

SIGNIFICANT CHANGES TO THE ICC A117.1 Accessibility Standard

2017 Edition



Jay Woodward





SIGNIFICANT CHANGES TO THE

A117.1 ACCESSIBILITY STANDARD[®]

2017 EDITION

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A117.1 ACCESSIBILITY STANDARD®**

2017 EDITION

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International Code Council

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This table of contents includes references from sections that are covered with a related topic elsewhere in the book. The changes and their summary could easily be overlooked since the topic is not covered in the sequential order but is instead addressed with a related change. These hidden or less apparent changes are identified by two methods in the table of contents. The “hidden” changes are indented in the table of contents and include a reference to “See page” prior to the page number. The section numbers of these hidden changes are also shown enclosed in brackets. The number following the bracket is the section numbering shown with the actual page in the book where the discussion occurs.

For example, if you look between Sections 802.7.2 and 802.10.4 you will see an entry for “(802.10.3.1) 906, 802.10.3.1, 1102.15.4, Charging Stations, See page 140.” This entry indicates that there was a change affecting Sections 802.10.3.1 and 1102.15.4 and the “Charging Station” requirements that are covered in the discussion with Section 906 on page 140 of the book. Combining related subjects like this allowed for additional topics to be included in the book and will also help show how changes relate to similar topics in other parts of the standard.

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Preface

The purpose of *Significant Changes to the A117.1 Standard* is to familiarize code officials, plans examiners, inspectors, design professionals, contractors, and others in the construction industry with many of the important changes in the 2017 A117.1 standard. This publication is designed to assist all users of the standard with identifying the specific code changes that have occurred and, more important, understanding the reasons behind the changes and how they will affect accessibility. It is also a valuable resource for jurisdictions in their adopting process.

Only a portion of the total number of changes to the A117.1 standard are discussed in this book. The changes selected were identified for a number of reasons, including their frequency of application, special significance, or change in application. However, the importance of those changes not included is not to be diminished.

This book is organized to follow the general layout of the standard, including code sections and section number format. The table of contents, in addition to providing guidance in use of this publication, allows for quick identification of those significant changes that occur in the 2017A117.1 standard.

Throughout the book, each change is accompanied by a photograph or an illustration to assist and enhance the reader's understanding of the specific change. A summary and a discussion of the significance of the changes are also provided. Each code change is identified by type, be it an addition, modification, clarification, or deletion.

The change to the text of the standard itself is presented in a format similar to the style utilized for submitting and reviewing proposed changes. Text deleted from the standard is shown with a strike-through, whereas new text that is added is indicated by underlining. As a result, the actual text of the 2017 standard is provided as well as a comparison with the 2009 language, so the user can easily determine changes to the specific text.

As with any code-change document, *Significant Changes to the A117.1 Standard* is best used as a study companion to the *ICC A117.1-2017* standard. Because only a limited discussion of each change is provided, the standard itself should always be referenced in order to gain a

more comprehensive understanding of a specific change and its application.

The commentary and opinions set forth in this text are those of the author and do not necessarily represent the official position of the ICC and are not to be considered as the opinion of the A117.1 Accredited Standards Committee. In addition, they may not represent the views of any enforcement agency, as such agencies have the sole authority to provide a review and approval process. In many cases, the explanatory material is derived from the reasoning expressed by the proponent of the change or by the A117.1 committee during its evaluation of the proposal.

Comments concerning this publication are encouraged and may be directed to the ICC at significantchanges@iccsafe.org.

About the A117.1 Standard

Building officials, design professionals, and others involved with building construction and accessibility recognize the need for a modern, easy-to-understand, up-to-date standard addressing the design and construction of elements that serve or are used by building occupants. The A117.1 standard, in the 2017 edition, is intended to meet these needs by providing the technical details to ensure that the buildings and facilities are accessible and usable. The A117.1 standard is kept up to date through an open development process that meets the requirements of the American National Standards Institute (ANSI) so that it can be recognized as an American National Standard (ANS). The provisions of the 2009 edition, along with those changes approved through the current development cycle, make up the 2017 edition.

The 1961 edition of the A117.1 standard presented the first criteria for accessibility to be approved as an ANS and was the result of research conducted by the University of Illinois under a grant from the Easter Seal Research Foundation. The National Easter Seal Society and the President's Committee on Employment of People with Disabilities began serving as the Secretariat, and the 1961 edition was reaffirmed in 1971.

In 1974, the U.S. Department of Housing and Urban Development joined the Secretariat and sponsored needed research, which resulted in the 1980 edition. After further revision that included a special effort to remove application criteria (scoping requirements), the 1986 edition was published. In 1987 the committee requested that the Council of American Building Officials (CABO) assume the role of the Secretariat. Central to the intent of the change in the Secretariat was the development of a standard that, when adopted as part of a building code, would be compatible with the building code and its enforcement. The 1998 edition of the A117.1 standard largely achieved that goal. The 2017 edition of the standard is the latest example of the A117.1 committee's effort to continue developing a standard that is compatible with the building code. In 1998 CABO became the International Code Council.

The ICC, the current Secretariat and publisher of the A117.1, was established as a nonprofit organization dedicated to developing, maintaining, and supporting a single set of comprehensive and coordinated national

model building construction codes. Its mission is to provide the highest quality codes, standards, products, and services for all concerned with the safety and performance of the built environment.

The A117.1 is one of 8 standards and 14 international codes being developed and published by the ICC. This comprehensive standard establishes minimum requirements to ensure that buildings and facilities are accessible and usable. The A117.1 is available for adoption and use by jurisdictions internationally. Its use within a governmental jurisdiction is intended to be accomplished through adoption by reference, in accordance with proceedings establishing the jurisdiction's laws.

New to the 2017 edition are enhanced dimensions for clear floor spaces and turning spaces. These increases were in response to technical data regarding the space needed by persons using larger wheeled mobility devices (e.g., manual or powered wheelchairs and scooters). Other changes include exterior routes, curb cuts, blended transitions, clarity for detectable warnings, passenger drop offs and parking requirements coordinated with the proposed federal Public Rights of Way Guidelines, providing an accessible design standard for electrical vehicle charging stations and enhanced safety for accessible routes crossing parking lots. Also introduced are acoustic standards for classrooms, features allowing for better communication for persons using sign language, provisions addressing the recharging of wheelchairs in assembly venues and hotels, access to gaming machines and tables, and provisions for water bottle filling stations. These revisions show the committee's continued effort to improve people's lives and address a variety of disabilities and solutions.

Acknowledgments

A special thank you is extended to Kim Paarlberg, Senior Staff Architect in the ICC's Codes and Standards Development department, and to Kermit C. Robinson, Senior Technical Staff, who among many other tasks, serves as the Secretariat for the ICC A117.1 Accessibility Standard. Kim and Kermit's efforts to read, review and explain to me the background of some items as well as their assistance in finding photos or illustrations truly helped to improve this publication. I would also like to thank Marsha Mazz, as well as other committee members who helped explain the new requirements to me. The entire A117.1 committee should be recognized for their effort and dedication in developing the new provisions and maintaining the standard. Their efforts truly do impact and improve people's lives.

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Jay is a senior staff architect with the ICC's Business and Product Development department and works out of the Lenexa, Kansas, Distribution Center. His current responsibilities include instructing ICC seminars, updating existing ICC products and assisting in the development of new ICC publications.

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About the ICC

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CHANGE TYPE: Addition

CHANGE SUMMARY: This addition provides guidance regarding size or dimensional requirements where a calculation results in a fractional number, ratio or percentage.

2017 STANDARD: **105.2 Calculation of percentages.** Where the determination of the required size or dimension of an element or facility involves ratios or percentages, rounding down for values less than one half shall be permitted.

CHANGE SIGNIFICANCE: When a standard is applied, many provisions are often scoped so that the requirements establish a minimum. For example, if a scoping document required two percent of all parking spaces to be accessible, the number of compliant spaces would need to meet or exceed that percentage in order to be accepted. That is, while two accessible spaces would clearly be required for a parking lot with 100 total spaces, it would also be the minimum requirement for a lot with 60 total spaces, since the calculation would indicate that a minimum of 1.2 spaces ($60 \times 2\% = 1.2$) must be accessible. However, the standard has not previously addressed how fractional numbers or ratios are to be handled. This new language will allow dimensions to be rounded down where the resultant value of a ratio or percentage would result in a value that was less than one half. In essence, this new text provides a bit of a dimensional tolerance or allows the person using the code to ignore a minor or inconsequential difference in an element's size. This new provision must be viewed and applied in conjunction with the provisions of Section 105.3, which state that the dimensional tolerances do not apply "where the requirement is a range with stated minimum and maximum end points."

Examples for showing how this new provision is to be applied can be found within the requirements for transfer showers, the handrail gripping surface provisions and even the ramp slope requirements. While the 36-inch dimension within Section 608.2.1.1 for transfer showers has generally been viewed as an absolute requirement (both a minimum and maximum dimension), it can be argued that this new provision would allow a shower that was constructed at 36.3 inches to be acceptable and to be viewed as being 36 inches, and therefore in compliance with the code requirement. The 20 percent limitation from item 1.1 in Exception 1 of Section 505.6 is another case where the rounding option could be used. If the actual

105.2 continues

Calculation of percentages – Example

A handrail is 20 feet long and has 39 spindles supporting it from beneath. Each spindle is 1.25 inches.

$39 \text{ spindles} \times 1.25 \text{ inches each} = 48.75 \text{ inches of obstruction beneath the gripping surface.}$

$20 \text{ feet} \times 12 \text{ inches per foot} = 240 \text{ inches—the total length of the handrail.}$

$48.75 \text{ inches} / 240 \text{ inches} = 20.3 \text{ percent of the handrail gripping surface that is being obstructed.}$

20.3 percent is rounded down to 20 percent, and therefore the handrail complies with the Section 505.6, Exception 1, item 1.1 limitation.

105.2

Calculation of Percentages



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105.2 *continued*

percentage of the obstruction came out to be 20.4 percent, this would not be considered a violation because the result would round down to 20 percent.

Besides the previous discussion related to applying this section in conjunction with following the requirements of Section 105.3, nothing within this new section should be viewed as changing the minimum or maximum dimensions that are specified elsewhere within the code. What may be important regarding this section is to recognize there are places where it cannot be applied. For example, Table 802.10 specifies the number of wheelchair space locations. The table includes language such as “3, plus an additional space for each 1,000 seats or portions thereof above 1,000.” If the result of a facility’s seating indicated that 4.25 locations were required, it is inappropriate to round down to 4 wheelchair space locations because of the specific language within the table.

Although this added text is within the Americans with Disabilities Act (ADA) and was inserted into the A117.1 in order to coordinate the two documents, it really is difficult to see how it will apply in many cases within the A117.1 and whether this section to provide a built-in tolerance is really useful or a means to dramatically alter the application of the standard. If the section is not read in its entirety and in context, the provisions could be misapplied. First, the text states that this calculation is for determining the “required size or dimensions.” From that standpoint, what is the distinction between Section 105.2 and 105.3 for dimension tolerances? Second, the wording to the section continues to say it is applicable “where the determination of the required size or dimension . . . involves ratios or percentages.” That second portion will obviously limit the application, but the text is not clear how the size and dimension provisions relate to the ratios or percentages. If it is assumed that the rounding down values are permitted for values less than one-half, then is it to be assumed that a two percent cross slope is truly allowed to be a maximum of 2.49 percent? If so, then that would mean the ratio would not be 1:48 for the cross slope but instead could be 1:40.16 (approximately 1-inch rise for every $40^{3/16}$ inches of run)? It is doubtful that either the ADA or the A117.1 committee intended to allow almost a 20 percent increase in the permitted cross slope.

A more reasonable and logical example of how this provision would apply to a percentage or ratio would be to consider the slope of a ramp. The general ramp requirements of Section 405.2 set the maximum slope at 1:12 (an 8.33 percent slope). If rounding down for numbers of less than one-half is permitted, then it would seem that a ramp would still be permitted if the slope was 8.49 percent. In that situation, an 8.49 percent slope (1:11.78) would be “rounded down” to being an 8 percent slope. Since the 8 percent is a lower slope than is set by the 1:12 maximum, it seems as if the 1:11.78 slope is acceptable. In this case, the difference between the 1:12 slope specified by the standard and the apparently acceptable slope of 1:11.78 that is set by rounding down the slope percentage would seem fairly insignificant and perhaps within the intent of what the new text is intended to accept.

Even though this language is within the ADA and now within the A117.1 standard, it is suggested that designers and contractors consult with the code official before venturing too far when applying this new code text. Since very few items are related to “size or dimension [that involve] ratios or percentages,” the application of this new section may truly be of limited value. The gripping surface provisions for handrails (item 1.1 in Exception 1 of Section 505.6) may truly be the best and perhaps only clear example where this provision does seem to be acceptable.

CHANGE TYPE: Modification

CHANGE SUMMARY: Previously “all dimensions” were subject to accepted industry tolerances. The revised language helps clarify that dimensions stated with both minimum and maximum end points are not to use tolerances that may place the actual dimension outside of the standard’s anticipated range.

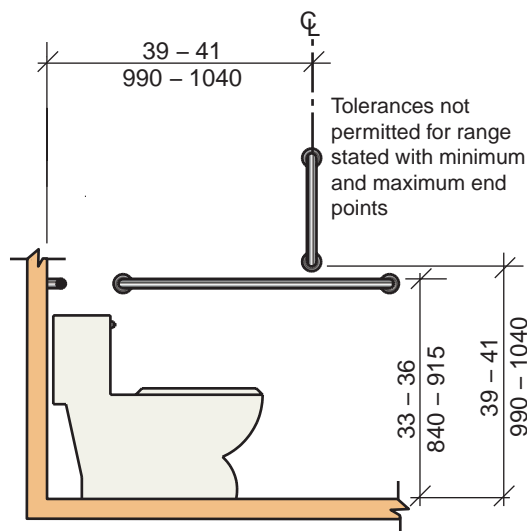
2017 STANDARD: 104.2—Dimensions. 105.3 Dimension tolerances. ~~Dimensions that are not stated as “maximum” or “minimum” are absolute.~~ All dimensions are subject to conventional industry tolerances except where the requirement is a range with stated minimum and maximum end points.

CHANGE SIGNIFICANCE: This revised language will coordinate the A117.1 standard with the federal government’s Americans with Disabilities Act (ADA) and their 2010 version. Previously under the A117.1 standard, “all dimensions” were allowed to vary based on conventional industry tolerances. This would include dimensions that were required to fall within a range, or those that were specified as “absolute” dimensions, which were both a minimum and a maximum. Under the new language, if the standard specifies the requirement within a range “with stated minimum and maximum end points,” then those dimensions will no longer be allowed to vary by the accepted tolerance. Where the dimensions are specified as a range, the standard will expect the final measurements to fall within that range and will not permit any deviation that would place the dimension below the minimum or beyond the maximum that the standard has stated. As an example, Section 609.4.1 establishes that grab bars are to be installed “33 inches minimum and 36 inches maximum above the floor.” Under the 2009 edition of the standard it may have been permissible for the grab bar to be installed at a height of perhaps $32\frac{3}{4}$ inches

105.3

Dimension Tolerances

105.3 continues



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Dimension tolerances

105.3 *continued*

or perhaps $36\frac{1}{8}$ inches. With the new language, and the fact the provisions specify a range, “with . . . minimum and maximum end points,” it is expected that the top of the grab bar will actually be located within that range and that there will be no variation below or above that range. As a practical matter this means that designers need to consider specifying items be installed at the midpoint of any range. For example, the height of a grab bar should be set near the middle of the $34\frac{1}{2}$ -inch point, or perhaps the centerline of a water closet should be set at a location of 17 inches from a sidewall. That way when the grab bar is installed it can fall within the required 33-inch to 36-inch range for the height, and the water closet can easily fall within the specified 16-inch to 18-inch range without the need for any type of tolerance.

While the A117.1 standard did previously allow “all dimensions” to be made using “conventional industry tolerances,” the ADA excluded the use of tolerances when the dimensions were specified as a range. Therefore, this revision within the A117.1 standard will coordinate with the ADA and help to eliminate confusion.

Where the dimensions are simply specified as a minimum or a maximum, but not as a range with a minimum and maximum figure, then those single dimensions may still have an acceptable tolerance. Examples of this situation would include items such as a forward approach alcove (Section 305.7.2), which is to be “36 inches minimum” in width, or perhaps the side of a rectangular shower seat (Section 610.3.1), which is to be “ $1\frac{1}{2}$ inches maximum” from the back wall of a transfer shower. In both of these situations the 36-inch minimum dimension or the $1\frac{1}{2}$ -inch maximum dimension could be modified by whatever was considered to be a “conventional industry tolerance.”

Eliminating the first sentence of the text of the previous edition also helps eliminate confusion, since the standard indicated these were “absolute” dimensions that would seemingly prohibit any tolerance, but then immediately followed that information with the second sentence that did indicate “all” dimensions were subject to an allowable tolerance.

CHANGE TYPE: Addition

CHANGE SUMMARY: Numerous exemptions have been added into the standard that will lessen the impact of various new requirements within the standard. These exemptions will rely on the definition of “existing building” to determine where the elements and facilities can continue to use the earlier editions of the standard as opposed to the new 2017 provisions.

2017 STANDARD: 106.5 107.5 Defined terms.

Existing building. A building erected prior to the date of adoption of this standard, or one for which a legal building permit has been issued.

CHANGE SIGNIFICANCE: Throughout the 2017 edition of the standard there have been a number of changes that will dramatically alter design requirements. These changes were typically based on the work of the Wheeled Mobility Study Group. Some examples of these changes include an increase in the size of a clear floor space (Section 305.3.1) or the size of a circular turning space (Section 304.3.1.1). While these changes are more easily accomplished within a new building, they may be impossible to achieve in an existing building or would come with a significant construction cost impact.

While the committee did debate both the need and the cost for these changes, it recognized the impact these changes would make for existing buildings, including that many of the changes would be impossible to implement given structural and other limitations in existing buildings.

Exemptions for existing buildings are not unique within this standard. As an example, consider the exceptions that were granted when the high side reach was reduced from 54 inches to 48 inches. In the past the standard has generally required existing elements to comply with the newer, current provisions when the element is altered. The unique aspect for many of the existing building provisions within the 2017 standard is that

107.5 continues



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107.5

Defined Terms – Existing Building

107.5 continued it will allow the alterations to comply with the sizes and dimensions that were allowed by the 2009 edition of the standard. The definition will include not only buildings that are erected prior to adopting the standard but also buildings for which a permit to construct have been issued.

Because of these new exceptions, it is important that the standard clearly define what is considered as an existing building. Additional comments related to the existing building exemptions will occur as appropriate within this book. Some sections where existing building provisions have been included are Sections 304.3.1.2, 304.3.2.2, 305.3.2, 403.5.1 Exception 2, 403.5.2.2, 403.5.3.2 and 403.5.4.2 among others. All users of the standard should be aware of these existing building options and the allowances they permit.

CHANGE TYPE: Addition

CHANGE SUMMARY: This definition is the introduction to requirements that have been added in various places of the standard. The new edition of the standard has made more of an effort to address scooters and motorized wheelchairs. While most changes deal with maneuvering requirements, this change recognizes the need for people who use such devices to be able to recharge them in a convenient, accessible location.

2017 STANDARD: **106.5-107.5 Defined terms.**

Wheelchair charging area. A clear floor area where people with disabilities can recharge their wheelchair batteries.

CHANGE SIGNIFICANCE: Wheelchair charging stations are required by the standard in locations where wheelchair users may be anticipated to be for extended periods of time. In general, Section 906 of the standard includes the limited technical requirements and provides the design regulations for the wheelchair charging area. These design parameters include a clear floor space and a grounded electrical outlet that is located within an appropriate reach range.

Currently under the standard the wheelchair charging requirements of Section 906 are only referenced twice. The first is within the assembly seating requirements of Section 802.10.3.1. This section does not require charging stations but regulates them if they are provided within the seating area. The only place the standard would require the wheelchair charging area is found within the bed requirements for Accessible units in Section 1102.15.4. In this situation, the standard requires the clear floor space adjacent to the bed to also serve as a wheelchair charging area. Having a wheelchair charging area in this location allows the chair users the opportunity to be able to independently re-charge the battery on their devices before or when they transfer to the bed to rest or sleep.

107.5

Defined Terms – Wheelchair Charging Area



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Wheelchair charging area

304.3.1

Circular Turning Space

CHANGE TYPE: Modification

CHANGE SUMMARY: Within new buildings, the size of a circular turning space has been increased from the previous 60-inch requirement up to 67 inches. The amount of knee and toe space beneath an obstruction that can be included in the turning space clearance has become more limited.

2017 STANDARD: 304.3 Size. Turning spaces shall comply with Section 304.3.1 or 304.3.2.

304.3.1 Circular Space.

304.3.1.1 New buildings and facilities. In new buildings and facilities, The turning space shall be a circular space with a 67 inch (1700 mm) minimum diameter.

