

Only sections relative to recreational boating facilities are addressed.

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208 Parking Spaces

208.1 General. Where parking spaces are provided, parking spaces shall be provided in accordance with 208.

EXCEPTION:

Parking spaces used exclusively for buses, trucks, other delivery vehicles, law enforcement vehicles, or vehicular impound shall not be required to comply with 208 provided that lots accessed by the public are provided with a passenger loading zone complying with 503.



DBW Comment. Section 503 is not provided in this document. If needed, see 2010 ADA Standards Section 503 for Passenger Loading Zones.

▼ ++++++▼
208.2 Minimum Number. Parking spaces complying with 502 shall be provided in accordance with Table 208.2 except as required by 208.2.1 (Hospital Outpatient Facilities), 208.2.2 (Rehabilitation Facilities, etc.), and 208.2.3 (Residential Facilities). Where more than one parking facility is provided on a site, the number of accessible spaces provided on the site shall be calculated according to the number of spaces required for each parking facility.

(For information on Section 502 Parking Spaces, see pages 40-44.)

Table 208.2 Parking Spaces	
Total Number of Parking Spaces Provided in Parking Facility	Minimum Number of Required Accessible Parking Spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2 percent of total
1001 and over	20, plus 1 for each 100, or fraction thereof, over 1000

Advisory 208.2 Minimum Number. The term "parking facility" is used in Section 208.2 instead of the term "parking lot" so that it is clear that both parking lots and parking structures are required to comply with this section. The number of parking spaces required to be accessible is to be calculated separately for each parking facility; the required number is not to be based on the total number of parking spaces provided in all of the parking facilities provided on the site.



DBW Comments: Note in the last paragraph of **208.2 Minimum Number** on page 37 that the total number of **accessible** parking **spaces** at a **site** with more than one parking **facility** is based on the total number of parking **spaces** in each parking **facility**. For example, in **Table 208.2 Parking Spaces** on page 37, a 160 parking **space facility** would be required to have not less than six **accessible** parking **spaces**.

In a parking **facility** with 500 parking **spaces**, nine is the minimum number of required **accessible** parking **spaces**, which is 1.8 percent of 500. When the total number jumps to the bracket of 501 to 1,000, the ratio jumps to 2% of the total number of parking **spaces** (see **Table 208.2** on page 37). At the threshold of 1,001 and over, the required number of **accessible** parking **spaces** is 20 (2 percent of 1,000) + 1 for each additional 100 **spaces** (1 percent of 100), or fraction thereof. It is prudent to pay careful attention to these parking requirements in the planning, layout & design, and construction of parking **facilities**.

▼ ++++++▼
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.

▲ ++++++▲

DBW Comment. The 1 to 6 van parking **space** ratio in **208.2.4** is based on the total number of required **accessible** parking **spaces** required by **Table 208.2**, not the total number of parking **spaces** in a parking **facility**. Look back at **Table 208.2** on page 37.

Example: One (1) **accessible** van parking **space** (1 to 6 ratio) will suffice until the total number of required **accessible** parking **spaces** reaches seven (7), the minimum number required where there are 201 to 300 parking **spaces**.

The 1 to 6 ratio for van **accessible** parking **spaces** is a change from **ADAAG 4.1.2(5)(b)** which previously required a ratio of 1 to 8. The change reflects an increased need for van **accessible** parking **spaces**.

208.2.4 Van Parking Spaces requires “at least one” van **accessible** parking **space**. Identified local needs and activities may indicate that one van **accessible** parking **space** is not enough to meet the needs in parking **facilities** with up to 200 parking **spaces**. See row 6 in **Table 208.2** on page 37.

▼ ++++++▼
208.3 Location. Parking **facilities** shall comply with 208.3.

208.3.1 General. Parking **spaces** complying with 502 that serve a particular building or **facility** shall be located on the shortest **accessible** route from parking to an **entrance** complying with 206.4 (Entrances: doors, gates, etc.). Where parking serves more than one **accessible entrance**, parking **spaces** complying with 502 shall be dispersed and located on the shortest **accessible** route to the **accessible entrances**. In parking **facilities** that do not serve a particular building or **facility**, parking **spaces** complying with 502 shall be located on the shortest **accessible** route to an **accessible pedestrian entrance** of the parking **facility**.

208.3 EXCEPTION 1. All van parking *spaces* shall be permitted to be grouped on one level within a multi-story parking *facility*.

208.3 EXCEPTION 2. Parking *spaces* shall be permitted to be located in different parking *facilities* if substantially equivalent or greater *accessibility* is provided in terms of distance from an *accessible entrance or entrances*, parking fee, and user convenience.