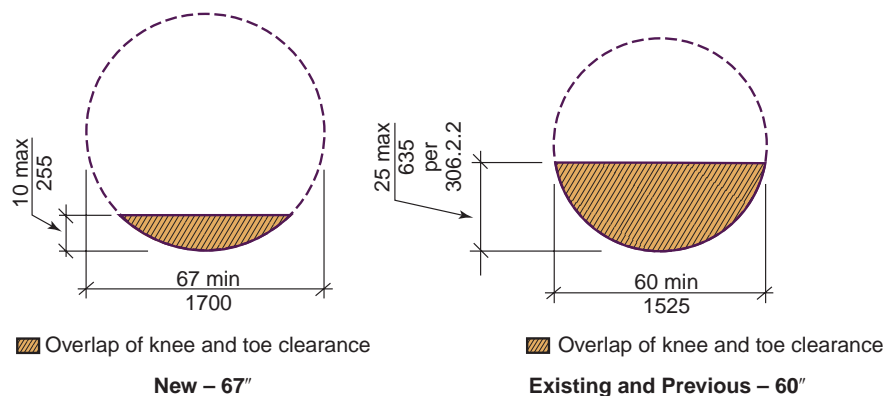
304.3.1.1.1 Overlap. Turning spaces shall be permitted to include knee and toe clearance complying with Section 306. Where the turning space includes knee and toe clearances under an obstruction, the overlap shall comply with all of the following:

1. The depth of the overlap shall not be more than 10 inches (255 mm), and
2. The depth shall not exceed the depth of the knee and toe clearances provided, and
3. The overlap shall be permitted only within the turning circle area shown shaded in Figure 304.3.1.

304.3.1.2 Existing buildings and facilities. In existing buildings and facilities, the turning space shall be a circular space with a 60 inch (1525 mm) minimum diameter.

304.3.1.2.1 Overlap. The turning spaces shall be permitted to include knee and toe clearance complying with Section 306.

CHANGE SIGNIFICANCE: This change is a part of the work of the Wheeled Mobility Task Group. This task group of the A117.1 committee analyzed the results of the anthropometric study conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY, evaluating a variety of mobility device users. This study queried around 500 manual and powered wheeled mobility



device users. The results of the study indicate that the technical provisions contained in the previous edition of the A117.1 standard did not address the needs of the full range of mobility devices. By increasing the size of the circular turning space, it is expected the percentage of manual and power wheelchair users that would be accommodated will increase from 80 to 95 percent and will almost double the percentage of scooters served.

The committee's decision to approve the larger "building block" requirements, such as the turning space, was based on the growing use of powered chairs and scooters that are larger and have differing maneuvering capabilities. The committee did debate whether the standard should be changed to accommodate changes in the technologies of wheeled mobility or whether the manufacturers of the devices needed to design equipment to work within the standard. Ultimately, because scooters and many wheelchairs are getting larger and being used already, it was decided that modifying the standard to some extent in order to accommodate these larger wheeled mobility devices (WMD) was appropriate. While these increased size requirements will accommodate a larger percentage of WMDs as discussed in the previous paragraph, they will not be capable of providing full access to all users who may have equipment that has limited capabilities or is near the extreme size limits.

The requirements for new buildings also include a limitation on the amount of the turning space that may be overlapped by fixtures or elements that have knee and toe clearances beneath them. Previously the standard did not place a limit on the amount of the space that could be located beneath a fixture or element. Other than a 36-inch-wide accessible route into and out of the space, the turning space could potentially have had obstructions on two or three sides, and these obstructions could in total have extended to close to the 25-inch maximum depth allowed for knee and toe clearances. With the new provisions, the overlap is limited to being on only one side and is limited to a maximum overlap depth of 10 inches if knee and toe clearance is provided beneath the fixture.

The circular turning space requirements also contain a provision for existing buildings. It is important to recognize this new section and understand why this type of section was added at several locations throughout the standard. This issue was briefly discussed earlier with Section 107.5 and the definition for an "existing building." With the increased size requirements in several of the building block sections (e.g., Sections 304.3.1.1, 304.3.2.1 and 305.3.1) and for the accessible route (e.g., Sections 403.5.1, 403.5.2.1 and 403.5.3.1), there was a concern with how this could affect a building that was built to be compliant with the current ADA standard or a building that was built to be compliant with the previous editions of the A117.1 standard. For example, if an alteration of a primary function space was being proposed, or if a small alteration of a toilet room was undertaken, would the restroom be required to be altered to allow for the larger turning space or would the accessible route to the toilet room be expected to be altered to provide for these increased dimensions? To avoid forcing changes to be made to facilities and elements that were compliant with the earlier standards (as well as the current ADA standard), these "existing buildings" sections were added to allow the sizes from the previous A117.1 standard to be accepted. This will therefore help limit

304.3.1 continues

304.3.1 *continued* any potential negative impact that could be caused by the updated “new building” provisions.

This allowance for exempting items that were previously acceptable prior to a change in the technical requirements has occurred before but may not have been as apparent or as important. One of the easiest examples would be when the maximum height for the side reach was reduced from 54 inches to 48 inches; the previously compliant elements were allowed to remain at the higher height. With the potential greater impact that the new size requirements could impose, the committee felt it was appropriate to allow existing buildings to continue to use the previous requirements, even when they are altered, and to apply the increased sizes only on new buildings that could be designed to accommodate the new regulations.

CHANGE TYPE: Modification

CHANGE SUMMARY: Three options are allowed for T-shaped turning spaces in new construction and vary depending on the width of the arms on the T-shaped space. All of the options result in an increased size for the turning space, while existing buildings can continue to use the previous criteria.

2017 STANDARD: 304.3.2 T-shaped space.

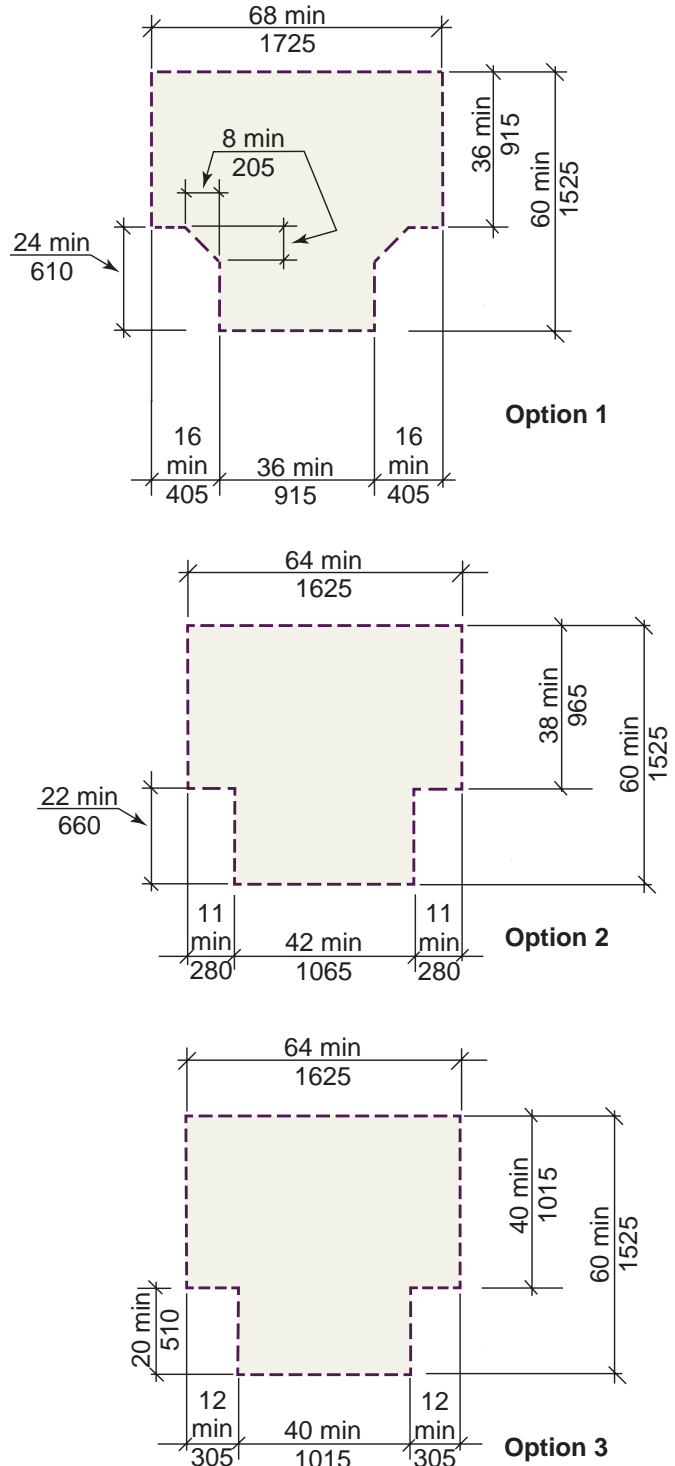
304.3.2.1 New buildings and facilities. In new buildings and facilities, the turning space shall be a T-shaped space complying with one of the following:

1. A T-shaped space, clear of obstruction, that fits within an area 68 inches (1725 mm) wide and 60 inches (1525 mm) deep, with two arms and one base that are all 36 inches (915 mm) minimum in width. Each arm shall extend 16 inches (405 mm) minimum from each side of the base located opposite the other, and the base shall extend 24 inches (610 mm) minimum from the arms. At the intersection of each arm and the base, the interior corners shall be chamfered for 8 inches (205 mm) minimum along both the arm and along the base.
2. A T-shaped space, clear of obstruction, that fits within an area 64 inches (1625 mm) wide and 60 inches (1525 mm) deep, with two arms 38 inches (965 mm) minimum in width and a base 42 inches (1065 mm) minimum in width. Each arm shall extend 11 inches (280 mm) minimum from each side of the base, located opposite the other, and the base shall extend 22 inches (560 mm) minimum from each arm.
3. A T-shaped space, clear of obstruction, 64 inches (1625 mm) wide and 60 inches (1525 mm) deep, with two arms and one base 40 inches (1015 mm) minimum in width. Each arm shall extend 12 inches (305 mm) minimum from each side of the base and the base shall extend 20 inches (510 mm) minimum from each arm.

304.3.2 continues

304.3.2

T-shaped Turning Space



304.3.2 *continued*

304.3.2.1.1 Overlap. Turning spaces shall be permitted to include knee and toe clearance complying with Section 306 of either the base or one arm. For Option 1, the base or arm is the portion beyond the chamfer.

304.3.2.2 Existing buildings and facilities. In existing buildings and facilities, the turning space shall be a T-shaped space within a 60-inch (1525 mm) minimum square, with arms and base 36 inches (915 mm) minimum in width. Each arm of the T shall be clear of obstructions 12 inches (305 mm) minimum in each direction, and the base shall be clear of obstructions 24 inches (610 mm) minimum.

304.3.2.2.1 Overlap. Turning spaces shall be permitted to include knee and toe clearance complying with Section 306 only at the end of either the base or one arm

CHANGE SIGNIFICANCE: In order to accommodate the larger wheeled mobility devices, scooters and wheelchairs, the T-shaped turning space requirements have been modified. Primarily the change is seen in Section 304.3.2.1, which will provide three options for the layout of the T-shaped space. These three options will vary depending on the overall size of the space as well as the width of the arms and leg of the T. The three options will range from a 68-inch by 60-inch space with arms and a base that are 36 inches in width and having chamfered corners, to a 64-inch by 60-inch option that relies on both of the arms and the base being increased to a 40-inch width to ease maneuvering.

Where previously the standard included the design criteria for only one size (a 60-inch by 60-inch space with 36-inch wide arms and base), the new standard allows the designer to use any of the three options depending on her or his preference and the layout of the design. The standard does not establish any preference or ranking for the three options, and any of the three would be considered acceptable and provide an adequate T-shaped turning space.

While all three options indicate this T-shaped space are to be “clear of obstructions,” a subsection addressing overlaps allows the space to include complying knee and toe clearances at either the base or at one arm. This is similar to the provisions in the previous standard (Section 304.3.2, final sentence), but instead of repeating this allowance in all three of the new options, it has been relocated to Section 304.3.2.1.1 where it only needs to be put into the standard one time.

As mentioned previously with the circular turning space, the provisions from the 2009 edition of the standard have been designated as being applicable to “existing buildings and facilities.” Section 304.3.2.2 will allow existing buildings to use the previously accepted 60-inch by 60-inch T-shaped space with both the arms and the base having a 36-inch width without chamfered corners. This section recognizes that where an existing building complies with all of the previous accessibility requirements, a small alteration that might trigger the new turning space requirements would probably provide a minimal increase in accessibility even though it could result in significant costs or structural changes. As an example, consider a building built under the A117.1-2009 standard where a primary function space is being altered. If the restrooms were fully compliant with

the 2009 standard but had used the smaller previously allowed T-shaped turning space to provide access to the lavatory, the alteration of the primary function space could impose a requirement to alter the restroom and to increase the T-shaped space to either a 68-inch width or to a 64-inch width with both the arms and the base of the space needing to be increased to either 38, 40 or 42 inches in width. Because of the potential limited improvement in access given the possible impact of compliance, the A117.1 committee members felt it was appropriate to include the existing building provision and show that they believe the previous size turning space is adequate for existing buildings.

305.3

Size of Clear Floor Space

CHANGE TYPE: Modification

CHANGE SUMMARY: This change increases the length of a clear floor space from 48 inches to 52 inches in order to accommodate more wheeled mobility devices and ensure access is provided at various elements. The increased length is required for new buildings while existing buildings may continue to use the previously allowed 48 inch length.

2017 STANDARD:

SECTION 305 CLEAR FLOOR SPACE

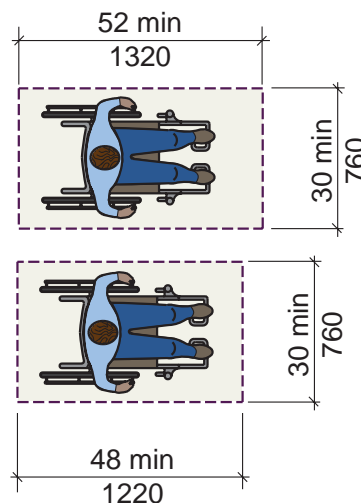
305.3 Size.

305.3.1 New buildings and facilities. In new buildings and facilities, the clear floor space shall be 52 inches (1320 mm) minimum in length and 30 inches (760 mm) minimum in width.

305.3.2 Existing buildings and facilities. In existing buildings and facilities, the clear floor space shall be 48 inches (1220 mm) minimum in length and 30 inches (760 mm) minimum in width.

CHANGE SIGNIFICANCE: The standard has modified the size of the clear floor space provisions to help accommodate many of the larger wheeled mobility devices that are currently in use. As discussed with several of the previous changes, the application of the increased sizes has been limited to new buildings and facilities, and the previously existing provisions have been designated and considered acceptable for “existing buildings.”

While the change in length from 48 inches to 52 inches in this one section may not seem significant, because this clear floor space is a “building block” requirement from Chapter 3 of the standard and is used for items throughout the standard, the impact is much larger. Based on the research



The top graphic is for New Buildings and the bottom graphic is for Existing Buildings.

submitted to the A117.1 committee, the existing 48-inch length for the clear floor space will be inadequate for 22 percent of occupied wheeled mobility devices (WMDs) and for about 12 percent of unoccupied WMDs. This need for increased length is typically associated with the use of scooters, power wheelchairs or wheelchairs that recline. According to the information submitted to the committee, increasing the clear floor space length to 52 inches will accommodate more than 95 percent of the unoccupied and 89 percent of the occupied WMDs.

Because this is a “building block” requirement, the increased size for the clear floor space will be applicable in a number of locations throughout the standard. This includes not only sections where the code has specifically revised the requirements to indicate that the 52-inch dimension is applicable but also to any section that simply references the clear floor space provisions of Section 305.

Some of the sections where this change in length for the clear floor space will affect the application of the standard include Sections 403.5.1, Exception 1, requiring a minimum 52-inch clearance between reduced width segments on an accessible route; Section 403.5.2 for clear width around 180-degree turns; Section 404.2.3.2 for the push side clearance for a front approach on a door; Section 409.4.1.1 for elevator car dimensions for a private residence elevator; Section 410.5.1.1 for size requirement for platform lifts; Section 608.2.1.2.1 for the clearance adjacent to a transfer shower; Section 802.4.1 for a wheelchair space in assembly seating; Section 805.2.2 for bus boarding and alighting areas; Section 1007.3.2.1 for the space associated with the golf club reach range; Section 1009.2.3.1 for the deck space adjacent to a pool lift; as well as every other point within the standard that references the clear floor space requirements of Section 305 such as the clearances for drinking fountains and lavatories.

For additional information related to the requirements for clear floor space and Type B units, see the pages in this book related to Section 1104.1.1.

308.3.1

Unobstructed Side Reach

CHANGE TYPE: Modification

CHANGE SUMMARY: This exception has been added that permits an increase in the maximum height for the high side reach. The exception applies to fuel dispensers installed on existing curbs.

2017 STANDARD: 308.3 Side reach.

308.3.1 Unobstructed. Where a clear floor space complying with Section 305 allows a parallel approach to an element and the edge of the clear floor space is 10 inches (255 mm) maximum from the element, the high side reach shall be 48 inches (1220 mm) maximum and the low side reach shall be 15 inches (380 mm) minimum above the floor.

Exceptions:

1. Existing elements that are not altered shall be permitted at 54 inches (1370 mm) maximum above the floor.
2. Operable parts on fuel dispensers installed on existing curbs shall be permitted at 54 inches (1370 mm) maximum above the floor.

CHANGE SIGNIFICANCE: Exception 2 has been added to coordinate with the provisions of the ADA and to address the issue of pump replacement where the fuel dispenser will be elevated on top of an existing curb. Fuel-dispensing systems are required by the *International Fire Code* to be protected from vehicle impact. Under the IFC and similar documents, this protection is typically done by mounting the dispenser on a concrete island that is 6 inches (152 mm) or more in height or requires other vehicle impact protection such as steel and concrete guard posts.

In situations where an existing installation has used the elevated concrete curb to protect the dispenser, this exception allows the upper reach range limit to be increased from 48 inches to 54 inches, which not only is equivalent to the height allowed in the A117.1-1992 and earlier editions but also equivalent to the increase needed for a compliant 48-inch-high element to be installed on a curb of the minimum permitted height. While manufacturers have made an effort to place the controls on the fuel dispensers within the complying reach ranges, they do not have control over whether those devices are installed on the ground and protected by vehicle impact barriers or are located on an elevated island. Where pump islands are existing, the amount of work required to take out the curb and the connections is extensive.

Users of this standard should notice the limitations that this exception imposes. (1) The higher reach height only applies to locations where the curb is existing. The exception could not be used for any type of newly constructed elevated curb. (2) The maximum height accepted is 54 inches. Therefore, if the curb height exceeds the minimum 6-inch requirement from the fire code, the dispenser's operable parts would need to be less than the generally used 48-inch maximum height so that the dispenser's control height plus the curb height could still be within 54 inches of the ground. (3) The exception is only applicable to the operable parts on fuel dispensers. Other equipment such as towel dispensers or other equipment must be installed within the 15-inch to 48-inch general reach range.



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CHANGE TYPE: Modification

CHANGE SUMMARY: To clarify the application of the requirements, exceptions have been added into Section 309 to coordinate with exemptions previously found in other locations of the standard. Two of the exceptions are new. They address outlets located in the corner of a counter top and provide an exemption for emergency features that are not intended for use by the occupants.

2017 STANDARD: **309.1 General.** Operable parts required to be accessible shall comply with Section 309.

Exceptions:

1. Receptacle outlets serving a dedicated use.
2. Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with this section.
3. In a kitchen, where a clear floor space for a parallel approach cannot be located at a counter top in a corner between appliances, receptacle outlets over the counter top shall not be required to comply with this section provided that the counter top area does not exceed 9 square feet (0.835 m²) maximum.
4. Floor receptacle outlets.
5. HVAC diffusers.
6. Controls mounted on ceiling fans.
7. Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to comply with this section.
8. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
9. Electrical panelboards shall not be required to comply with Section 309.4.
10. Emergency aid devices, such as fire department hose connections, valve controls, gauges, police call boxes and annunciator panels shall not be required to comply with this section provided that they are used only for emergencies by emergency personnel acting in their official capacity.

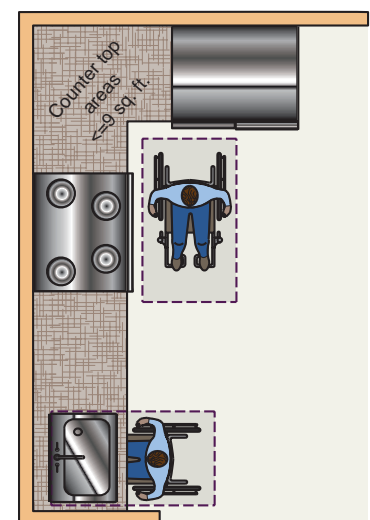
1102.9 Operable parts. Lighting controls, electrical panelboards, electrical switches and receptacle outlets, environmental controls, appliance controls, operating hardware for operable windows, plumbing fixture controls, and user controls for security or intercom systems shall comply with Section 309.

Exceptions:

1. Receptacle outlets serving a dedicated use.
2. In a kitchen, where two or more receptacle outlets are provided above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall be required to comply with Section 309.

309.1, 1102.9, 1103.9

Operable Parts



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309.1, 1102.9, 1103.9 continues

309.1, 1102.9, 1103.9 *continued*

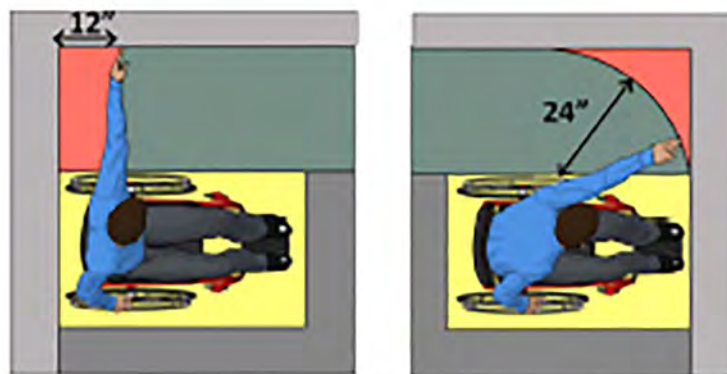
- 3. Floor receptacle outlets.
- 4. HVAC diffusers.
- 5. Controls mounted on ceiling fans.
- 6. Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible.
- 7. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
- 8. Electrical panelboards shall not be required to comply with Section 309.4.

1103.9 Operable parts. Lighting controls, electrical panelboards, electrical switches and receptacle outlets, environmental controls, appliance controls, operating hardware for operable windows, plumbing fixture controls, and user controls for security or intercom systems shall comply with Section 309.

Exceptions:

- 1. Receptacle outlets serving a dedicated use.
- 2. Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with Section 309.
- 3. Floor receptacle outlets.
- 4. HVAC diffusers.
- 5. Controls mounted on ceiling fans.
- 6. Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible.
- 7. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
- 8. Electrical panelboards shall not be required to comply with Section 309.4.

CHANGE SIGNIFICANCE: The inclusion of many of the exceptions is not as substantial a change as it may first appear. The exemptions found within items 1, 2, 4, 5, 6, 7, 8 and 9 have previously been found within



Elements in corners can be hard to reach from side.

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the dwelling unit provisions for Accessible, Type A and Type B units. Placing these exceptions within the building block provisions of Chapter 3 allows for the use of the same logical exemptions in public areas as has been permitted for these controls, outlets and switches within the dwelling units. In addition, the exceptions can be removed from the Accessible and Type A dwelling unit sections since they will now be acceptable in all areas due to being located in the building block section of Chapter 3. Moving the exceptions from the dwelling unit provisions of Chapter 11 will also help clarify the application and eliminate some confusion that previously existed where the standard referenced Section 309, which did not contain any exceptions even though exceptions were allowed by the dwelling unit provisions.

The primary changes are Exceptions 3 and 10. Exception 3 is intended to address the outlets occurring in the corner of two kitchen cabinets and reflects the realization that when users are at the inside corner of the cabinets, any outlets located over the cabinets or along the back wall behind the cabinets are simply beyond the allowable reach range limits. The exception contains a number of important limitations including (a) being limited to kitchens, (b) being located in a space where a parallel approach cannot be provided, (c) the outlets are over the counter top, (d) the excluded area does not exceed 9 square feet, and (e) the excluded corner area is “between appliances.” Given the depth of most appliances and the location required to make them accessible, these factors would generally make it impossible to provide a close parallel approach to the cabinets for people using mobility devices and therefore result in the outlets being beyond the permitted reach range. Additionally, these cabinets often have a countertop height of 36 inches in order to match appliances such as kitchen ranges and would exceed the 34-inch obstructed reach limit. Despite these factors, there was never a provision within the standard to exempt outlets within this corner area. This new exception recognizes the practical limitations of disabled persons being able to access outlets within this dead corner space. Therefore installing these corner countertops at a height exceeding 34 inches would be acceptable since there would not be any concern with exceeding the reach range requirements for the outlets.

Exception 10 also provides some practical guidance and clarifies an issue that has previously been uncertain. This exception reinforces that although these emergency devices, which are not intended for occupant use, may be exempted from the reach range provisions, it does not exempt them from all other aspects such as complying with the protruding object requirements. For example, although a hose connection and valve on a fire department standpipe system would be exempt from the reach range and operable force requirements, the connection needs to be properly located so it will not create an obstruction or become a protruding object. By listing examples of the types of devices exempted and limiting the exception to items used by responding emergency personnel during an emergency, the exception will help ensure items such as fire extinguishers or alarm pull stations, which are intended to be used by and available to the building occupants, will be located within the proper reach range and comply with the operable force requirements. (The operation of fire extinguishers may not be capable of meeting the operable force and tight grasping/pinching requirements.) When approving this new exception,

309.1, 1102.9, 1103.9 continues

309.1, 1102.9, 1103.9 *continued* the A117.1 committee indicated in the text and in their reason statement that the provision is intended to exempt equipment that is a part of the building and intended for use by emergency personnel. The exemption does not apply to portable or non-permanent equipment such as the fire extinguishers or to any building device or equipment intended for the occupants to operate or use.

The operable parts requirements of Section 1004.9 for Type B dwelling units in previous editions were not deleted in a manner similar to the requirements for Accessible and Type A units. A similar change was not made in the format for Type B units because it only referenced the height requirements of Section 309.3 and not all portions of Section 309. There is additional discussion regarding 1104.9 later in this book.

CHANGE TYPE: Modification

CHANGE SUMMARY: The width of exterior accessible routes has been increased to a 48-inch minimum for most elements. Exceptions have been added to modify the width requirements depending on whether the accessible route is within a new building or an existing building.

2017 STANDARD: **403.5 Clear width.** The clear width of an accessible route shall comply with Section 403.5.1, 403.5.2, 403.5.3 or 403.5.4 as applicable.

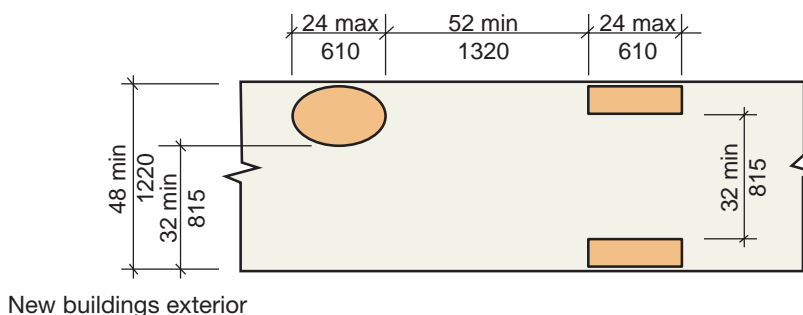
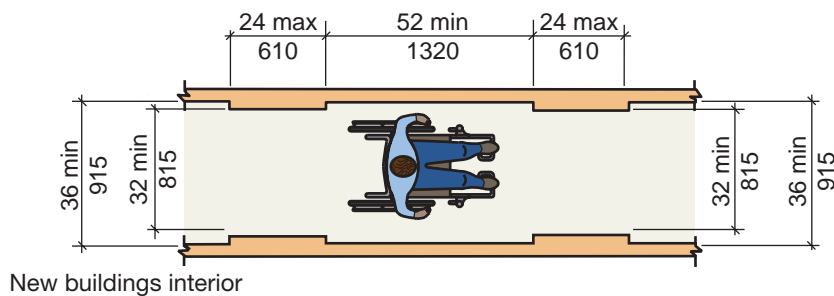
403.5.1 General. The clear width of an interior accessible route shall be 36 inches (915 mm) minimum. The clear width of an exterior accessible route shall be 48 inches (1220 mm) minimum.

Exceptions:

1. In new buildings and facilities, the clear width shall be permitted to be reduced to 32 inches (815 mm) minimum for a length of 24 inches (610 mm) maximum provided the reduced width segments are separated by segments that are 52 inches (1320 mm) minimum in length and 36 inches (915 mm) minimum in width.
2. In existing buildings and facilities, the clear width shall be permitted to be reduced to 32 inches (815 mm) minimum for a length of 24 inches (610 mm) maximum provided the reduced width segments are separated by segments that are 48 inches (1220 mm) minimum in length and 36 inches (915 mm) minimum in width.
3. The clear width of an exterior accessible route located within seating areas shall be 36 inches (915 mm) minimum.
4. The clear width of an exterior ramp shall comply with Section 405.5.

CHANGE SIGNIFICANCE: The primary change within this section is the establishment of a 48-inch minimum width for exterior accessible routes. This requirement is found in the base paragraph of Section 403.5.1. Due

403.5 continues



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403.5

Clear Width of Accessible Routes

403.5 continued

to this change, two exceptions are also added that will allow for a 36-inch-wide accessible route if the path of travel is an exterior ramp or located within a seating area, such as the aisle serving an outdoor seating area. The increased width requirement of 48 inches for exterior routes is added to help coordinate the A117.1 standard with the Guidelines for Public Rights-of-Way (PROW) developed by the United States Access Board. The Access Board developed these guidelines in recognition that the ADA and ABA tend to focus on access for facilities on a site and that while there are many common features, elements in the PROW do have some unique conditions and constraints. For example, while many interior accessible routes are bounded by walls or guards such as along corridors or ramps, one of the main reasons for a wider accessible route in exterior locations is that many routes occur at sidewalks that may have a drop off on the curb side. In addition, while intersecting corridors or enlarged entry areas may provide adequate passing options within a building, many exterior routes would be inadequate for passing or would force one user close to the edge of a drop off such as near the curb.

Exceptions 3 and 4 have been added so that the exterior accessible route in these two locations may continue to use the previously permitted 36-inch minimum width. Exception 4 for ramps recognizes that the location of handrails along both sides of a ramp is important to how they are used. If the width for the ramp clearance were increased, it would move the handrails farther apart and reduce their effectiveness for people who rely on them to maneuver on the ramp.

Exceptions 1 and 2 are the result of the changes in the clear floor space dimensions of Section 305.3. For existing buildings, Exception 2 will permit the separation of reduced-width segments to be 48 inches apart as they were in the 2009 and previous editions of the standard. Therefore, Exception 2 really is not a change from the requirements of the previous edition, but there is a change of application due to the exception being limited to “existing buildings or facilities.” For new buildings or facilities, the addition of Exception 1 recognizes that due to the increased length of the clear floor space, reduced-width segments along the accessible route must be separated by a 52-inch minimum distance. This increased distance ensures that people using the accessible route need to only address one reduced-width segment at a time.

CHANGE TYPE: Modification

CHANGE SUMMARY: For new buildings and facilities, the size of the object the turn goes around has been increased to 52 inches, and three options are provided depending on the width of the accessible route into, during and leaving the turn. The previous requirements have been kept and made applicable to existing buildings and facilities.

2017 STANDARD: **403.5.1 403.5.2 Clear width at 180-degree turn.**

403.5.2.1 New buildings and facilities. In new buildings and facilities, where an accessible route makes a 180-degree turn around an object that is equal to or greater than 52 inches (1320 mm) in width, the clear widths in the turn shall comply with Section 403.5.1. Where an accessible route makes a 180-degree turn around an object that is less than 52 inches (1320 mm) in width, the clear widths approaching the turn, during the turn and leaving the turn, shall be one of the following sets of dimensions:

1. Approaching width is 36 inches (915 mm) minimum, during width is 60 inches (1525 mm) minimum, and leaving width is 36 inches (915 mm) minimum.
2. Approaching width is 42 (1065 mm) inches minimum, during width is 48 inches (1220 mm) minimum, and leaving width is 42 (1065 mm) inches minimum.
3. Approaching width is 43 inches (1090 mm) minimum, during width is 43 inches (1090 mm) minimum, and leaving width is 43 inches (1090 mm) minimum.

403.5.2.2 Existing buildings and facilities. In existing buildings and facilities, where an accessible route makes a 180-degree turn around an object that is less than 48 inches (1220 mm) in width, clear widths shall be 42 inches (1065 mm) minimum approaching the turn, 48 inches (1220 mm) minimum during the turn and 42 (1065 mm) inches minimum leaving the turn.

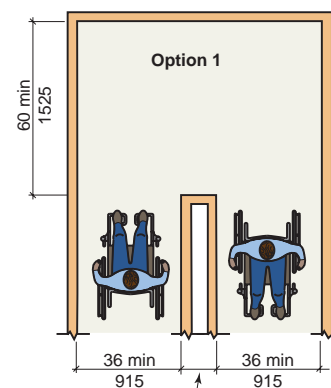
Exception: Section 403.5.1 This section shall not apply where the clear width during the turn is 60 inches (1525 mm) minimum.

CHANGE SIGNIFICANCE: The most noticeable change to this section is that the requirements have been split into provisions for both new and existing buildings and facilities. The new building requirements will generally be more restrictive due to the necessity for regulating turns around an object that is less than 52 inches in length as opposed to the previous 48-inch length, which is still used for existing buildings. However, the new building provisions will also provide a third option of using a 43-inch-wide accessible route when approaching, during and leaving the turn.

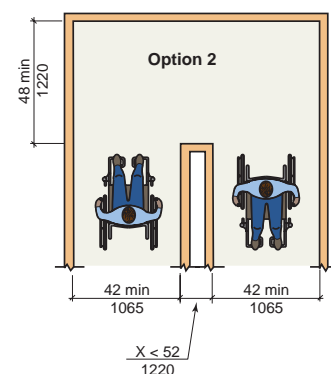
The option of using the 43-inch dimension was developed based on the report and research of the Anthropometry of Wheeled Mobility Project conducted by the Center for Inclusive Design and Environmental Access (IDeA) at The State University of New York (SUNY) at Buffalo. While this report noted that the requirements of the previous standard could accommodate at least 90 percent of the powered chair users and manual

403.5.2

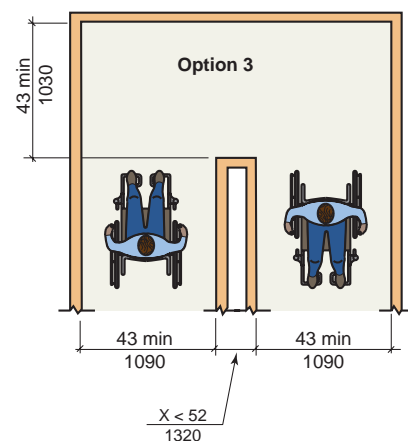
Clear Width at 180-Degree Turn



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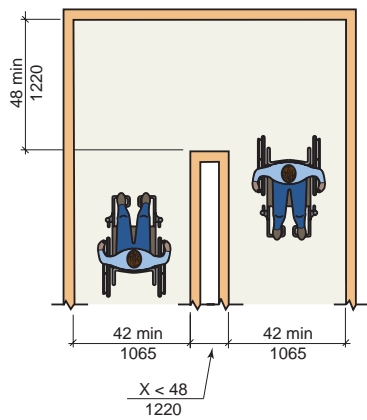
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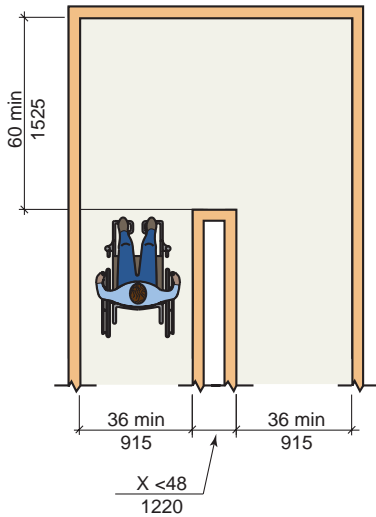
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405.3.2 continues

403.5.2 continued



Existing buildings



Existing buildings – Exception

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chair users, and almost 80 percent of the scooter users evaluated in their sample, the study also demonstrated that the depth of the turn-around space could be reduced if the width of the accessible route was at least 43 inches. According to the reason statements submitted with this proposal, the research on the new provision showed that 95 percent of both manual and powered chairs and scooters could make the turn if the design used 43 inches entering, during and leaving.

While the option of using a 43-inch width is only listed in Section 403.5.2.1 for “new buildings and facilities,” this would be a reasonable alternative that could easily be accepted for existing buildings also. While this may require the use of Section 104 and the approval of the administrative authority adopting the standard, it seems logical that if the 43-inch option can work for new buildings using the larger size wheeled mobility devices those provisions anticipate, then it should also work for existing buildings and smaller mobility devices.

The new building and facility provisions are based on turning around a 52-inch object. This 52-inch space between segments is intended to accommodate the larger clear floor space from Section 305 (305.3). The new building provisions are also set up so that if the obstruction is over 52 inches in size, then the turns should be viewed as being two separate 90-degree turns, which would follow Section 403.5.3 (by following the reference to Section 403.5.1 first). When the turn is around an object less than 52 inches in size, then one of the three 180-degree-turn options from Section 403.5.2.1 is appropriate.

The provisions for existing buildings and facilities in Section 403.5.2.2 are the requirements that were included in the 2009 edition of the standard and will not result in any changes for existing buildings. The options that are acceptable for existing buildings are also shown as items 1 and 2 in Section 403.5.2.1 for new buildings. As mentioned earlier, these dimensions and layouts of the turn do serve a large majority of the population of mobility-device users. It should also be acceptable for designers to use the 43-inch route option from Section 403.5.2.1, since that option (option 3) provides access for a higher percentage of the population and because complying with the options for new construction should always be viewed as compliant, even for an existing building.

CHANGE TYPE: Addition

CHANGE SUMMARY: Designing for and accommodating larger wheelchairs and scooters results in modifications being needed where a narrow accessible route is making a 90-degree turn. The standard provides four options such as increasing the width of the accessible route or chamfering the corner to allow for maneuvering around the corner.

2017 STANDARD: 403.5.3 Clear width at 90-degree turn.

403.5.3.1 New buildings and facilities. In new buildings and facilities, where an accessible route makes a 90-degree turn the clear widths approaching the turn and leaving the turn shall be one of the following sets of dimensions:

1. Both legs of the turn shall be 40 inches (1015 mm) minimum in width. The width of each leg of the turn shall be maintained for 28 inches (710 mm) minimum from the inner corner.
2. Where the interior corners of the turn are chamfered for 8 inches (205 mm) minimum along both walls, both legs of the turn shall be 36 inches (915 mm) minimum in width.
3. Where one leg of the turn is 42 inches (1065 mm) minimum in width, the other shall be permitted to be 38 inches (965 mm) minimum in width.
4. Where one leg of the turn is 44 inches (1120 mm) minimum in width, the other shall be permitted to be 36 inches (915 mm) minimum in width.

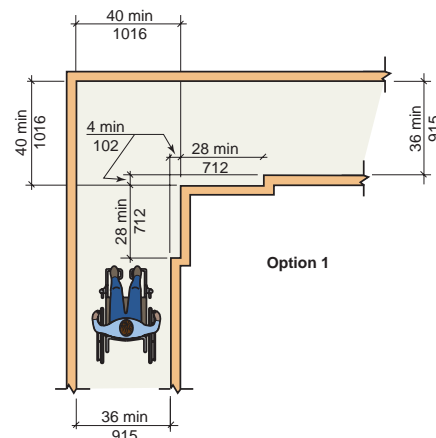
Exceptions:

1. Where an accessible route makes a 90-degree turn at doors, doorways and gates complying with Section 404.2.3, the route shall not be required to comply with this section.
2. Where an accessible route makes a 90-degree turn at an elevator or platform lift complying with Sections 407 through 410, the accessible route shall not be required to comply with this section.

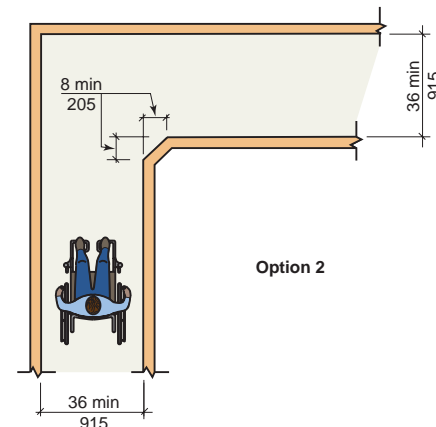
403.5.3.2 Existing buildings and facilities. In existing buildings and facilities, where an accessible route makes a 90-degree turn the clear widths approaching the turn and leaving the turn shall be 36 inches (915 mm) minimum.

403.5.3

Clear Width at 90-Degree Turn

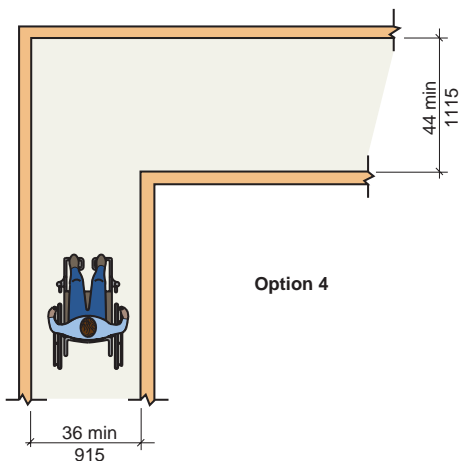


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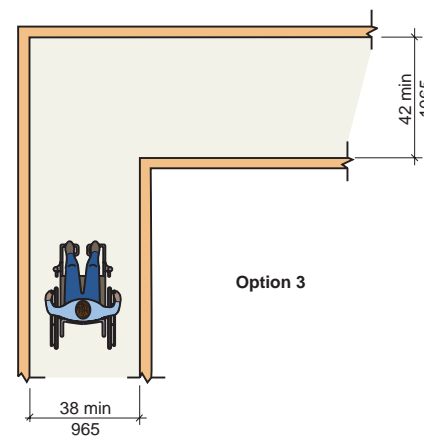


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403.5.3 continues



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403.5.3 continued

CHANGE SIGNIFICANCE: The report and research of the Anthropometry of Wheeled Mobility Project conducted by the Center for Inclusive Design and Environmental Access (IDeA) at The State University of New York (SUNY) at Buffalo, showed that fewer than 75 percent of the manual and power wheelchair users within their sample group could negotiate a 90-degree turn if the accessible route was kept to the minimum 36-inch clear width as permitted by the previous standard. The research did show that increasing the width of the accessible route to 40 inches would accommodate 94 percent of the manual wheelchair users, 99 percent of the power wheelchair users and 92 percent of the scooter users evaluated in the sample set. This new section has been added to the standard because of the restrictions maneuvering around a corner can create when the accessible route width is limited.