Advisory 208.3.1 General Exception 2. Factors that could affect "user convenience" include, but are not limited to, protection from the weather, security, lighting, and comparative maintenance of the alternative parking site.

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DBW Comment. No comments are necessary on the above parking *spaces* location requirements and exceptions.

▼ ++++++▼

216 Signs

216.5 Parking. Parking *spaces* complying with 502 shall be identified by signs complying with 502.6.

216.5 Exceptions:

Exception 1: Where a total of four or fewer parking *spaces*, including *accessible parking spaces*, are provided on a *site*, identification of *accessible parking spaces* shall not be required.

Exception 2: (Residential Parking does not apply to recreational boating facilities.)

▲ ++++++▲

DBW Comments. Section 216.5 addresses *accessible parking space* identification signs as required by 502.6 (see page 43). Signs must be mounted on posts, walls or other suitable support at given sites to provide not less than 60 inches minimum measured from the pavement surface to the bottom of the signs. This provides sign visibility to persons in vehicles pulling into *accessible parking spaces*.

216.5 Exception 1 addresses parking *facilities* with four or less parking *spaces*, including at least one *accessible parking space*. Even in such small parking *facilities*, at least one in every six *accessible parking spaces* shall be van *accessible* and have an adjoining *access* aisle (see 208.2.4 Van Accessible Parking Spaces on page 38).

This seemingly easy exception is complex. The 2010 ADA Standards require posted signs for *accessible parking spaces*, but does not require parking *space* and *access* aisle pavement markings. Problems can come up in certain situations.

- Example: A small parking *facility* consists of the following:
- four (4) parking *spaces* total;
 - three (3) of the *spaces* have typical parking widths, eight to ten feet wide ;
 - one (1) *space* is a van *accessible parking space* 8 feet wide;
 - one (1) adjacent *access* aisle 8 feet wide (see 502.2 Exception on page 40).

Potential Problem #1: All of the parking **spaces** and the **access** aisle look alike. The three parking **spaces**, the van parking **space** and the **access** aisle collectively look like five similar parking **spaces**. Without the pavement markings, how will the single **accessible** parking **space** be identified? How will a law enforcement officer know if a vehicle has been illegally parked in the **accessible** parking **space** or in the **access** aisle?

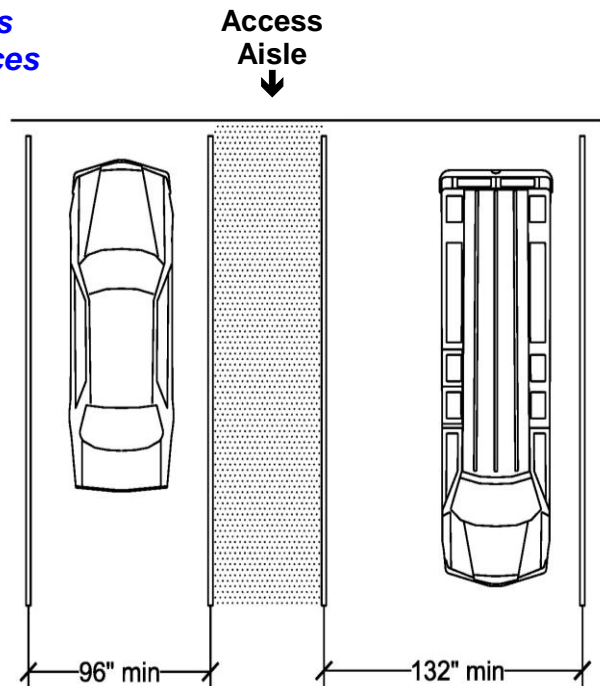
Potential Problem #2: The California Building Code (CBC Section 1129B.3, subsections 1 and 2) requires access aisles to be identified with bold cross hatch markings and "NO PARKING" letters painted in required colors. The **2010 ADA Standards** recognize this in **502.3.3 Marking** and in **Advisory 502.3.3 Marking** on page 41. State or local laws and/or regulations may have enforceable requirements that are not addressed in the **2010 ADA Standards**.

▼ ++++++
502 Parking Spaces

502.1 General. Car and van parking **spaces** shall comply with 502. Where parking **spaces** are marked with lines, width measurements of parking **spaces** and access aisles shall be made from the centerline of the markings.

502.1 EXCEPTION: Where parking **spaces** or access aisles are not adjacent to another parking **space** or access aisle, measurements shall be permitted to include the full width of the line defining the parking **space** or access aisle.