The standard will now provide four options to help improve the usability of the accessible route as it turns around corners such as in corridors or aisles. These wider widths allow the user to make a smooth and continuous movement around the corner. The option of using a 40-inch accessible route is option 1 in this new section. As mentioned above, this 40-inch option will serve a much greater percentage of the population. While the research and reports showed that this option accommodated the highest portion of the sample population, it is permissible for a designer to use any of the four options even though they may provide a slightly lowered level of access. Therefore, any of the four options are considered acceptable and are permitted without any limitations or restrictions as to where or when they can be used. While options shown within items 2 and 4 will likely be less accommodating than options 1 or 3, they nonetheless will improve access from level established by the 2009 edition of the standard. Options 2 and 4 provide this improved access over what the standard previously provided due to (a) at least one of the legs of the turn being wider (44 inches) than previously required or (b) the corner being chamfered. Both of these solutions will make turning around the corner easier for mobility-device users.

The two exceptions are applicable to all four options in the new building provisions of Section 403.5.3.1. While the extra width provided by the four options allows a smooth transition along the route, this is not as important at doors, elevators or platform lifts. At doors, people are stopping and moving back and forth to operate the hardware, open the door and move through. At elevators, a person needs to call and wait for the car. Since a smooth transition is not expected, the 32-inch (815 mm) clear width at the openings is sufficient to allow passage at doors, doorways, gates and entrances to elevators and platform lifts.

The existing building provisions of Section 403.5.3.2 recognize that either the wider accessible route options or the chamfered corner provision for the intersection of two 36-inch-wide accessible routes could have a significant cost impact or be impossible to incorporate into an existing building. Due to this recognition, the option to turn from one 36-inch-wide accessible route into another has been specifically listed to clarify that existing buildings are not expected to meet the “new building” provisions of Section 403.5.3.1. Although the 2009 edition of the standard did not contain a section to address 90-degree turns, these “existing building” provisions coordinate with what Section 403.5 of the 2009 standard would have allowed/required.

CHANGE TYPE: Modification

CHANGE SUMMARY: The passing space requirements have been split to address both new buildings and existing buildings. The new building provisions will require the arms and legs of T-shaped passing spaces to extend a minimum of 52 inches beyond the intersection.

2017 STANDARD: 403.5.2 4 Passing space.

403.5.4.1 New building and facilities. In new buildings and facilities, an accessible route with a clear width less than 60 inches (1525 mm) shall provide passing spaces at intervals of 200 feet (61 m) maximum. Passing spaces shall be either a 60-inch (1525 mm) minimum by 60-inch (1525 mm) minimum space, or an intersection of two walking surfaces that provide a T-shaped turning space complying with Section 304.3.2.1, provided the base and arms of the T-shaped space extend 52 inches (1320 mm) minimum beyond the intersection.

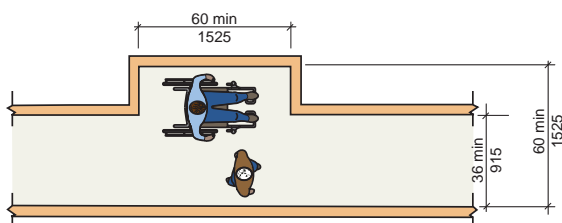
403.5.4.2 Existing buildings and facilities. In existing buildings and facilities, an accessible route with a clear width less than 60 inches (1525 mm) shall provide passing spaces at intervals of 200 feet (61 m) maximum. Passing spaces shall be either a 60-inch (1525 mm) minimum by 60-inch (1525 mm) minimum space, or an intersection of two walking surfaces that provide a T-shaped turning space complying with Section 304.3.2, provided the base and arms of the T-shaped space extend 48 inches (1220 mm) minimum beyond the intersection.

CHANGE SIGNIFICANCE: Where accessible routes are of limited size or are designed to minimum widths, a passing space must be provided at certain locations to allow either two-way traffic or to allow one person to move to the side and allow someone else to pass by them. These passing spaces are permitted to be either a 60-inch by 60-inch clear space, or a T-shaped turning space such as at the intersection of a corridor may be used to allow one user to maneuver out of the path of the other.

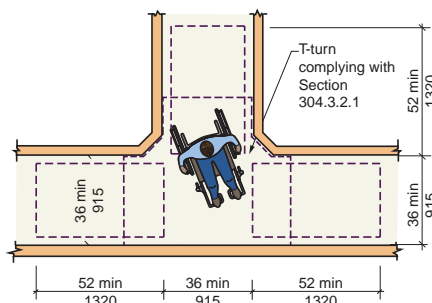
Because of the changes made previously in Section 305.3 for the clear floor space, the length of the arms and base of the T-shaped space must be increased to 52 inches from the previously allowed 48-inch requirement. This 52-inch depth requirement allows the clear floor space for one user to be located beyond the intersection of the accessible routes so the other user's accessible route is unobstructed.

As with many of the other larger size requirements, the standard has separated the passing space provisions into both a “new building” and an
403.5.4 continues

403.5.4 Passing Space



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403.5.3 *continued* “existing building” section. The provisions of Section 403.5.4.1 that apply to new buildings and facilities will impose the larger 52-inch length beyond the intersection of the T-shaped turning space. The 2009 standard’s requirements and the allowance for a 48-inch length within the base and arms of the turning space, beyond the intersection, will be acceptable for existing buildings that use Section 403.5.4.2. This is simply another location where the standard recognizes that the larger space requirements may not be possible to provide within the constraints imposed by an existing building or facility.

CHANGE TYPE: Addition

CHANGE SUMMARY: The term “gates” has been added throughout Section 404 in order to clarify that gates are viewed in a manner similar to doors and must therefore comply with the same requirements as doors.

2017 STANDARD:

404

Doors, Doorways and Gates

SECTION 404 DOORS, AND DOORWAYS AND GATES

404.1 General. Doors, ~~and doorways~~ and gates that are part of an accessible route shall comply with Section 404.

Exception: Doors, doorways and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.2.3, 404.2.6, 404.2.7, 404.2.8, 404.3.2, 404.3.4, 404.3.7 and 404.3.8.

404.2 Manual doors, doorways and manual gates. Manual doors, ~~and doorways, and manual gates, including ticket gates~~ intended for user passage, shall comply with Section 404.2.

Exception: ~~Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.2.6, 404.2.7 and 404.2.8.~~ (Relocated to Section 404.1 with added revisions.)

404.2.1 Double-leaf doors and gates. (No Change)

404.2.2 Clear width. (No Change)

404.2.3 Maneuvering clearances. Minimum maneuvering clearances at doors and gates shall comply with Section 404.2.3 (Remainder of text not shown)

TABLE 404.2.3.2 Maneuvering Clearances at Manual Swinging Doors and Gates

TYPE OF USE		MINIMUM MANEUVERING CLEARANCES	
Approach Direction	Door or Gate Side	Perpendicular to Doorway	Parallel to Doorway (beyond latch unless noted)

(Only a portion of Table 404.2.3.2 is shown above)

404.2.3.1 Floor surface. (No change)

404.2.3.2 Swinging doors and gates. Swinging doors and gates shall have maneuvering clearances complying with Table 404.2.3.2.

404.2.3.3 Sliding and folding doors. (No Change)

TABLE 404.2.3.3—Maneuvering Clearances at Sliding and Folding Doors

(Table 404.2.3.3 is not shown)

404.2.3.4 Doorways without doors or gates. Doorways without doors or gates that are less than 36 inches (915 mm) in width shall have maneuvering clearances complying with Table 404.2.3.4.

TABLE 404.2.3.4—Maneuvering Clearances for Doorways without Doors or Gates

(Table 404.2.3.4 is not shown)



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404 continues

404 continued

404.2.3.5 Recessed doors and gates. Where any obstruction within 18 inches (455 mm) of the latch side of a doorway projects more than 8 inches (205 mm) beyond the face of the door or gate, measured perpendicular to the face of the door or gate, maneuvering clearances for a forward approach shall be provided.

404.2.4 Thresholds. (No Changes)

404.2.5 Two doors or gates in series. Distance between two hinged or pivoted doors or gates in series shall be 48 inches (1220 mm) minimum plus the width of any door or gate swinging into the space. The space between the doors or gates shall provide a turning space complying with Section 304.

404.2.6 Door and gate hardware. (Text not shown)

404.2.6.1 Hardware height. Operable parts of such hardware shall be 34 inches (865 mm) minimum and 48 inches (1220 mm) maximum above the floor. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides.

~~**Exception:** Looks used only for security purposes and not used for normal operation shall not be required to comply with Section 404.2.6.~~

404.2.7 Closing speed. Door and gate closing speed shall comply with 404.2.7.

404.2.7.1 Door and gate closers. Door and gate closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door or gate to an open position of 12 degrees shall be 5 seconds minimum.

404.2.7.2 Spring hinges. Door and gate spring hinges shall be adjusted so that from an open position of 70 degrees, the door or gate shall move to the closed position in 1.5 seconds minimum.

404.2.8 Door and gate opening force. (Text not shown)

404.2.9 Door and gate surface. Door and gate surfaces within 10 inches (255 mm) of the floor, measured vertically, shall be a smooth surface on the push side extending the full width of the door or gate. Door and gate hardware, or any other obstruction or protrusion shall not be mounted in nor extend into the area within 10 inches (255 mm) of the floor. Parts creating horizontal or vertical joints in ~~such~~ the smooth surface shall be within $\frac{1}{16}$ inch (1.6 mm) of the same plane as the other. Cavities created by added kick plates shall be capped.

Exceptions:

1. Sliding doors shall not be required to comply with ~~Section 404.2.9~~ this section.
2. Tempered glass doors without stiles and having a bottom rail or shoe with the top leading edge tapered at no less than 60 degrees from the horizontal shall not be required to comply with the 10-inch (255 mm) bottom rail height requirement.
3. Doors and gates that do not extend to within 10 inches (255 mm) of the floor shall not be required to comply with ~~Section 404.2.9~~ this section.
4. The installation of kick plates on existing doors and gates without a smooth surface within 10 inches (255 mm) of the floor shall be permitted. The kick plates shall extend to 10 inches (255 mm) above the floor and no more than 1 inch (26 mm) from the sides

and bottom of the door. Cavities created by such kickplates shall be capped.

404.2.10 Vision lites. Doors, gates and sidelites adjacent to doors or gates containing one or more glazing panels that permit viewing through the panels shall have the bottom of at least one panel on either the door, gate or an adjacent sidelite 43 inches (1090 mm) maximum above the floor.

Exception: Vision lites with the lowest part more than 66 inches (1675 mm) above the floor shall not be required to comply with Section ~~404.2.10~~ this section.

404.3 Automatic doors and power-assisted doors and gates. Automatic doors and automatic gates shall comply with Section 404.3. Full powered automatic doors and gates shall comply with ANSI/BHMA A156.10 listed in Section ~~105.2.4~~ 106.2.7. Power-assist doors and gates and low-energy automatic doors and gates shall comply with ANSI/BHMA A156.19 listed in Section ~~105.2.3~~ 106.2.6.

Exception: ~~Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.3.2, 404.3.4 and 404.3.5. (Relocated to Section 404.1 with added revisions.)~~

404.3.1 Public entrances. (Text not shown)

404.3.2 Vestibules. (Text not shown)

~~404.3.1~~ **404.3.3 Clear width.** (Text not shown)

~~404.3.2~~ **404.3.4 Maneuvering clearances.** Maneuvering clearances at power-assisted doors and gates shall comply with Section 404.2.3. Maneuvering clearances complying with Section 404.2.3 shall be provided on the egress side of low-energy automatic doors and gates and full power automatic doors and gates that serve as part of the accessible means of egress.

Exceptions:

1. Low-energy automatic and full power automatic doors and gates that have standby power or battery back-up shall not be required to comply with this section.
2. Low-energy automatic and full power automatic doors and gates that remain open in the power-off condition shall not be required to comply with this section.
3. Full power automatic sliding doors and gates that include a break-away feature shall not be required to comply with this section.

~~404.3.3~~ **404.3.5 Thresholds.** (Text not shown)

~~404.3.4~~ **404.3.6 Two doors or gates in series.** Doors or gates in series shall comply with Section 404.2.5.

Exception: Where both doors or gates in a series are low energy automatic or full power automatic doors or gates, the two doors or gates in a series shall not be required to provide a turning space between the doors or gates.

~~404.3.5~~ **404.3.7 Controls switches.** (Text not shown)

404.3.8 Door and gate hardware. Handles, pulls, latches, locks, and other operable parts shall comply with Section 404.2.6.

404 continues

404 continued **404.3.9 Break out opening.** Where full power automatic sliding doors and gates are equipped with a break out feature, the clear break out opening shall be 32 inches (815 mm) minimum when operated in emergency mode.

Because this code change and others affected substantial portions of Section 404, the entire code change text is too extensive to be included here. Refer to Code Change 4-11-12 in the A117.1 development process at <http://www.iccsafe.org/icc-asc-a117/> for the complete text and history of the code change.

CHANGE SIGNIFICANCE: There are several important changes related to the door and gate requirements in Section 404. This discussion will focus on the addition of gates to the requirements. Several of the other changes from Section 404 including maneuvering clearances, hardware, opening force, and provisions for automatic and power-assisted doors will be addressed as separate topics.

Because there is no definition for what is classified as a gate, it was possible that something could be called a gate instead of a door, and then it was debatable about which provisions of Section 404 were applicable. Regulating gates in a manner similar to doors will help to clarify the application of the standard and make the standard more consistent with the federal Americans with Disabilities Act (ADA). The ADA consistently uses and includes the term “gates” when discussing the requirements for doors. Because gates were specifically listed in the ADA and yet were not consistently included within the door requirements of Section 404 of the A117.1 standard, it led to confusion regarding the application of the requirements.

Some of the other changes to note in this section include the exception in the general scoping provisions of Section 404.1. Placing the exception in the “general” section allows the exemption to be stated in the standard just one time instead of placing an exception in each of the individual listed sections.

The added text within the base paragraph of Section 404.2.9 is to clarify that the purpose of the 10-inch-high smooth surface is to allow the footrest of a wheelchair or some other mobility device to slide along the door as the user opens it. As previously written, it could be argued that the requirement only applied to the door surface but did not prohibit or restrict other elements such as door hardware from extending into the 10-inch height. An example is where a door pull is attached within the 10-inch vertical clearance or extends to within 10 inches of the floor. In both situations, although the “door surface” may be smooth, the hardware would limit the ability of a mobility-device user to open the door by pushing against it and having the footrest slide along the door surface. The fourth exception that was added into this section was done to coordinate with the requirements of the ADA and to provide clearer guidance related to kickplates that are installed on existing doors.

See other discussions related to Section 404 that provide details related to topics that have not been covered with this topic.

CHANGE TYPE: Modification

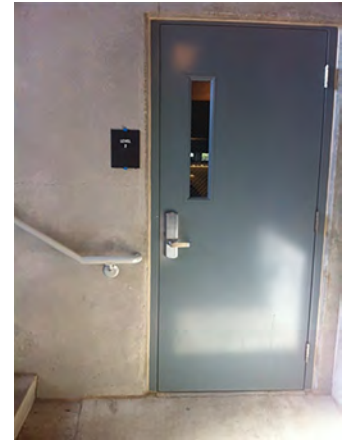
CHANGE SUMMARY: The text of Section 404.2.3 was revised to help clarify how the maneuvering clearances are regulated. The clearance required for a front approach at a door has been modified to correlate with the new requirements for a larger size of the clear floor space.

2017 STANDARD: 404.2 Manual doors, doorways and manual gates.

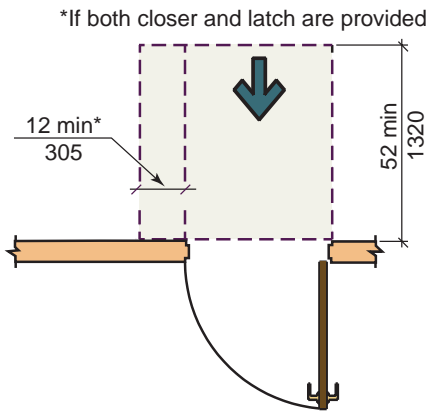
404.2.3 Maneuvering clearances. Minimum maneuvering clearances at doors and gates shall comply with Section 404.2.3. Maneuvering clearances and shall include the full clear opening width of the doorway and the required latch side or hinge side clearance. ~~Required door maneuvering clearances shall not include knee and toe clearance.~~

404.2.3

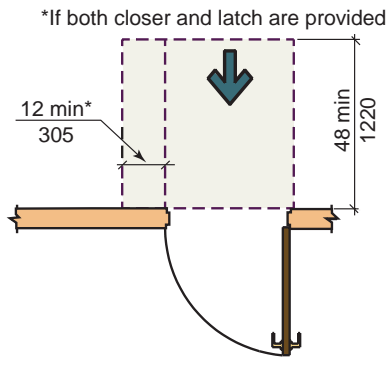
Maneuvering Clearances – Manual Doors and Gates



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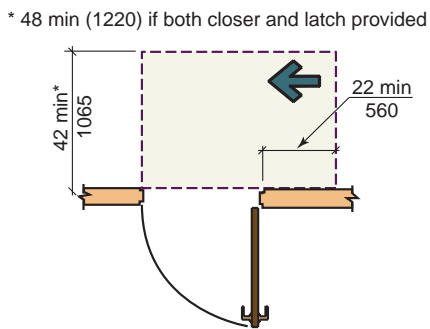


New Buildings

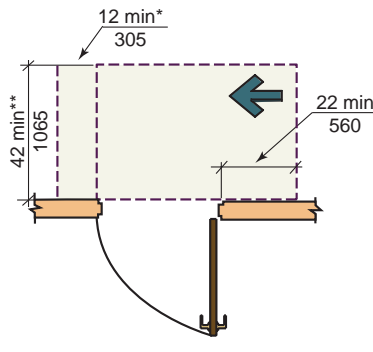


Existing Buildings

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New Buildings



Existing Buildings

* If both closer and latch are provided
 ** 48 min (1220) if both closer and latch provided

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404.2.3 continues

404.2.3 continued

404.2.3.1 Floor surface. (No changes)**404.2.3.2 Swinging doors and gates.** Swinging doors and gates shall have maneuvering clearances complying with Table 404.2.3.2.**TABLE 404.2.3.2 Maneuvering Clearances at Manual Swinging Doors and Gates**

Approach Direction	Door or Gate Side	MINIMUM MANEUVERING CLEARANCES	
		Perpendicular to Doorway	Parallel to Doorway (beyond latch unless noted)
From front	Pull	60 inches (1525 mm)	18 inches (455 mm)
From front	Push	48 inches (1220 mm) 52 inches (1320 mm) ⁴	0 inches (0 mm) ³
From hinge side	Pull	60 inches (1525 mm)	36 inches (915 mm)
From hinge side	Pull	54 inches (1370 mm)	42 inches (1065 mm)
From hinge side	Push	42 inches (1065 mm) ¹	22 inches (560 mm) ^{3 & 4}
From latch side	Pull	48 inches (1220 mm) ²	24 inches (610 mm)
From latch side	Push	42 inches (1065 mm) ²	24 inches (610 mm)

1. Add 6 inches (150 mm) if closer and latch provided.

2. Add 6 inches (150 mm) if closer provided.

3. Add 12 inches (305 mm) beyond latch if closer and latch provided.

4. 3. Beyond hinge side.4. In existing buildings and facilities, the dimension perpendicular to the door or gate for the front direction on the push side shall be 48 inches (1220 mm) minimum.**404.2.3.3 Sliding and folding doors.** Sliding doors and folding doors shall have maneuvering clearances complying with Table 404.2.3.3.**TABLE 404.2.3.3 Maneuvering Clearances at Sliding and Folding Doors**

Approach Direction	MINIMUM MANEUVERING CLEARANCES	
	Perpendicular to Doorway	Parallel to Doorway (beyond latch unless noted)
From front	48 inches (1220 mm) 52 inches (1320 mm) ²	0 inches (0 mm)
From nonlatch side	42 inches (1065 mm)	22 inches (560 mm) ¹
From latch side	42 inches (1065 mm)	24 inches (610 mm)

1. Beyond pocket or hinge side.

2. In existing buildings and facilities, the dimension perpendicular to the door for the front direction shall be 48 inches (1220 mm) minimum.

404.2.3.4 Doorways without doors or gates. Doorways without doors or gates that are less than 36 inches (915 mm) in width shall have maneuvering clearances complying with Table 404.2.3.4.

TABLE 404.2.3.4 Maneuvering Clearances for Doorways without Doors or Gates

Approach Direction	MINIMUM MANEUVERING CLEARANCES Perpendicular to Doorway
From front	48 inches (1220 mm) 52 inches (1320 mm) ¹
From side	42 inches (1065 mm)

1. In existing buildings and facilities the dimension perpendicular to the doorway for the front direction shall be 48 inches (1220 mm) minimum.

404.2.3.5 Recessed doors and gates. Where any obstruction within 18 inches (455 mm) of the latch side of a doorway projects more than 8 inches (205 mm) beyond the face of the door or gate, measured perpendicular to the face of the door, maneuvering clearances for a forward approach shall be provided.

CHANGE SIGNIFICANCE: The first change in Section 404.2.3 is a somewhat self-evident revision that helps to coordinate the language of the A117.1 standard with that of the ADA. Obviously, the required maneuvering clearance is not only the “full clear opening width of the doorway” as was previously stated, but the requirement also must include the clearance to either the latch or hinge side of the door. Adding this text helps to make the standard clearer as to what the actual required clearance is for each type of opening and eliminates a difference that existed between the language of the standard and the federal requirements.

Deleting the language related to knee and toe clearance also helps to resolve a difference that existed between the A117.1 standard and the federal requirements. However, these clearances may still be something that code officials and designers will want to discuss to determine exactly how the provision is to be applied. Expecting a person to maneuver into the knee and toe clearance beneath an element, reach over that element to open a door, and then move through the door is creating too difficult of a task for many users. However, if the protrusion is limited to the size of a handrail, it could be debated that the maneuvering clearance is really not being obstructed since there really is no “knee and toe clearance” beneath the handrail. The text that previously existed in the standard was an attempt to allow small protrusions where a wheelchair user would have still had adequate space to operate the door. Unfortunately, the previous text was vague. In addition, interpretations of the ADA have been made that the maneuvering space must be clear for the full height of 80 inches with no protrusions below that height. Therefore, to coordinate with the ADA and to remove the potential conflict, this language was removed.

Before a designer proceeds too far into a project, the application of the provision may be something she or he should discuss with the code official. Users of this standard may be better served and designers would be safer if the more restrictive viewpoint was followed and the door maneuvering space was kept completely clear. However, if taken to the extreme, application of the requirements in this section could prevent a

404.2.3 continues

404.2.3 continued

light switch or room designation sign from extending into the clear floor space. Obviously these don't truly create an obstruction, but they could technically be prohibited within the "clear" floor space. Conversely, by eliminating the previously existing sentence, the standard now does not specifically provide any language to indicate whether all protrusions or even if knee and toe clearance is prohibited within the space. While the door maneuvering provisions do not contain a sentence similar to that found in the clear floor space provisions of Section 305.4, there also is not any clear guidance to replace the language that is being deleted. So although the text from the previous edition was vague in regard to its intent, the lack of even that guidance may possibly create more confusion if users are not aware of the intent behind the change.

The three tables have been modified to require a 52-inch minimum clearance perpendicular to the door for a front approach to a door or doorway. These changes were made due to the revisions changing the length of a clear floor space from 48 inches to the newly required 52-inch dimension. Having the 52 inches of clearance allows a properly sized clear floor space to be provided past the doorway. Because these new size requirements could have a major impact on existing buildings, all three of the tables have added footnotes that permit the continued acceptance of a 48-inch dimension for existing buildings where a front approach is used.

The last substantial change, which may be easily overlooked, is found within Table 404.2.3.2 with the requirements for a hinge-side approach on the push side of the door. Previously the A117.1 standard required an additional 12 inches of clearance beyond the latch side of the door if it was equipped with both a closer and a latch. This requirement was shown in Figure 404.2.3.2 (e) of the 2009 edition of the standard. This extra requirement created a discrepancy between the A117.1 and the ADA that was not readily apparent or well known. By eliminating the extra 12-inch latch side requirement, the current A117.1 standard makes the basic issue of door maneuvering clearances more consistent between the A117.1 and the federal standard. The primary difference is the new 52-inch clearance required for the front approach, which was previously discussed.

When the extra latch-side dimension was first added into the 2003 edition of the standard, it was done due to a proponent stating that the front approach, push side [Figure 404.2.3.2 (b) in the 2009 standard] and the hinge approach, push side [Figure 404.2.3.2 (e) in the 2009 standard] were similar situations. With earlier changes to prevent the clearances from including knee and toe clearances, or the viewpoint that the maneuvering clearance needed to be kept completely unobstructed, the differences between the A117.1 standard and the federal requirement became that much greater. The A117.1 committee has now elected to eliminate the A117.1 standard's latch-side requirement so that this fairly basic provision can be coordinated with the federal requirement or until better justification can be provided to encourage both standards to add the requirement.

CHANGE TYPE: Modification

CHANGE SUMMARY: This modification provides more complete information regarding the application and limitations of the door hardware and opening force requirements. The two sections provide different requirements for the door itself and the door hardware and then additional differences depending on the type of hardware and operation.

2017 STANDARD: 404.2.6 Door and gate hardware. Handles, pulls, latches, locks, and other operable parts on accessible doors and gates shall have a shape that is easy to grasp with one hand and does not require tight grasping, pinching, or twisting of the wrist to operate. The operational force to retract latches or disengage devices that hold the door or gate in a closed position shall be as follows:

1. Hardware operation by a forward, pushing or pulling motion: 15 pounds (66.7 N) maximum
2. Hardware operation by a rotational motion: 28 inch-pounds (315 N·cm) maximum.

404.2.6.1 Hardware height. Operable parts of such hardware shall be 34 inches (865 mm) minimum and 48 inches (1220 mm) maximum above the floor. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides.

Exception: ~~Looks used only for security purposes and not used for normal operation shall not be required to comply with Section 404.2.6.~~

404.2.8 Door and gate opening force. Fire doors and doors or gates required to be equipped with panic hardware, break away features or other factors requiring higher opening force for safety reasons shall have the minimum opening force allowable in scoping provisions adopted by the appropriate administrative authority. For other doors or gates, the force for pushing or pulling open doors or gates other than fire doors shall be as follows:

1. Interior hinged doors and gates: 5.0 pounds (22.2 N) maximum.
2. Sliding or folding door: 5.0 pounds (22.2 N) maximum.

Exception: ~~These forces do not apply to~~ The force required to retract latch bolts or disengage other devices that hold the door or gate in a closed position shall not apply to panic hardware, delayed egress devices or fire-rated hardware.

CHANGE SIGNIFICANCE: These changes address both the forces appropriate to operate latches or other devices holding the doors in a closed position and the force required to open the door itself. The revisions within Section 404.2.8 create two sets of criteria related to the door opening force provisions. The first sentence regulates items such as panic hardware, break-away features, etc., which will typically have a higher opening force in order to resist casual contact and opening but will still operate to provide the safety they are intended to give. The force for these types of devices will be established by the jurisdiction's administrative authority and should be set at the "minimum opening force allowable" as opposed to "other doors," which must comply with the 5-pound force requirement specified for the two listed items.

404.2.6, 404.2.8 continues

404.2.6, 404.2.8

Door and Gate Hardware



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404.2.6, 404.2.8 continued

Though not included within the A117.1 standard, the ADA standard includes an advisory that helps clarify how the 5-pound force for the door opening is to be used. The ADA advisory states: “The maximum force pertains to the continuous application of force necessary to fully open a door, not the initial force needed to overcome the inertia of the door. It does not apply to the force required to retract bolts or to disengage other devices used to keep the door in a closed position.”

Section 404.2.6 then addresses the operational force limits established for the hardware itself as opposed to the door forces. Depending on the type of hardware involved (pushing, pulling, rotational), the standard establishes appropriate force levels so that compliance may be determined. Providing these values and distinctions helps to clarify how the forces are applied and determined. It also leads to more consistent interpretations related to which forces are appropriate for each type of operation. Perhaps the easiest example is found in Section 404.2.6, item 2, where the operational force for hardware that relies on a rotational movement is specified as a maximum of 28 inch-pounds. Because this is essentially the torque or a rotational force, it is inappropriate to simply specify a force such as 5 pounds. The amount of force required to operate the hardware will be dependent upon the length of the lever arm the force is applied to. For lever-handle hardware, the amount of force applied 1 inch from the pivot point would be greatly different than the amount of force needed if the length of the lever was 12 inches. Therefore it is appropriate to specify the requirement in inch-pound units so that different hardware can be evaluated to consistent criteria and compared to each other.

CHANGE TYPE: Modification

CHANGE SUMMARY: This modification provides more comprehensive information to help regulate how various door requirements apply to automatic doors and gates. The revisions clarify requirements by distinguishing between doors that are only power-assisted and automatic doors that are classified as either being full-powered or low-energy.

2017 STANDARD: **404.3 Automatic and power-assisted doors and gates.** Automatic doors and automatic gates shall comply with Section 404.3. Full powered automatic doors and gates shall comply with ANSI/BHMA A156.10 listed in Section ~~105.2.4~~ 106.2.7. Power-assist doors and gates and low-energy automatic doors and gates shall comply with ANSI/BHMA A156.19 listed in Section ~~105.2.3~~ 106.2.6

Exception: Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.3.2, 404.3.4 and 404.3.5. (Relocated to Section 404.1 with added revisions.)

404.3.1 Public entrances. Where an automatic door or gate is required at a building or facility public entrance, it shall be a full powered automatic door or a low-energy automatic door or gate.

404.3.2 Vestibules. Where an entrance includes a vestibule at least one exterior door and one interior door in the vestibule shall have the same type of automatic door or gate opener.

404.3.1 404.3.3 Clear width. Doorways shall have a clear opening width of 32 inches (815 mm) in power-on and power-off mode. The minimum clear opening width for automatic door systems shall be based on the clear opening width provided with all leaves in the open position.

404.3.2 404.3.4 Maneuvering clearances. Maneuvering clearances at power-assisted doors and gates shall comply with Section 404.2.3. Maneuvering clearances complying with Section 404.2.3 shall be provided on the egress side of low-energy automatic and full power automatic doors and gates that serve as part of the accessible means of egress.

Exceptions:

1. Low-energy automatic and full power automatic doors and gates that have standby power or battery back-up shall not be required to comply with this section.
2. Low-energy automatic and full power automatic doors and gates that remain open in the power-off condition shall not be required to comply with this section.
3. Full power automatic sliding doors and gates that include a break-away feature shall not be required to comply with this section.

404.3.3 404.3.5 Thresholds. Thresholds and changes in level at doorways shall comply with Section 404.2.4.

404.3.4 404.3.6 Two doors or gates in series. Doors or gates in series shall comply with Section 404.2.5.

Exception: Where both doors or gates in a series are low energy automatic or full power automatic doors or gates, the two doors and

404.3

Automatic Doors and Power-assisted Doors and Gates



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404.3 continues

404.3 continued

gates in a series shall not be required to provide a turning space between the doors or gates.

404.3.5 404.3.7 Controls switches. Manually operated controls switches shall comply with Section 309. The clear floor space adjacent to the controls switch shall be located beyond the arc of the door or gate swings.

404.3.8 Door and gate hardware. Handles, pulls, latches, locks, and other operable parts shall comply with Section 404.2.6.

404.3.9 Break out opening. Where full power automatic sliding doors and gates are equipped with a break out feature, the clear break out opening shall be 32 inches (815 mm) minimum when operated in emergency mode.

CHANGE SIGNIFICANCE: Along with making the door requirements applicable to gates, as discussed earlier, these changes provide terminology consistent with that used by the automatic door industry, and they help to distinguish how certain requirements for these types of doors differ from the general door provisions. Although these requirements have been modified to apply to both doors and gates, the following comments will just mention doors to avoid using the more cumbersome phrase “doors and gates” at each location. Since automatic doors are typically viewed as improving accessibility, these changes help to provide clarity for how the automatic doors and gates are permitted to vary from what is required for manual doors or for automatic doors that fail to function due to the loss of power.

The exception in Section 404.3 has been relocated to Section 404.1. As previously discussed for Section 404, moving this exception to the general section has allowed it to be placed into the standard at just one location and yet applied throughout the door provisions.

The new public entrance provisions of Section 404.3.1 help to ensure that doors that are required to be automatic by some separate scoping provision must comply with one of the two standards listed in Section 404.3. If an automatic door is specified for an application, full-powered automatic doors and low-energy doors hold a distinct advantage over power-assist doors from an accessibility standpoint, because they open automatically (although at varying speeds) and require no expended effort on the part of the door user to access the building or facility. Power-assist doors require the user to exert force on the door before the mechanism engages. Therefore, this provision helps to distinguish between compliant automatic doors and doors that still require the user to push or pull the door open, even though it may require a reduced effort.

Where automatic doors are used on a vestibule, Section 404.3.2 requires the doors on at least one path through the vestibule to have a consistent type of operating hardware. This would, for example, prevent the possibility that the interior or exterior door may have a full-powered automatic door at the entry into the vestibule and then require the user to operate a power-assisted door or perhaps a manual door in order to leave the vestibule and enter into the building. The wording will ensure that the automatic doors in the vestibule have the same type of automatic door opener. The provision does not apply to all doors in the vestibule but only ensures the user has at least one route into the building. For example, where the exterior of the vestibule has either a pair of door leaves or

perhaps multiple single-leaf doors, this provision requires only one of the exterior doors to have the automatic operator and would not apply to the additional doors or other leaf.

The maneuvering clearance provisions may present the most apparent changes and provides better guidance as to where the door must be provided with the appropriate clearances. Power-assist doors must always meet the same maneuvering clearances as required for manual doors since they do require the user to open the door, although with a reduced amount of resistance. The requirement for power-assisted doors is consistent with the previous standard. The changes within this section however now require automatic doors, both low-energy and full-power, to be provided with the maneuvering clearance on the egress side of the door when it serves as a part of the path for an accessible means of egress. Previously, automatic doors did not require the maneuvering clearance at any point. The exceptions waive the maneuvering clearance under the three situations: 1) where the door has a means of back-up power, 2) where the door remains in the open position, 3) where a full-power automatic door includes the break-away feature option. Where one of these three situations does not exist, the maneuvering clearance required by the base paragraph will then be required, which is the significant difference from the previous standard.

Where automatic doors, either low-energy or full-power, are used on doors in series, the turning space between the doors can be eliminated. The turning space requirement was initially added into Section 404.2.5 to prevent the entrapment of a mobility-device user within the space between the doors in situations where someone would be able to enter through the first door but then would be unable to open or operate the second door. Where automatic doors are used, the doors are to be openable, and because of the automatic feature, the user would not need to be able to turn or maneuver to a specific position to open or move through the door. As long as the control is properly located, the door could be opened and the user could move through it.

405

Ramps

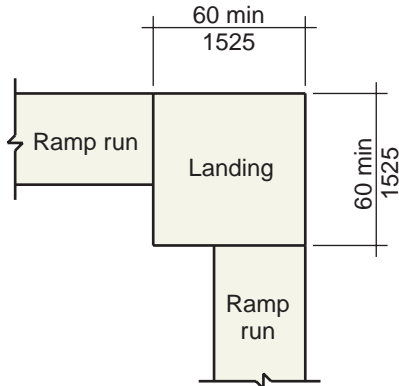
CHANGE TYPE: Modification

CHANGE SUMMARY: Ramp provisions have been modified to coordinate with the ADA. The provisions now also provide better clarity to the size of ramps within employee work areas and the minimum landing size where the ramp changes direction.

2017 STANDARD: 405.5 Clear width. The clear width of a ramp run shall be 36 inches (915 mm) minimum. Handrails and handrail supports that are provided on the ramp run shall not project into the required clear width of the ramp run.

Exception: Within employee work areas, the required clear width of ramps that are a part of common use circulation paths shall be permitted to be decreased by work area equipment provided that the decrease is essential to the function of the work being performed.

405.7.4 Change in direction. Ramps that change direction at ramp between runs at landings shall be sized to provide a turning space complying with Section 304.3 have a clear landing 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum.



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CHANGE SIGNIFICANCE: The primary purpose of these two changes to the ramp requirements is to coordinate the A117.1 with the requirements of the ADA. Perhaps the most important of these changes is the clarification found within Section 405.7.4, which requires a minimum 60-inch by 60-inch landing to be located between ramp runs where a change of direction occurs. Previously, the A117.1 standard simply referenced the turning space requirements of Section 304.3, which would have permitted either a 60-inch circular space or a T-shaped space. Both of these options would have allowed configurations where the landing size due to clipped corners would have been smaller than the full 60-inch by 60-inch minimum size required by the ADA.

Ultimately, this change may not seem as dramatic as it appears, because the IBC, which is the most common scoping document for the A117.1 standard, had also previously specified the minimum 60-inch by 60-inch space instead of simply requiring the turning space. Because the building code requires compliance with “the most restrictive” of two applicable requirements, most of the ramp landings should have already been using the 60-inch by 60-inch minimum requirement. Designs where the landings were cropped at the corners or of a smaller size should not have been accepted.

The exception in Section 405.5 is also included with the intent of coordinating with the federal requirements of the ADA. While employee work areas are generally exempt from most accessibility requirements, the common-use circulation path within an employee work area, especially if it is over 1,000 square feet, must typically be accessible. This exception is often used within the employee work area where the ramp is used for the movement of goods and equipment. As a part of this change, the definitions for “common use” and “employee work area” have been added to the standard, as well as a revision to the term “circulation path.” Having these terms defined within the standard will help to limit the application of the exception instead of leaving the terms and provisions open to interpretation and debate.

CHANGE TYPE: Modification

CHANGE SUMMARY: This modification provides a blending of the previous curb ramp requirements and the U.S. Access Board's proposed requirements for public rights-of-way. Creating distinctions between the two types of curb ramps and for a blended transition allows requirements to address the differences between the various elements.

2017 STANDARD:

SECTION 406 CURB RAMPS AND BLENDED TRANSITIONS

406.1 General. Curb ramps and blended transitions on accessible routes shall comply with Sections 406, 405.2, 405.3, and 405.10.

406.2 Counter slope. Counter slopes of adjoining gutters and road surfaces immediately adjacent to the curb ramp shall not be steeper than 1:20. The adjacent surfaces at transitions at curb ramps to walks, gutters and streets shall be at the same level. (See 406.5.4)

406.3 Sides of curb ramps. Where provided, curb ramp flares shall comply with Section 406.3.

406.3.1 Slope. Flares shall not be steeper than 1:10.

406.3.2 406.5.6 Marking. (Relocated to 406.5.6)

406.4 406.5.1 Width. (Revised and relocated to 406.5.1)

406.5 Floor Surface. Floor surfaces of curb ramps shall comply with Section 302.

406.2 Perpendicular curb ramps. Perpendicular curb ramps shall comply with Sections 406.2 and 406.5.

406.3 Parallel curb ramps. Parallel curb ramps shall comply with Sections 406.3 and 406.5.

406.4 Blended transitions. Blended transitions shall comply with Sections 406.4 and 406.5.

406.5 Common requirements. Curb ramps and blended transitions shall comply with Section 406.5.

406.5.1 Width. The clear width of curb ramp runs (excluding any flared sides) and blended transitions shall be 48 inches (1220 mm) minimum.

406.5.2 Grade breaks. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the curb ramp run. Grade breaks shall not be permitted on the surface of curb ramp runs and landings. Surface slopes that meet at grade breaks shall be flush.

406.5.3 Cross slope. The cross slope of curb ramps and blended transitions shall be 1:48 maximum. At pedestrian street crossings without yield or stop control and at midblock pedestrian street crossings, the cross slope shall be permitted to equal the street or highway grade.

406.5.4 Counter slope. The counter slope of the gutter or street at the foot of curb ramp runs, blended transitions and landings shall be 1:20 maximum.

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Curb Ramps and Blended Transitions



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406 continues

406 continued **406.5.5 Clear space.** Beyond the bottom grade break, a clear space 48 inches (1220 mm) minimum by 48 inches (1220 mm) minimum shall be provided within the width of the pedestrian street crossing and wholly outside the parallel vehicle travel lane.

406.3.2 406.5.6 Marking. If curbs adjacent to the ramp flares are painted, the painted surface shall extend along the flared portion of the curb.

406.6-406.5.7 Location. Curb ramps and the flared sides of curb ramps shall be located so they do not project into vehicular traffic lanes, parking spaces, or parking access aisles. Curb ramps at marked crossings shall be wholly contained within the markings, excluding any flared sides.

406.7 Landings. (Revised and relocated to 406.2.1 and 406.3.1)

406.8-406.5.8 Obstructions. Curb ramps shall be located or protected to prevent their obstruction by parked vehicles.

406.9-406.5.9 Handrails. Handrails shall not be required on curb ramps.

406.10 Diagonal curb ramps.

406.11 Islands.

Because this code change affected substantial portions of Section 406, the entire code change text is too extensive to be included here. Refer to Code Change 4-42 and its subsequent actions on the ICC website for the complete text and history of the code change.

CHANGE SIGNIFICANCE: One of the most apparent changes can be seen in the formatting of the section and how the standard now makes a distinction between perpendicular curb ramps, parallel curb ramps and blended transitions. By creating separate sections to deal with these three elements, the standard is able to provide distinct requirements that apply individually to the three and to create a new section, Section 406.5, which covers the common requirements. Addressing the options this way also allows for the deletion of the separate requirements that previously dealt with diagonal curb ramps and islands, since those features would be covered by one of the three new options depending on their design.

Making these changes within the A117.1 standard helps coordinate the curb ramp and blended transition requirements with those that apply to the public rights-of-way. The proposed federal *Guidelines for Pedestrian Facilities in the Public Right-of-Way* are applicable only to the ADA Title II entities and therefore to the public rights-of-way. The majority of buildings regulated by the IBC and A117.1 will be private, and the provisions will generally be applied on private property to what would be classified as ADA Title III facilities. Where this may be noticed the most is within a large development such as an office campus or large retail project where street-like features are developed within a larger property. Without the coordination, the curb ramp provisions would differ between private and public developments and could not only create confusion for designers and builders, but also result in inconsistent access and safety for the users.

The specific details of the perpendicular curb ramps, the parallel curb ramps and the blended transitions will be covered later in this book. The “common requirements” of Section 406.5 are essentially the general provisions that apply to all three options. Perhaps the requirement that differs the most from the previous standard is the fact that the curb ramp or blended transition must be a minimum of 48 inches in width as compared

to the previous 36-inch width requirement. This width requirement is applicable to the ramp run or transition itself and must not include the area of any flared sides. This 48-inch requirement is based on the “pedestrian access route” requirements of the federal *Public Rights-of-Way Accessibility Guidelines* (PROWAG). According to information on the U.S. Access Board’s website, the American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Planning, Design, and Operation of Pedestrian Facilities* recommends that sidewalks be wider than 4 feet, especially in urban areas. However, the PROWAG specified 48 inches to allow for street furniture and other objects that may be located on sidewalks.