502.2 Vehicle Spaces. Car parking **spaces** shall be 96 inches wide minimum and van parking **spaces** shall be 132 inches wide minimum, shall be marked to define the width, and shall have an adjacent access aisle complying with 502.3.



**Figure 502.2
 Vehicle Parking**

502.2 EXCEPTION: Van parking **spaces** shall be permitted to be 96 inches wide minimum where the access aisle is 96 inches wide minimum.

▲ ++++++▲

DBW Comments. Section **502.2 Vehicle Spaces** includes width requirements for van **accessible** parking **spaces** and **access** aisles that are valuable and useful. It requires van **accessible** parking **spaces** to be 132 inches (11 feet) wide minimum, and adjacent **access** aisles to be 60 inches (5 feet) wide minimum. Thus, the overall van **accessible** parking **space** plus **access** aisle width is 192 inches (16 feet).

The **502.2 EXCEPTION** permits van **accessible** parking **spaces** and **access** aisles to each be 8 feet wide, resulting in an overall width of 16 feet, the same overall width

required by **502.2 Vehicle Spaces** (11 feet + 5 feet). This allows for an adjustment within the uniform minimum 16 feet wide footprint by reducing the van **accessible space** down from 11 feet to 8 feet, and increasing the **access** aisle up from 5 feet to 8 feet. The exception provides flexibility in cases where a wider **access** aisle is appropriate between two van **accessible spaces**, or where an **access** aisle is also a primary **accessible** route and greater width is necessary to handle the pedestrian traffic.

See other comments regarding exceptions that allow unmarked 8 foot wide van **accessible** parking **spaces** and **access** aisles in **216.5 Parking** on page 39.

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502.3 Access Aisle. Access aisles serving parking spaces shall comply with 502.3. Access aisles shall adjoin an accessible route. Two parking spaces shall be permitted to share a common access aisle.

Advisory 502.3 Access Aisle. Accessible routes must connect parking spaces to accessible entrances. In parking facilities where the accessible route must cross vehicular traffic lanes, marked crossings enhance pedestrian safety, particularly for people using wheelchairs and other mobility aids. Where possible, it is preferable that the accessible route not pass behind parked vehicles.

502.3.1 Width. Access aisles serving car and van parking spaces shall be 60 inches wide minimum.

502.3.2 Length. Access aisles shall extend the full length of the parking spaces they serve.

502.3.3 Marking. Access aisles shall be marked so as to discourage parking in them.

Advisory 502.3.3 Marking. The method and color of marking are not specified by these requirements but may be addressed by State or local laws or regulations. Because these requirements permit the van access aisle to be as wide as a parking space, it is important that the aisle be clearly marked.

▲ ++++++▲

DBW Comment: The California Building Code (CBC Section 1129B.3, subsections 1 and 2) has specific requirements for method and color of marking **access** aisles that are not addressed in the **2010 ADA Standards**. Under the CBC, **access** aisles must be clearly marked with painted cross hatching and “NO PARKING” painted letters that are highly visible both day and night.



Access aisles for van **accessible** parking **spaces** may be 11 feet or 8 feet wide (see **502.2 Vehicle Spaces** and **502.2 Exception** on page 40). There is a growing incidence

of drivers parking vehicles in 8 feet or wider van **accessible access** aisles. Pavement markings of any kind can be difficult to see at night, particularly when the pavement is wet. The fines (\$\$\$) for parking in an **access** aisle are similar to fines for parking in **accessible** parking **spaces** without a legal placard or license plate sticker. If a person with a disability parks in an **access** aisle, and displays a legal placard or license plate sticker, that person is subject to a parking ticket. Such tickets begin at \$250 and are considerably higher in urban areas. Placards and stickers only apply in **accessible** parking **spaces**, not in adjacent **access** aisles.

Abusive use of an **accessibility** placard is also a serious matter. Under the California Vehicle Code placard abuse may result in cancellation and revocation of the placard, including loss of all privileges it provides. Abuse of a placard is punishable by a minimum fine of \$250 up to \$3,500, or imprisonment up to six months, or both.

Possible parking **space/access** aisle marking problems come up when a small parking facility has four or less parking **spaces**. See **216.5 Parking Exception 1** and comments on pages 39-40.

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502.3.4 Location. Access aisles shall not overlap the vehicular way. Access aisles shall be permitted to be placed on either side of the parking space except for angled van parking spaces which shall have access aisles located on the passenger side of the parking spaces.