Another key aspect of the changes that will affect the design and construction of the curb ramps and transitions is found in the definition of “Grade Breaks” and the provisions of Section 406.5.2. In order that a stable and usable surface be provided for the wheelchair user, the standard requires that grade breaks occur only at the top and bottom of curb ramp runs and that they must be perpendicular to the direction of travel. Grade breaks are not allowed in the midst of a curb ramp run or a landing. Eliminating grade breaks within these surfaces and requiring them to occur at locations that are perpendicular to the direction of the curb ramp run will eliminate the compound surfaces or transitions that may result in a user not having all four wheels of a wheelchair on the ground at the same time, feeling as if he or she is tipping, or simply finding it more difficult to maneuver over due to the changing cross slopes. Figure 406.5.2 of the standard provides a good illustration of how the requirement for the grade break at a perpendicular location can change the design at the bottom of the curb ramp from what has typically been done in the past.

Because a big portion of these changes occurred due to coordinating the A117.1 provisions with the proposed federal PROWAG provisions, additional supporting information such as guidance and research can be obtained from the U.S. Access Board’s website at www.access-board.gov, including a number of examples and illustrations of various design solutions for how the systems can be combined to solve difficult situations.

406.2

Perpendicular Curb Ramps

CHANGE TYPE: Modification

CHANGE SUMMARY: These revisions provide better guidance on the standard construction of a curb ramp, including such features as a larger landing at the top and flared sides where a pedestrian circulation path crosses the ramp.

2017 STANDARD: **406.2 Perpendicular curb ramps.** Perpendicular curb ramps shall comply with Sections 406.2 and 406.5.

406.7 406.2.1 Landings. Landings shall be provided at the tops of curb ramps. The clear length of the landing shall be 36 inches (915 mm) minimum. The clear width of the landing shall be at least as wide as the curb ramp, excluding flared sides, leading to the landing.

Exception: In alterations, where there is no landing at the top of curb ramps, curb ramp flares shall be provided and shall not be steeper than 1:12.

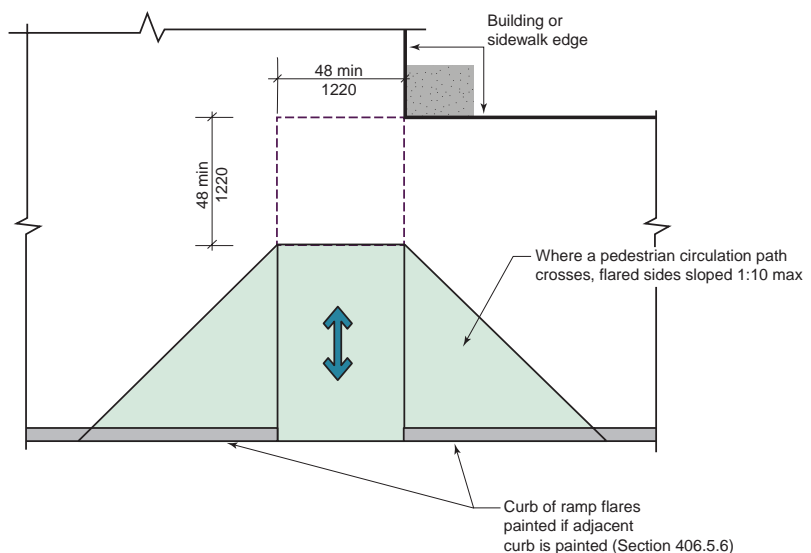
A landing 48 inches (1220 mm) minimum by 48 inches (1220 mm) minimum shall be provided at the top of a curb ramp. The landing shall be permitted to overlap pedestrian routes and clear spaces. Where the landing is constrained at the back-of-sidewalk, the landing shall be 48 inches (1220 mm) minimum by 60 inches (1525 mm) minimum. The 60 inches (1525 mm) dimension shall be provided in the direction of the curb ramp run. The slope of landings shall be 1:48 maximum in all directions.

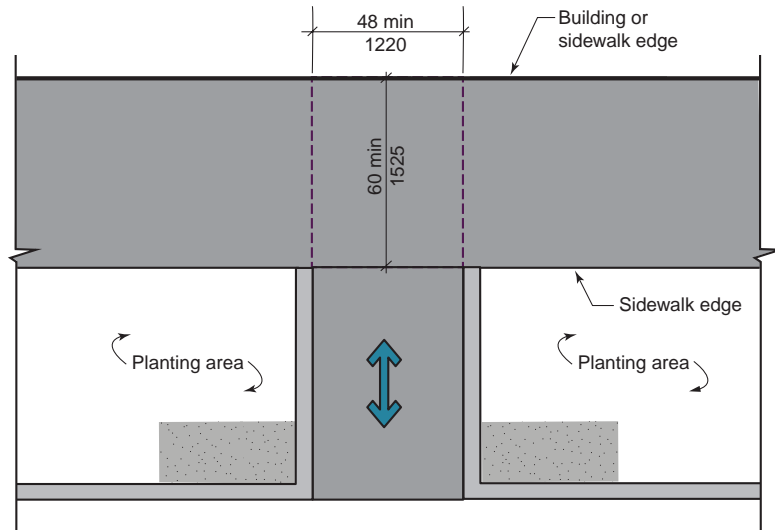
406.2.2 Running slope. The running slope of a curb ramp shall cut through or shall be built up to the curb at right angles or shall meet the gutter grade break at right angles where the curb is curved. The running slope of a curb ramp shall be 1:20 minimum and 1:12 maximum. The curb ramp run length shall not be required to exceed 15 feet (4570 mm).

406.2.3 Flared sides. Where a pedestrian circulation path crosses a curb ramp, flared sides shall be provided and shall be sloped 10 percent maximum.

406.3 Sides of curb ramps. Where provided, curb ramp flares shall comply with Section 406.3.

406.3.1 Slope. Flares shall not be steeper than 1:10.





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CHANGE SIGNIFICANCE: Along with the common requirements discussed with the previous change, these provisions regulate curb ramps that run perpendicular to the curb line and are either cut through or built up to the curb. A review of Section 406.5 should be done since those requirements apply to any curb ramp or blended transition. As mentioned earlier, two of the most significant aspects of the common requirements will be the increased width of 48 inches required for a curb ramp and the regulations related to grade breaks.

There are three specific changes within Section 406.2 that will affect the design of perpendicular curb ramps. The first and perhaps most significant change is the size of the landing required at the top of the ramp. The new standard will require the landing to be a minimum of 48 inches in length. This 48-inch dimension will be increased to 60 inches minimum in the direction of the ramp run where something constrains the space at the back of a sidewalk. An example of something that would constrain the landing would be if a building were located at the back of the ramp landing. The 48-inch or the potential 60-inch requirement for the length of the landing will be much larger than the 36-inch length that was required by the previous edition of the standard. Users of the standard should also remember that the width of the landing has also been increased due to the provisions of Section 406.5.1 and the fact the curb ramp must be a minimum of 48 inches in width.

The “landing” requirements are increased where the space is constrained at the back of the sidewalk because the PROWAG deals with this as being a turning space to allow wheelchair users to transition from the curb ramp to the adjacent sidewalk. The A117.1 committee revised the section heading and text to call this a “landing” as opposed to a turning space, since this element had been called a landing under the previous edition of the standard, and the term “turning space” was already being used elsewhere in the standard. The size requirements for a turning space in those sections differ from what is required here at the curb ramp. The intent and reason for increasing the landing length to 60 inches when it is “constrained at the back of the sidewalk” is to allow the person on the curb ramp to more easily turn and move onto the adjacent sidewalk.

406.2 continues

406.2 continued

Another important part of this change that will affect the design and construction of the curb ramp is the flared side provisions of Section 406.2.3. Where the pedestrian circulation path crosses the curb ramp, then flared sides are required. Under the 2009 standard, the flared sides were not required but were regulated “where provided.” This text in the previous standard allowed for other means of constructing the edges of a curb ramp, such as using a rolled edge or curb. The previous viewpoint was that as long as a 36-inch-wide accessible route was available across the landing at the top of the curb ramp (for people passing perpendicular to the ramp), pedestrians were able to avoid travel across the ramp run itself, and flared sides were not required. Under the new edition of the standard, if the pedestrian circulation path could cross the curb ramp, then the sides of the ramp are required to be compliant flared sides. Therefore, unless a planter or some type of barrier is installed to keep the circulation path from crossing the ramp, flared sides will now be required.

While the previous edition also specified a maximum slope of 1:10 for the flared sides, there was an exception that reduced that slope to 1:12 during alterations if there was no landing provided at the top of the curb ramp that would permit a person to travel on a path that would completely avoid the ramp run. This exception, which was previously located in Section 406.7, has been eliminated, and it is assumed that the requirements for a parallel curb ramp (Section 406.3) would be used at the locations where the pedestrian circulation path crossed a perpendicular curb ramp and a compliant landing (Section 406.2.1) was not provided at the top of the ramp run. For perpendicular curb ramps with an adequate landing at the top that allowed the pedestrian access route to bypass going across the curb ramp run completely, the 1:10 maximum slope for the flared sides would still apply if any part of the circulation path would cross the ramp run. Figure 406.2(A) of the standard shows the application of the flared-side requirement, while Figure 406.2(B) shows a circulation path that does not cross the ramp and therefore does not require flared sides.

The last change discussed here is the limitation that a curb ramp run is not required to exceed 15 feet in size. While the 1:20 minimum and 1:12 maximum slope are consistent with the previous standard, there was nothing in that edition to limit the overall ramp run if it was not possible to meet the 1:12 maximum slope. This 15-foot limitation will minimize the amount of the sidewalk that must be modified in order to accommodate the installation of a curb ramp. While most ramp runs will be able to comply with the minimum and maximum slope provisions, this 15-foot ramp run limitation could in rare situations result in a curb ramp run that exceeded the 1:12 maximum, especially for alterations at existing conditions.

CHANGE TYPE: Modification

CHANGE SUMMARY: This modification provides detailed requirements for constructing parallel curb ramps. The previous standard did not contain specific requirements to detail how this type of curb ramp should be properly constructed.

2017 STANDARD: 406.3 Parallel curb ramps. Parallel curb ramps shall comply with Sections 406.3 and 406.5.

406.3.1 Landing. A landing 48 inches (1220 mm) minimum by 48 inches (1220 mm) minimum shall be provided at the bottom of a curb ramp. The landing shall be permitted to overlap pedestrian routes and clear spaces. Where the landing is constrained on 2 or more sides, the landing shall be 48 inches (1220 mm) minimum by 60 inches (1525 mm) minimum. The 60 inches (1525 mm) dimension shall be provided in the direction of the pedestrian street crossing. The slope of landings shall be 1:48 maximum in all directions.

406.3.2 Running slope. The running slope of a curb ramp shall be in-line with the direction of sidewalk travel. The running slope of a curb ramp shall be 1:20 minimum and 1:12 maximum. The curb ramp run length shall not be required to exceed 15 feet (4570 mm).

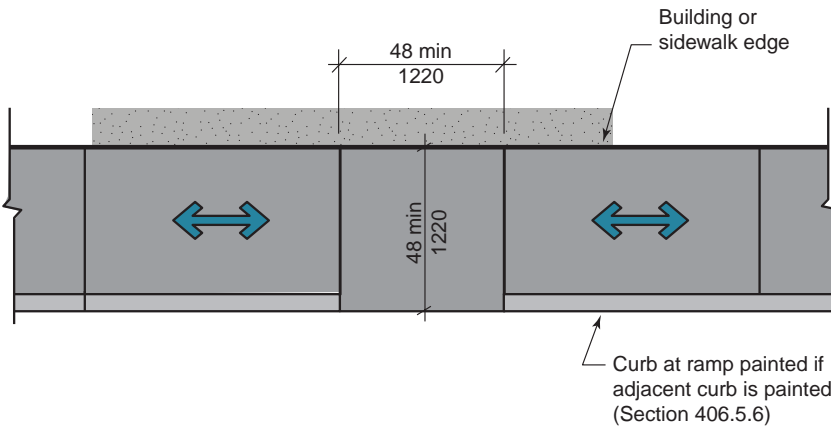
406.3

Parallel Curb Ramps

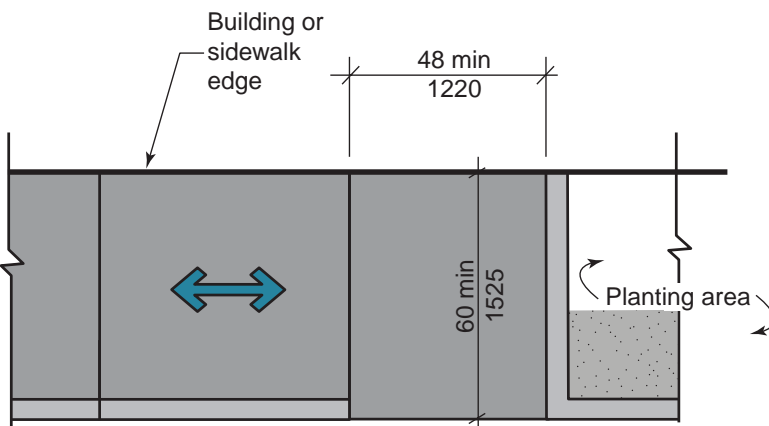


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406.3 continues



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406.3 *continued*

CHANGE SIGNIFICANCE: Parallel curb ramps have become more popular since they can be done on a sidewalk with a smaller depth because they do not need both the curb ramp and the landing between the curb and the building or other site constraint. In addition, not having the pedestrian path cut across the ramp eliminated the flared sides, which were often difficult to construct or simply made pedestrian travel perpendicular to the curb ramp more difficult. However, since these were not what many people thought of as being a curb ramp, and because there were no figures within the standard to show how the curb ramp provisions applied, many people would try to impose or use some of the general ramp requirements instead of using the curb ramp provisions. Designers, for example, questioned whether the edge protection of Section 405.9 applied along the curb edge or if edge protection was not regulated since nothing within Section 406 addressed it.

With this new section there are now specific details to provide guidance on how a parallel curb ramp is to be constructed. Users of this standard need to remember that both the specific requirements from Section 406.3 and the “common requirements” from Section 406.5 are applicable. In addition, other requirements such as those of Section 403 will help to regulate the path leading to these curb ramps and the landings that would occur at the top of them. Readers should review the “common requirements” of Section 406.5, which were discussed earlier, since they will regulate many of the features such as the minimum width, grade breaks and cross slopes. The 48-inch minimum width is an important change that might be overlooked if Section 406.5 is not applied.

The most significant revision within Section 406.3 itself is a 48-inch by 48-inch landing being required at the bottom of the curb ramp. The standard does not require a landing at the top of the curb ramp run. In general, this may not have a dramatic effect on the size or layout at the top of the curb ramp run due to the provisions of Section 403. One difference between the top and bottom requirements for the ramp is that while Section 406.3.1 limits the slope of the landing at the bottom to a maximum of 1:48 “in all directions,” the top would have a 1:48 maximum cross slope (Section 403.3), but the slope in the direction of travel could be as great as 1:20 in accordance with Section 403.3.

Where the landing at the bottom of the curb ramp is constrained on two sides, the size of the landing in the direction of the street crossing must be increased to a 60-inch minimum dimension. The elements that could constrain the landing might be another curb, a planting area, a building wall or simply the edge of the paved walking surface. This 60-inch dimension would allow someone to move out of the street crossing or the parking area and then turn to use the curb ramp up to the level of the exterior walking surface (sidewalk). This increase in the landing dimension and the potential constrained sides are illustrated in Figures 406.3 (A) and (B) of the standard.

As mentioned previously with the perpendicular curb ramps, the general running slope provisions require the curb ramp to have a slope of 1:20 minimum and 1:12 maximum. However, Section 406.3.2 does indicate that the maximum length of the curb ramp run is never required to exceed 15 feet. Therefore, it may be possible in some situations that the maximum slope could be exceeded by using the 15-foot ramp run limitation. For situations such as an alteration, a designer knowing about this 15-foot

limitation could be helpful since it could limit how much of the existing sidewalk must be removed in order to install a new ramp. While it is always preferred to keep the maximum slope below 1:12, the limitation of 15 feet can also be applied on new construction in order to allow the curb ramp to exceed that maximum slope requirement and minimize the effect the curb ramp would have on the overall sidewalk or walkway.

406.4

Blended Transitions

CHANGE TYPE: Modification and Addition

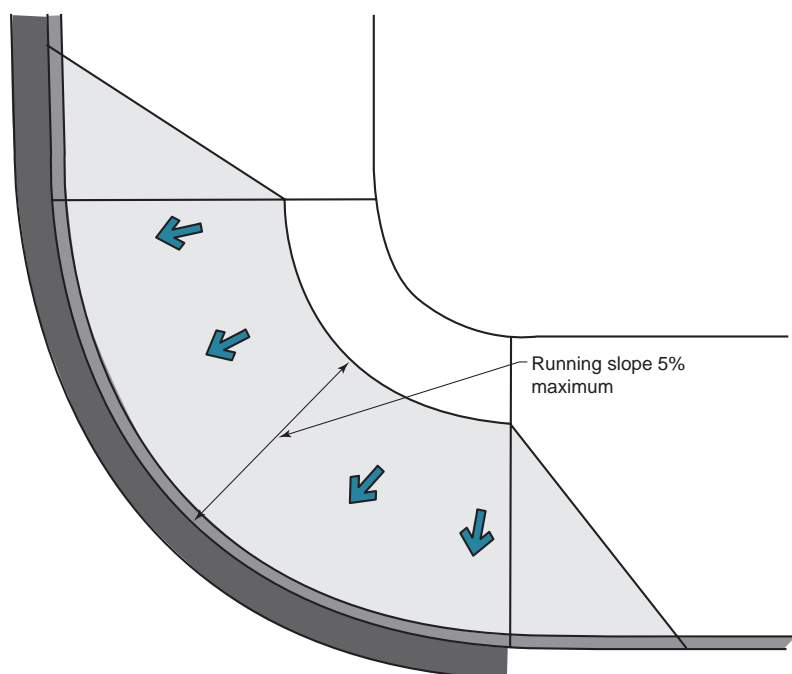
CHANGE SUMMARY: Where the slope of an elevation change at a curb does not exceed 1:20, the standard views this as a “blended transition” instead of as a curb ramp. Blended transitions need to meet many of the same requirements as a curb ramp and therefore are included within Section 406.

2017 STANDARD: **406.4 Blended transitions.** Blended transitions shall comply with Sections 406.4 and 406.5.

406.4.1 Running slope. The running slope of blended transitions shall be 1:20 maximum.

CHANGE SIGNIFICANCE: Similar to parallel curb ramps, “blended transitions” have been used effectively and were permitted by the previous standard. The downside is that because there was no one specific set of requirements, variations in code opinions often resulted, and other code requirements were applied as the enforcing agency felt was appropriate. Blended transitions are essentially the third way that a transition can be made at a curb. Where a curb ramp is used, the ramp run would have a minimum slope of 1:20, while a “blended transition” is kept at a maximum slope of 1:20 so that it does not become a “ramp.” This coordinates with the accessible route sloped surface requirements of Section 403.3.

Other than the limitation on the maximum slope, there are no special requirements that apply to the blended transitions. The main requirements for these elements are found within the “common requirements” of Section 406.5 and are applicable due to the reference from Section 406.4. Because the “blended transitions” are regulated by many of the same provisions that apply to curb ramps, some of the items that previously may have only been applied where a ramp was used will now also be required when the slope is less than what would create a ramp. As an example, a minimum 48-inch-long clear space at the bottom of the blended



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transition would need to be provided “within the width of the pedestrian street crossing and wholly outside the parallel vehicle travel lane” (Section 406.5.5). Another example would be the counter-slope provisions of Section 406.5.4. Previously it could have been argued that these requirements only applied to “curb ramps” and not to elements having a lower slope, which are now called blended transitions.

As was mentioned earlier in the discussion of Section 406, users may wish to look at the U.S. Access Board’s website at www.access-board.gov since it has background information on these requirements and shows a number of examples of how blended transitions can be used or combined with curb ramps to solve difficult design problems.

406.6.2

Location of Detectable Warning Surfaces

CHANGE TYPE: Modification

CHANGE SUMMARY: This modification provides a single section to regulate the location of required detectable warning surfaces. This change applies to some of the proposed federal public rights-of-way provisions to street crossings on private developments such as those on campus facilities or large office, residential or retail complexes.

2017 STANDARD: ~~**406.12 Detectable warnings at raised marked crossings.** Marked crossings that are raised to the same level as the adjoining sidewalk shall be preceded by a detectable warning 24 inches (610 mm) in depth complying with Section 705. The detectable warning shall extend the full width of the marked crossing.~~

~~**406.13 Detectable warnings at curb ramps.** Where detectable warnings are provided on curb ramps, they shall comply with Sections 406.13 and 705.~~

~~**406.13.1 Area covered.** Detectable warnings shall be 24 inches (610 mm) minimum in depth in the direction of travel. The detectable warning shall extend the full width of the curb ramp or flush surface.~~

~~**406.13.2 Location.** The detectable warning shall be located so the edge nearest the curb line is 6 inches (150 mm) minimum and 8 inches (205 mm) maximum from the curb line.~~

~~**406.14 Detectable warnings at islands or cut-through medians.** Where detectable warnings are provided on curb ramps or at raised marked crossings leading to islands or cut-through medians, the island or cut-through median shall be provided with detectable warnings complying with Section 705, that are 24 inches (610 mm) in depth, and extend the full width of the pedestrian route or cut-through. Where such island or cut-through median is less than 48 inches (1220 mm) in depth, the entire width and depth of the pedestrian route or cut-through shall have detectable warnings.~~

406.6 Detectable warnings.

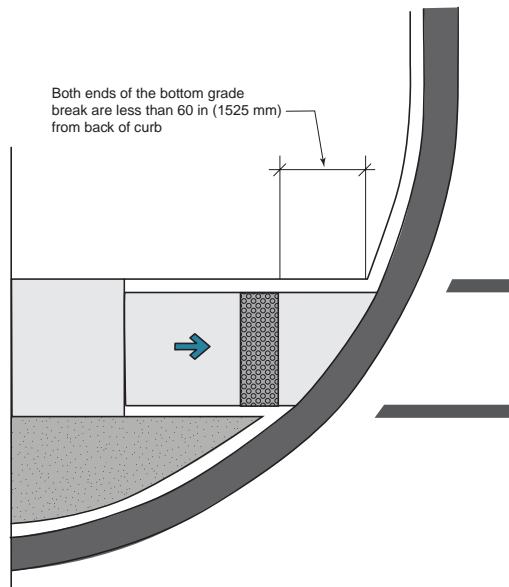
~~**406.6.1 General.** Where detectable warning surfaces are provided, they shall comply with Section 705.~~

~~**406.6.2 Locations for detectable warning surfaces.** Detectable warning surfaces shall be provided at the following locations on pedestrian access routes and at transit stops:~~

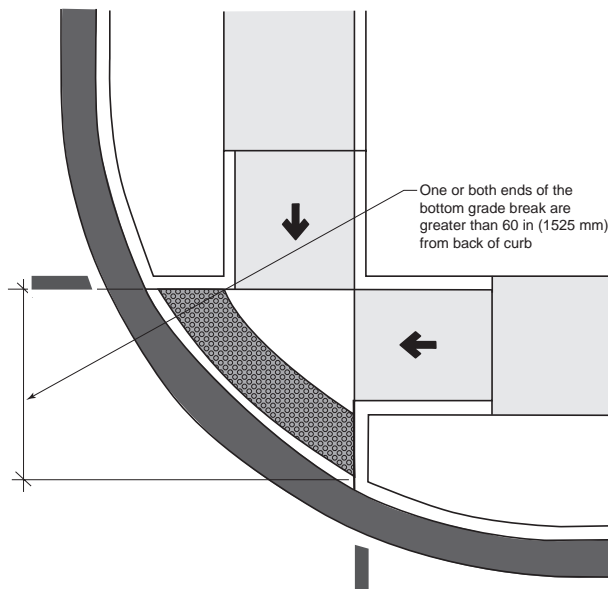
- ~~1. Curb ramps and blended transitions at pedestrian street crossings;~~
- ~~2. Pedestrian refuge islands;~~
- ~~3. Pedestrian at-grade rail crossings not located within a street or highway;~~
- ~~4. Boarding platforms at transit stops for buses and rail vehicles where the edges of the boarding platform are not protected by screens or guards; and~~
- ~~5. Boarding and alighting areas at sidewalk or street level transit stops for rail vehicles where the side of the boarding and alighting areas facing the rail vehicles is not protected by screens or guards.~~

~~**Exception:** Detectable warning surfaces shall not be required at pedestrian refuge islands that are cut-through at street level and are~~

less than 6 feet (1830 mm) in length in the direction of pedestrian travel.



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CHANGE SIGNIFICANCE: The revisions in this section coordinate with changes made in Section 705 related to the technical requirements for detectable warning surfaces. This change also takes some of the requirements from the proposed federal PROWAG and applies them on specific locations of private property developments.

Section 406.6.1 essentially mirrors the intent of Sections 406.13, 406.14 and 705.1 of the previous standard. Where detectable warnings are provided, even if they are not required at those locations, they must comply with the technical provisions of Section 705 and should also be consistent within the facility with other detectable warnings whether they are

406.6.2 continues

406.6.2 continued

required or not. Therefore, Section 406.6.1 mandates that “where . . . provided,” detectable warnings must comply with both the technical requirements and placement details of Section 705.

Section 406.6.2 then provides a list of the five accessible route locations where detectable warning surfaces must be provided. The most significant changes within this section are the requirements found in items 1, 2, 5 and the new exception, which is applicable to item 2. Perhaps the biggest of the changes is found in item 1, which requires detectable warning surfaces at the curb ramps and blended transitions at pedestrian street crossings. While that may not seem like a substantial change, it is important to remember that the ADA required this type of warning at street crossings for ADA Title II entities, but it did not apply this provision to Title III facilities. With the new wording, curb ramps and blended transitions at private pedestrian street crossings will be held to the same standard and coordinated with similar items in the public right-of-way. This requirement does not apply to all curb ramps and blended transitions on private property, but only to those that occur at street crossings. This would mean that on a large private facility with roadways within the project, such as may occur on a corporate office campus, the pedestrian access route that crosses the street must be protected. Conversely, if there is no “street crossing,” then the requirements would not apply. Therefore, at curb ramps that transition down to the access aisle adjacent to accessible parking spaces, or those that lead from a store entrance down into the parking lot, would not be regulated. That would be true even if the curb ramp into the parking lot required the pedestrians to cross a drive aisle of a parking lot to reach their vehicles. Although there may be variations or disagreements about the application of this requirement, the intent is that curb ramps that occur at a “street” on private property are regulated similar to how those under the federal PROWAG would be regulated. That is why item 1 applies to “street crossings” but not to curb ramps and blended transitions at other locations that do not involve a pedestrian street crossing.

Exception 2 will require detectable warnings at pedestrian refuge islands. These previously were regulated “where . . . provided” but not required. In addition, the requirement was connected to whether the warnings were provided on the curb ramps leading to the island. The exception shown at the bottom of Section 406.6.2 is applicable to item 2 and is limited to cut-through islands at street level. Where the pedestrian refuge island is less than 6 feet in length along the direction of travel, detectable warnings are not required. Previously, if detectable warnings were provided at refuge islands less than 48 inches in depth, the entire depth and width of the cut-through was required to have the warnings. The exception is given in the 2017 standard because it would not be possible to provide the two 24-inch warning surfaces at the edges of the island plus have a minimum of 24 inches between them, which is required by Section 705.7.4. In addition, narrow refuge islands were not considered as providing adequate safety since the space would leave the pedestrians very close to traffic and provide them little protection.

Item 5 is a newly regulated location. While some people may argue that these were regulated by Section 805.5.2 of the previous standard, these locations were really covered by Section 805.2 and did not include a

requirement for detectable warning surfaces. The distinction is that Section 805.5.2 regulated the drop off at a platform while the boarding and alighting areas regulated by the new item 5 may occur either at the street level or at most at the sidewalk level. Item 5 only applies for rail vehicles.

Items 3 and 4 of Section 406.6.2 were previously regulated by Sections 805.10 and 805.5.2 of the standard. Therefore, these items do not result in any change of application from the previous edition. Item 4 applies to the boarding platforms for buses and rail vehicles, while item 5 only applies to sidewalk or street-level stops for rail vehicles.

Table 407.4.1

Minimum Dimensions of Elevator Cars

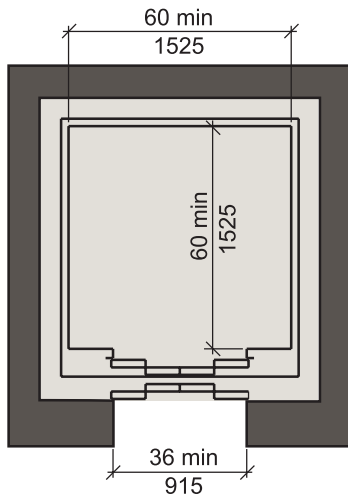
CHANGE TYPE: Modification

CHANGE SUMMARY: This change detaches the elevator size requirements from the turning space provisions of Section 304 and instead accepts the previously permitted 60-inch diameter space.

2017 STANDARD: 407.4.1 Inside dimensions. Inside dimensions of elevator cars shall comply with Table 407.4.1.

Exception: (No change)

TABLE 407.4.1 Minimum Dimensions of Elevator Cars



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Door Location	Door Clear Opening Width	Inside Car, Side to Side	Inside Car, Back Wall to Front Return	Inside Car, Back Wall to Inside Face
Centered	42 inches (1065 mm)	80 inches (2030 mm)	51 inches (1295 mm)	54 inches (1370 mm)
Side (Off Center)	36 inches (915 mm) ¹	68 inches (1725 mm)	51 inches (1295 mm)	54 inches (1370 mm)
Any	36 inches (915 mm) ¹	54 inches (1370 mm)	80 inches (2030 mm)	80 inches (2030 mm)
Any	36 inches (915 mm) ¹	60 inches (1525 mm) ²	60 inches (1525 mm) ²	60 inches (1525 mm) ²

1. A tolerance of minus $\frac{5}{8}$ inch (16 mm) is permitted.
2. Other car configurations that provide a 36-inch (915 mm) door clear opening width and a turning space complying with Section 304 60-inch (1525 mm) diameter space with the door closed are permitted.

CHANGE SIGNIFICANCE: This change does not result in a change of requirements from the previous standard, but it is nonetheless important that people are aware of it. Where footnote 2 of the table previously tied the size requirements to Section 304, which would now require a 67-inch diameter turning space, the A117.1 committee recognized that the previously existing elevator car sizes should be accepted. In making this change, the A117.1 committee recognized that increasing the car size because of the 67-inch diameter would increase the elevator car capacity and thus increase the cost of the elevator system and related structural support within the building. The committee also noted that there was no evidence that the elevator cars with a 60-inch diameter space were unusable to persons using a larger wheeled mobility device, since the space would be large enough to permit access to the car controls. Given the automatic door requirements, a turning space was not necessarily needed to allow a user to enter and exit the elevator by a forward approach.

Another reason that supported making this change is that the 60-inch diameter turning space within an enclosed elevator is already larger than several of the car sizes that are permitted by the Table 407.4.1 provisions. Therefore, without making changes to all of the elevator size options, the existing 60-inch diameter option from the footnote should be retained. The elevator industry also pointed out that the diameter dimensions allowed by the footnote were often used for non-rectangular observation elevators such as those installed on building exteriors or within atriums.

Increasing the size of these elevators could make them either extremely expensive or impractical to install.

This item was therefore included in this book because it is an example of how the increased building block size requirements forced the A117.1 committee to look at all existing provisions of the standard to see if those increases should be carried over into other areas. In this case, and in many others, the committee felt that the increased dimensions would either have too drastic of an impact or were not adequately justified as being needed for certain elements. Therefore, code users will find a number of locations where the standard has been revised seemingly to retain existing size requirements. While those changes do not result in actual changes from the previous standard, it is significant that items such as this are being altered to limit the impact the increased building block size changes would have on other parts of the standard.

407.4.6.2.2, 407.4.7.1.2

Elevator Car Control Designations



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CHANGE TYPE: Modification

CHANGE SUMMARY: This change relocates the elevator car control designations to the appropriate location within the standard and clarifies that letters can accompany the floor numbers to assist in the designation.

2017 STANDARD: **407.4.6 Elevator car controls.** (No change)

407.4.6.2.2 Arrangement. Buttons shall be arranged with numbers in ascending order. Floors shall be designated . . . -4, -3, -2, -1, 0, 1, 2, 3, 4, etcetera, with floors below the main entry floor designated with minus numbers. Numbers shall be permitted to be omitted, provided the remaining numbers are in sequence. Where a telephone keypad arrangement is used, the number key (“#”) shall be utilized to enter the minus symbol (“-”). When two or more columns of buttons are provided they shall read from left to right.

407.4.7 Designations and indicators of car controls. (No change)

407.4.7.1 Buttons. Car control buttons shall comply with Section 407.4.7.1.

407.4.7.1.1 Type. Control buttons shall be identified by raised characters and braille complying with Sections 703.3 and 703.4.

407.4.7.1.2 Designation. Floors shall be designated . . . -4, -3, -2, -1, 0, 1, 2, 3, 4, etcetera, with floors below the main entry floor designated with minus numbers. Numbers shall be permitted to be omitted, provided the remaining numbers are in sequence. Where a telephone keypad arrangement is used, the number key (“#”) shall be utilized to enter the minus symbol (“-”). Ancillary letters shall be permitted to be used in conjunction with the numbers provided the letters are located to the right of the numbers and not more than two letters are used for each floor designation.

CHANGE SIGNIFICANCE: The most apparent aspect of this revision is the relocation of the requirements from Section 407.6.2.2 of the previous standard to the new Section 407.4.7.1.2. This also resulted in the renumbering of subsequent sections within Section 407.4.7.1.

The text in the previous edition of the standard is in a section that deals with the physical characteristics and arrangement of the buttons on the car control panel. The text that states that the numbers are to be in ascending order is appropriate here as is the text related to the left and right arrangement where the buttons are in columns. The remainder of the existing text deals with the content of what is supposed to be designated. Therefore, this information has been relocated to a new section within the part of the standard that specifically applies to the “designation” of the car controls. Because this text has simply been relocated, it will not result in any technical changes between the two editions of the standard. It may also be possible that relocating this information will make this requirement more apparent, since casual observation shows that it seems to be a provision that is often not followed.

Section 407.4.7.1.2 has added one sentence to the end of the paragraph that does represent a change from the previous standard and will affect how the buttons are marked. The added sentence indicates that letters may be used in conjunction with the numbers but that the primary designation is numeric. The addition of letters may help identify levels based on that secondary alphabetic designation. For example, where the negative floor is

a basement or a parking garage, this would allow it to be designated with a B or with a P. These levels would then be shown as either “-1B” or “-1P” or some other similar appropriate alphabetic character.

Based on the wording, the provision’s intent is that numeric characters must be used but that letters may be used in conjunction with the numerals, but only in an ancillary capacity. Therefore, where letters are used, they should only be used in conjunction with numerals, and they must be located to the right side of the number. The provision also limits the use of letters to a maximum of two characters for each floor designation. This would then allow a designation such as “-1LL” to designate that the floor was the lower level or lower lobby and located one floor below the main entry floor. Limiting the maximum number of letters for each floor will allow elevator users to quickly identify the desired floor, which would then be reproduced in the raised character and braille designation adjacent to the control button.

407.4.9.1.1

Size of Elevator Car Position Indicators



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CHANGE TYPE: Modification

CHANGE SUMMARY: The size of the visible characters that indicate the elevator car position has been increased from $\frac{1}{2}$ inch to $\frac{5}{8}$ inch.

2017 STANDARD: **407.4 Elevator car requirements.**

407.4.9 Car position indicators.

407.4.9.1 Visible indicators.

407.4.9.1.1 Size. Characters shall be $\frac{5}{8}$ inch (13 mm) minimum in height.

CHANGE SIGNIFICANCE: Although this change may seem to be relatively minor, this topic comes up often, so it is being addressed here as a significant change.

With an elevator car, audible and visible car position indicators are provided so that users are aware of the floor where an elevator has stopped. Where the indicators are visible, the standard had previously required the size of the characters on the indicator to be a minimum of $\frac{1}{2}$ inch in height. The A117.1 standard will now increase that minimum height requirement to be $\frac{5}{8}$ inch for the characters in order to make them more visible and apparent to the elevator occupants.

The primary reason for this change is that the elevator standard (ASME A17.1/CSA B44) included the $\frac{5}{8}$ -inch size requirements for jurisdictions that enforced the National Building Code of Canada. A subcommittee that works on the Canadian standard had identified this difference between the American and Canadian standards, and therefore the elevator industry submitted this change to harmonize the requirements from the A117.1 and the ASME A17.1/CSA B44 standard. The larger character size will not only synchronize the requirements between the two countries, but will also provide greater accessibility.

CHANGE TYPE: Modification

CHANGE SUMMARY: This modification adds a direct reference to mandate that the elevator provides a complying clear floor space within the car. It also provides a new exception to coordinate with the ADA for existing buildings.

2017 STANDARD: 408.4.1 Inside dimensions. Elevator cars shall provide a clear floor width of 42 inches (1065 mm) minimum. The clear floor area shall not be less than 15.75 square feet (1.46 m²). The elevator car shall provide a clear floor space complying with Section 305.3.

Exceptions:

1. For installations in existing buildings, elevator cars that provide a clear floor area of 15 square feet (1.4 m²) minimum, and provide a clear inside dimension of 36 inches (915 mm) minimum in width and 54 inches (1370 mm) minimum in depth, shall be permitted. This exception shall not apply to cars with doors on adjacent sides.
2. For installations in existing buildings, elevator cars that provide a clear width of 51 inches (1295 mm) minimum, a clear depth of 51 inches (1295 mm) minimum and car doors providing a clear opening 36 inches (915 mm) wide minimum shall be permitted.

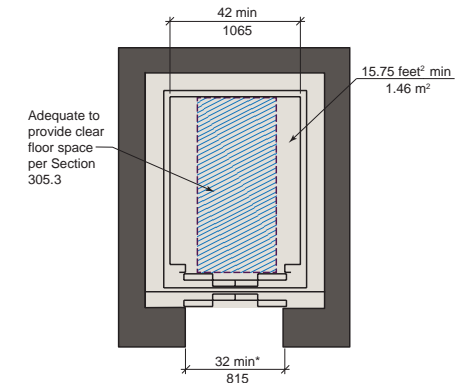
CHANGE SIGNIFICANCE: The revision to the base paragraph makes two changes that will affect the application. The first portion of this change corrects a problem that came up with the changes made when the 2009 edition of the standard was developed.

The 2003 edition of the standard required both a minimum width and a minimum depth for the elevator car. Due to revisions made in the 2009 edition of the standard, the base paragraph specified a minimum width and a minimum floor area but did not specify a minimum depth. Given the two controlling factors (minimum width and minimum area), there were a few possible car arrangements that would have met the specified size requirements, but that would not have provided an adequately sized clear floor space within the elevator. Therefore, the primary purpose of the revision to the base paragraph is to simply ensure that the elevator is large enough to accommodate the minimum clear floor space within the car and thus allow a person in a wheelchair to be able to fit into the elevator.

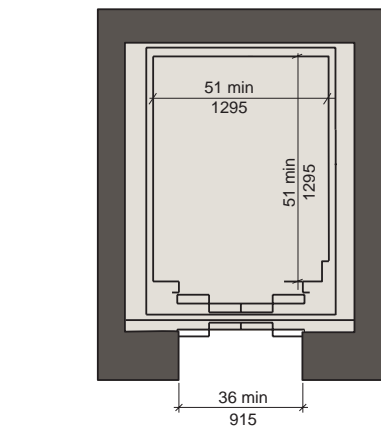
While this initial change was being made, it was based on the assumption of a 48-inch depth for the clear floor space. Due to the direct reference to Section 305.3, this section is also affected by the change that occurred in the building block section that now requires the clear floor space to be a minimum of 52 inches in depth. This second aspect of the revision will not affect a LULA elevator car that is built closer to the minimum width requirements, since a 42-inch minimum width elevator would need to be a minimum of 54 inches in depth to provide the mandated minimum 15.75 square feet of floor area. However, as the width gets wider, the depth provided by the minimum area elevator car would not be adequate to provide a complying clear floor space within the car. For example, an elevator car with a width of 46 inches would only need a depth of approximately 49.3 inches to meet the minimum width and area requirements, but that depth dimension could not accommodate a wheelchair that needed a 52-inch clear floor space. Therefore, this base paragraph of the standard

408.4.1

Inside Dimensions for LULA Elevator Cars



New buildings



Existing buildings – Exception 2

408.4.1 continues

408.4.1 continued

now specifies that the elevator car must provide a minimum clear width, a minimum floor area and also be adequate to provide a complying clear floor space.

A second exception has been added into the standard that brings back an exception and car configuration allowed under the 2003 edition of the standard. This exception had been removed in the 2009 standard since it was unnecessary due to the requirements within that edition of the standard. This exception is limited to use in existing buildings, but it will permit an elevator car with a minimum width of 51 inches and a minimum depth of 51 inches. The size of this car configuration results in an elevator that exceeds both the minimum width and minimum floor area, but it would not be adequate to provide the required 52-inch depth needed for the clear floor space. However, since the exception is limited to existing buildings, and the standard previously used a 48-inch clear floor space, this exception helps to coordinate the A117.1 standard with the federal ADA provisions and to accept a configuration that is permitted under the federal requirements. The ADA still uses a 42-inch minimum width and 54-inch minimum depth for the general LULA requirement as was used in the 2003 edition of the A117.1. While the 42-inch by 54-inch car configuration would satisfy all of the base requirements from the A117.1 standard – width, floor area and clear floor space – the exception does provide a larger floor area and has previously been accepted by both the A117.1 and the ADA and continues to be accepted by the ADA. Adding the exception to the A117.1 standard therefore allows a LULA elevator, which is currently permitted by the ADA, but with an added limitation of only applying to installations in existing building.

CHANGE TYPE: Modification

CHANGE SUMMARY: The minimum depth of a private residence elevator being installed in a new building has been increased to 52 inches. Existing buildings may continue to use the previously allowed 48-inch minimum depth.

2017 STANDARD: 409.4.1 Inside dimensions.

409.4.1.1 New buildings. In new buildings, elevator cars shall provide a clear floor area 36 inches (915 mm) minimum in width and 52 inches (1322 mm) minimum in depth.

409.4.1.2 Existing buildings. In existing buildings, elevator cars shall provide a clear floor area 36 inches (915 mm) minimum in width and 48 inches (1220 mm) minimum in depth.