Advisory 502.3.4 Location. Wheelchair lifts typically are installed on the passenger side of vans. Many drivers, especially those who operate vans, find it more difficult to back into parking spaces than to back out into comparatively unrestricted vehicular lanes. For this reason, where a van and car share an access aisle, consider locating the van space so that the access aisle is on the passenger side of the van space.

502.4 Floor or Ground Surfaces. Parking spaces and access aisles serving them shall comply with 302. Access aisles shall be at the same level as the parking spaces they serve. Changes in level are not permitted.

502.4 EXCEPTION: Slopes not steeper than 1:48 shall be permitted.

Advisory 502.4 Floor or Ground Surfaces. Access aisles are required to be nearly level in all directions to provide a surface for wheelchair transfer to and from vehicles. The exception allows sufficient slope for drainage. Built-up curb ramps are not permitted to project into access aisles and parking spaces because they would create slopes greater than 1:48.

▲ ++++++ ▲
DBW Comment. It is not unreasonable to require a contractor to place, screed and finish a 1:48 (2.08 percent) maximum slope when working with concrete. It tends to stay

put and can be accurately finished to required slopes. But it is another matter to work with asphalt concrete (AC) paving. It may be accurately constructed initially, but AC paving tends to move somewhat in response to parked vehicles, the turning of vehicle wheels on the AC while entering and exiting parking **spaces**, hot weather that softens the paving, and settlement of base rock and soil under the paving. These factors can lead to low spots called "bird baths" that collect standing water. 1:48 is a somewhat challenging slope to build and maintain. Thus, it is important that an experienced inspector be present when the base rock is spread, graded and compacted, and when the **accessible** parking **spaces** and **access** isles are being paved.

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502.5 Vertical Clearance. Parking spaces for vans and access aisles and vehicular routes serving them shall provide a vertical clearance of 98 inches minimum.


Advisory 502.5 Vertical Clearance. Signs provided at entrances to parking facilities informing drivers of clearances and the location of van accessible parking spaces can provide useful customer assistance.

502.6 Identification. Parking space identification signs shall include the International Symbol of Accessibility complying with 703.7.2.1. Signs identifying van parking spaces shall contain the designation "van accessible." Signs shall be 60 inches minimum above the finish floor or ground surface measured to the bottom of the sign.

703.7.2 Symbols.

703.7.2.1 International Symbol of Accessibility. The International Symbol of Accessibility shall comply with Figure 703.7.2.1.

**Figure 703.7.2.1
International Symbol of Accessibility**



Advisory 502.6 Identification. The required "van accessible" designation is intended to be informative, not restrictive, in identifying those spaces that are better suited for van use. Enforcement of motor vehicle laws, including parking privileges, is a local matter.

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DBW Comment. All vehicles carrying a person(s) with a disability may be parked in van **accessible** parking **spaces**, provided legal **accessibility** placards and/or license plate stickers are displayed. The intent is to inform users that van **accessible** parking **spaces** are designed, built and signed for the more **accessible** and convenient parking of vans. But such **accessible** parking spaces are not exclusively reserved for parking vans.

▼ ++++++▼
502.7 Relationship to Accessible Routes. Parking spaces and access aisles shall be designed so that cars and vans, when parked, cannot obstruct the required clear width of adjacent accessible routes.

Advisory 502.7 Relationship to Accessible Routes. Wheel stops are an effective way to prevent vehicle overhangs from reducing the clear width of accessible routes.



DBW Comment. Efforts should be made to prevent and/or discourage parking vehicles in **accessible** parking **spaces** such that the front or back of the vehicles overhang into **accessible** routes. This includes **accessible** routes that might be in front of, or behind the parked vehicles. Where overhang problems occur, it can reduce the required minimum width of the **accessible** routes. Some vehicles are capable of overhanging several feet in front of, or behind the wheels.

Wheel stops or curbs will prevent this problem in parking **spaces** designed for “pull in” and “back out” parking. However, in pull-through parking **spaces**, entering and exiting can occur at both ends, or either end, depending on the traffic circulation patterns. Two-way and/or one-way traffic patterns in parking lots will dictate the details of entering and exiting **accessible** parking **spaces** and the location of **accessible** routes.

Sometimes the topography of **sites** will not allow provision of an **accessible** route in front of parked vehicles for use to travel to restrooms, picnic areas, shade ramadas, **boat launch ramps**, floating docks, and other features that are commonly provided at recreational boating **facilities**. In such cases, **accessible** routes must be provided and marked on the paved parking surfaces, along with necessary signs.

End of Part B