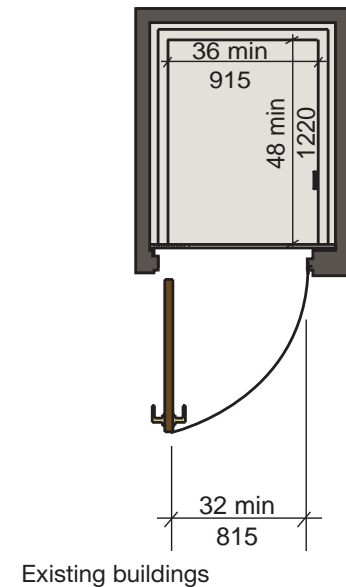
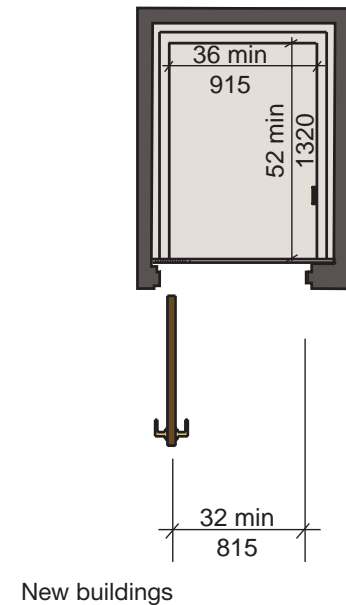
CHANGE SIGNIFICANCE: The size of a private residence elevator installed in a new building is being increased in order to accommodate the larger clear floor space that is required by the building block provisions of Section 305.3. Because the standard has increased the clear floor space size and now requires a 52-inch minimum length as opposed to the previously allowed 48-inch minimum, the size of a private residence elevator is being increased to allow for the larger wheeled mobility devices to fit into the elevator.

Since the increased size requirement could have a significant cost impact on existing buildings and may not be possible to provide, given structural and other limitations in the existing building, the committee decided to split the provisions into a section for new buildings and one for existing buildings. This concept and distinction between new and existing buildings is used in a number of places throughout the standard and has been discussed previously.

The existing building provisions will leave in place the 48-inch minimum depth requirement that was found in the 2009 and earlier editions of the standard. Where a private residence elevator is being installed in a new building, it is anticipated that the building design can be made to allow for the larger 52-inch length that is required by Section 409.4.1.1.

409.4.1

Inside Dimensions for Private Residence Elevator Car



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410.5.1

Platform Lifts with Single Doors or Doors on Opposite Ends



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CHANGE TYPE: Modification

CHANGE SUMMARY: The depth of a platform lift being installed in a new building has been increased to 52 inches. Existing buildings may continue to use the previous 48-inch minimum depth.

2017 STANDARD: **410.5.1 Lifts with single door or doors on opposite ends.**

410.5.1.1 New buildings. In new buildings, platform lifts with a single door or doors on opposite ends shall provide a clear floor width of 36 inches (915 mm) minimum and a clear floor depth of 52 inches (1322 mm) minimum.

Exception: Incline platform lifts with passenger restraining arms, shall be permitted to provide a clear floor width of 36 inches (915 mm) minimum and a clear floor depth of 48 inches (1220 mm) minimum.

410.5.1.2 Existing buildings. In existing buildings, platform lifts with a single door or with doors on opposite ends shall provide a clear floor width of 36 inches (915 mm) minimum and a clear floor depth of 48 inches (1220 mm) minimum.

CHANGE SIGNIFICANCE: The size of a platform lift installed in a new building is being increased in order to accommodate the larger wheeled mobility devices that led to the change in the building block provisions of Section 305.3 for a clear floor space. Because the standard has increased the clear floor space size and now requires a 52-inch minimum length as opposed to the previously allowed 48-inch minimum, the size of a platform lift is being increased to allow for the larger wheeled mobility devices to fit.

Since the increased size requirement could have a significant cost impact on existing buildings and may not be possible to provide, given structural and other limitations in the existing building, the committee decided to split the provisions into a section for new buildings and one for existing buildings. This concept and distinction between new and existing buildings is used in a number of places throughout the standard and has been discussed previously.

The existing building provisions of Section 410.5.1.2 will leave in place the requirements from the 2009 edition of the standard. The 48-inch minimum depth requirement permitted for existing buildings was found in the 2009 and earlier editions of the standard. Where the platform lift is being installed in a new building, it is anticipated that the building design can be made to allow for the larger 52-inch length that is required by Section 410.5.1.1.

CHANGE TYPE: Modification and Addition

CHANGE SUMMARY: The parking requirements have been supplemented by the inclusion of provisions related to on-street parking. The previous parking provisions are now viewed as being applicable to parking lots.

2017 STANDARD: Section 502 Parking Spaces

502.1 General. Accessible Car and van parking spaces in parking lots shall comply with Section 502.2 through 502.8. Car and van parking spaces provided as part of on-street parking shall comply with Sections 502.9 and 502.10. Where an electrical vehicle charging station is provided at a parking space, it shall comply with Section 502.11.

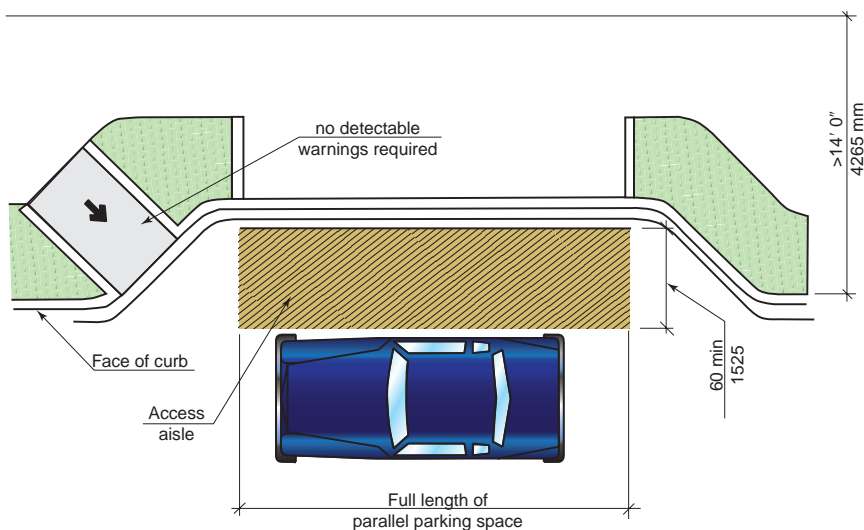
502.9 Parallel parking spaces. On-street parallel parking spaces shall comply with Section 502.9.1. On-street perpendicular or angled parking shall comply with Section 502.9.2.

502.9.1 Wide sidewalks. Where the width of the adjacent sidewalk or available right-of-way exceeds 14 feet (4265 mm), an access aisle 60 inches (1525 mm) wide minimum shall be provided at street level the full length of the parking space and shall connect to a pedestrian access route. The access aisle shall comply with Section 502.4 and shall not encroach on vehicular travel lanes.

502.9.1.1 Alterations. In alterations where the street or sidewalk adjacent to the parking spaces is not altered, an access aisle shall not be required provided the parking spaces are located at the end of the block face.

502.9.1.2 Narrow sidewalks. An access aisle is not required where the width of the adjacent sidewalk or the available right-of-way is less than or equal to 14 feet (4265 mm). Where an access aisle is not provided, the parking spaces shall be located at the end of the block face.

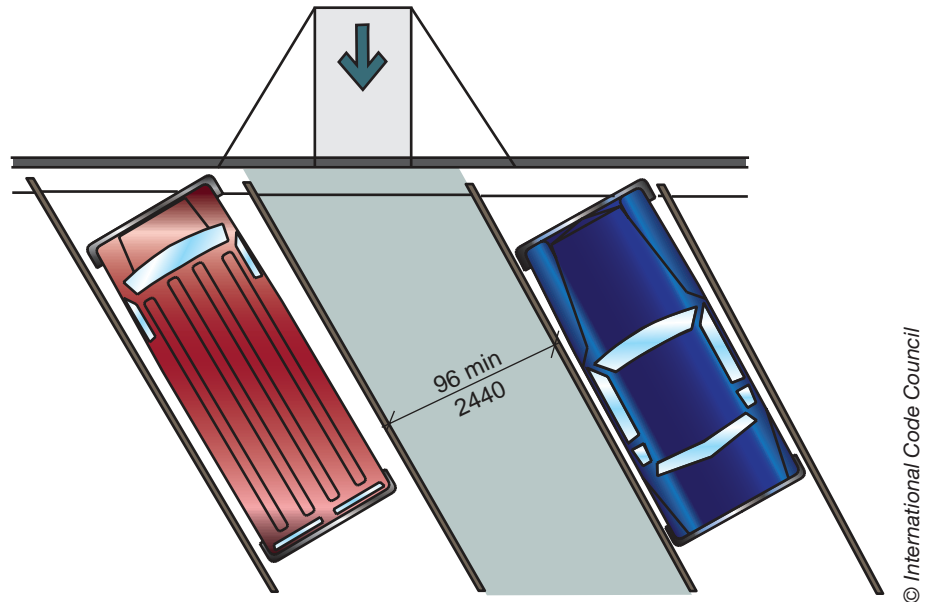
502.1, 502.9 continues



Parallel parking – Wide sidewalk

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502.1, 502.9 Parking Spaces

502.1, 502.9 *continued*

Perpendicular or angled parking

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502.9.2 Perpendicular or angled parking spaces. Where perpendicular or angled parking is provided, an access aisle 96 inches (2440 mm) wide minimum shall be provided at street level the full length of the parking space and shall connect to a pedestrian access route. The access aisle shall comply with Section 502.4 and shall be marked so as to discourage parking in the access aisle. Two parking spaces are permitted to share a common access aisle.

CHANGE SIGNIFICANCE: These changes modify the existing parking provisions of the standard so that they are now applicable only to parking lots. Where the parking is provided on-street, the newly added provisions of Section 502.9 will be applied. Section 502.1 has been modified to provide the scoping to direct the designers of parking lots to use Sections 502.2 through 502.8, while on-street parking designers are directed to Sections 502.9 and 502.10.

In general, the existing provisions for parking in Sections 502.2 through 502.8 remain virtually unchanged, with only a few editorial revisions. The standard previously did not provide guidance or technical requirements related to on-street parking. Therefore this type of parking was either viewed as not having any technical requirements, or the general provisions had to be applied even though they were often times ineffective or inappropriate for on-street parking.

The newly added on-street parking provisions in Section 502.9 were developed as a part of the proposed federal PROWAG. They have been included into the A117.1 standard in order to coordinate with the federal requirements and in recognition of the fact that the standard's previous parking requirements did not adequately address the on-street parking issue. The on-street parking requirements are separated into two sections: Section 502.9.1, which applies to parallel parking, and Section 502.9.2, which deals with perpendicular or angled on-street parking. Section 502.9.1 for parallel parking is then divided into two separate sections that depend on the width of the sidewalk or right-of-way.

Where the width of the sidewalk or available right-of-way exceeds 14 feet, the “wide sidewalk” provisions that require an access aisle are to be applied. Having the parking space the width of the vehicle plus the width of the access aisle will allow vehicles to park at the curb or at the parking lane boundary. This allows the driver to park so that the access aisle can serve either the driver’s side or passenger’s side of the vehicle. If the sidewalks are “narrow” (14 feet or less in width), then an access aisle is not required, and the accessible parking is required to be provided at the end of the block so the users have access to the curb ramps and transitions at the intersection.

The alteration section for wide sidewalks provides an exemption for the access aisle requirement when the street or sidewalk adjacent to the space is not being altered. Under these alteration provisions, the accessible parking spaces are then located at the end of the block in a manner similar to those in the “narrow sidewalks” of Section 502.9.1.2.

Users of this standard may notice a difference between Figure 502.9.2 and the figure that was originally released as a part of the federal NPRM (Notice of Proposed Rulemaking) as Figure R309.3 from the PROWAG requirements. The distinction is that the width of the access aisle should be the actual width of the aisle (measured perpendicular to the edge of the aisle) as opposed to being a horizontal measurement made at the opening into the access aisle (parallel with the curb or traffic lane boundary). The 8-foot minimum width access aisle for perpendicular or angled parking is essentially the same requirement as found in the Exception to Section 502.2. It would be inappropriate to make the access aisle anything less than 8 feet minimum in width, which would be the result if the measurement is not made at a perpendicular angle to the edge of the aisle. With the perpendicular or angled parking spaces, the access aisle may be located to either side of the vehicle, driver’s or passenger’s side, and two spaces are allowed to share a common access aisle. Having an access aisle adjacent to the parking space, even with angled parking, permits the deployment of a van side-lift or ramp.

502.10

Parking Meters and Parking Pay Stations



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CHANGE TYPE: Addition

CHANGE SUMMARY: Provisions have been added to address the location and access to on-street parking meters and parking pay stations.

2017 STANDARD: **502.10 Parking meters and parking pay stations.** Parking meters and parking pay stations that serve parking spaces shall comply with Section 309.

502.10.1 Location. At parallel parking spaces, parking meters shall be located at the head or foot of the parking space.

502.10.2 Displays and information. Displays and information shall be visible from a point located 40 inches (1015 mm) maximum above the center of the clear space in front of the parking meter or parking pay station.

CHANGE SIGNIFICANCE: These requirements related to parking meters and parking pay stations were added to help coordinate the A117.1 standard with the proposed federal PROWAG requirements. Unless the jurisdiction has created separate scoping provisions to address where Section 502.10 is applicable, these provisions will only apply to on-street parking and not to parking lots, based on the text of Section 502.1. This would coordinate the standard with the scope of the federal PROWAG requirements, which place these provisions within the regulations for on-street parking. What will differ between the federal provisions and those of the A117.1 is that this requirement would be applied to parking meters serving streets on private property developments and not just to those streets that are part of the public right-of-way.

These new provisions provide three basic sets of requirements: (1) the parking meter or pay station must comply with the operable parts requirements of Section 309; (2) the location of the meter or station is restricted to either end of the parking space and (3) the meter's or station's display and information must be visible from a height of 40 inches so a person seated in a wheelchair or of short stature can see it.

The reference to the operable parts requirements should not be a surprise and is appropriate. If a person needing access uses the parking meter or pay station, then Section 309 contains several requirements to assist them. Primarily this would include (1) the need for a clear floor space adjacent to the element, (2) that the operable parts be located within the reach range and (3) that the element can be operated with a minimum amount of force and without “tight grasping, pinching, or twisting of the wrist.”

Locating the parking meter at either the head or foot of the parking space ensures that the parking meter does not block the swing of an opening car door, keeps the area near doors clear to allow vehicle occupants to transfer to a wheelchair or scooter, and permits deployment of a van side-lift or ramp. If the parking meter were located within the mid portion of the adjacent parking space, it likely would create an obstruction that would limit access to the vehicle or require the vehicle to be parked ahead or behind the obstruction and thereby occupy additional space.

The information and display height limit simply ensures that any display is located at an appropriate viewing level so it can be seen by a user in a wheelchair. This 40-inch height limitation is used elsewhere in the standard where viewing is needed including mirrors (Section 603.3) and automatic teller machine display screens (Section 707.7.1).

CHANGE TYPE: Addition

CHANGE SUMMARY: This change provides a new section to regulate electrical vehicle charging stations and to make sure they are both accessible and usable. The provision applies to both parking lots and on-street parking.

2017 STANDARD: **502.11 Electrical vehicle charging stations.** An electrical vehicle charging station serving a parking space shall comply with Section 502.11.

502.11.1 Operable parts. Operable parts on the charging station intended for operation by the user, including card readers, shall comply with Section 309.

502.11.2 Accessible route. An accessible route shall be provided from the access aisle adjacent to the parking space to the clear floor space complying with Section 502.11.1 adjacent to the vehicle charging station. When the vehicle is being charged, the accessible route shall not be obstructed by the cable between the car and charging station.

502.11.3 Obstructions. Protection bollards, curbs or wheel stops shall be located so that they do not obstruct the clear floor space required by Section 502.11.1 or the accessible route required by Section 502.11.2.

CHANGE SIGNIFICANCE: There is a growing demand for and use of electric vehicles. Charging stations for these vehicles are appearing in parking facilities, and various cities and states are developing differing and unique provisions for such charging facilities. Therefore, the A117.1 committee elected to provide this section for guidance. It also recognized that changes may be necessary in the future after the release of a safety standard, which is currently being developed by the electric-vehicle industry. As an example, because the different electric cars that are currently on the market are not consistent on where the electrical cable plug-in is located, the orientation of the vehicle is not addressed. However, it is assumed the electrical charging station will be located where it will not obstruct the access aisle or the accessible route (see Section 502.11.2 and Section 502.11.3).

Previously the standard did not provide any technical requirements or guidance regarding how electrical vehicle charging stations should be made accessible. These new provisions will regulate the operable parts of the equipment and ensure that both an accessible route is provided from the access aisle to the equipment and that it is located so that the accessible elements are not obstructed. In general, since most of these issues related to parking spaces and operable parts are covered in other sections of the standard, there was no need to duplicate or add provisions to this section except where differences were appropriate. Two examples of where specific items were addressed are the second sentence of Section 502.11.2, which ensures the charging cable does not obstruct the accessible route between the car and the charging station, and the specific inclusion of the “card reader” within Section 502.11.1.

The reference from Section 502.11.1 to Section 309 will result in the charging station being provided with a clear floor space adjacent to it, that the operable parts are within the appropriate reach range, and that the equipment can be operated within the force limitations and without

502.11

Electrical Vehicle Charging Stations



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502.11 continues

502.11 continued “tight grasping, pinching, or twisting of the wrist.” The exception within Section 309.4 is not applicable to these charging stations since they are not “gas pump nozzles.”

These new A117.1 provisions were developed after the committee examined the guidelines set by Hawaii, California and New York related to these elements. A117.1 Section 502.11.1 does include a provision that card readers need to comply with Section 309. This was done since one of the states allows operable parts to be 54 inches in height, which would exceed the limitations generally used with the A117.1 standard.

One issue that is not covered within the standard but is a good topic of discussion for these items is the scoping provisions and where the charging stations are required to be accessible. Under the ADA requirements, it would be expected that if charging stations were provided at non-accessible spaces, then charging stations would also be provided at some accessible parking spaces in order to be equitable. Under the IBC, the parking stalls for electrical vehicle charging would typically be viewed as a separate type of parking facility (see IBC Section 1106). This would require the space to be accessible either based on the percentage of the total spaces or as required by Table 1106.1, depending on the occupancy. It would therefore be expected that at least one charging station and electrical vehicle parking space would be accessible. With the generally limited number of spots provided for electrical vehicle charging stations, it would be important to remember the signage requirements of IBC 1111.1 item 1. Where there are only four or fewer charging spaces provided, this would allow the charging station equipment, parking space and access aisle to be constructed as an accessible parking space, but the IBC section would not require the posting as an accessible space, which would restrict other people from using the stall. If the accessible parking space at the vehicle charging station is posted with a sign, it would restrict the space to being used only by people who have an accessible placard. Therefore, where only a few spaces are provided (4 or fewer), marking the space as accessible-only would place a great restriction on the number of people who would be able to use that space and charging station.

CHANGE TYPE: Modification

CHANGE SUMMARY: The width of the access aisle for a passenger loading zone has been increased for new buildings and facilities. The length of the access aisle for all loading zones has also been modified.

2017 STANDARD:

503.3.2

Access Aisle for Passenger Loading Zones

SECTION 503 PASSENGER LOADING ZONES

503.3 Access aisle.

503.3.2 Width.

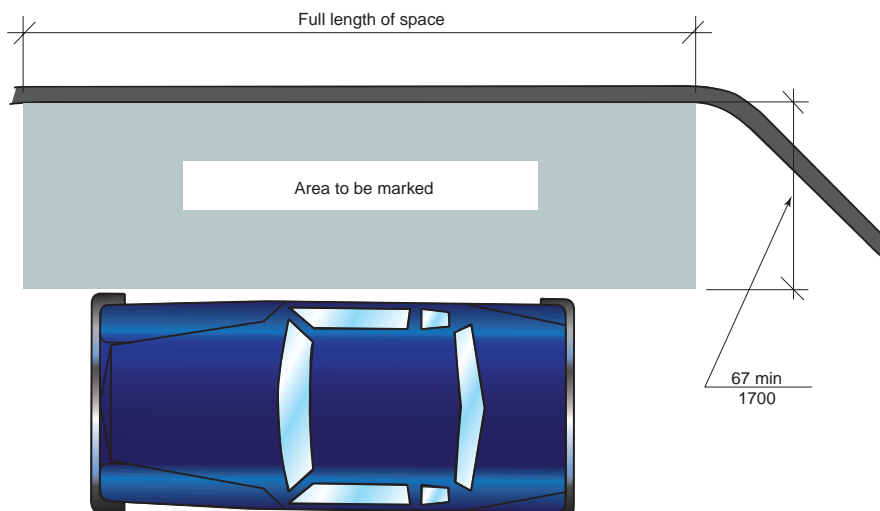
503.3.2.1 New buildings and facilities. In new buildings and facilities, aisles serving vehicle pull-up spaces shall be 67 inches (1700 mm) minimum in width.

503.3.2.2 Existing buildings and facilities. In existing buildings and facilities, access aisles serving vehicle pull-up spaces shall be 60 inches (1525 mm) minimum in width.

503.3.3 Length. Access aisles shall be 20 feet (6095 mm) minimum in length extend the full length of the vehicle pull-up spaces they serve.

CHANGE SIGNIFICANCE: Where a loading zone is required or provided in new buildings or facilities, the width of the access aisle adjacent to the pull-up spot has been increased from 60 inches to a minimum of 67 inches. This change was made as a part of the Wheeled Mobility Task Group's (WMTG) effort to accommodate the larger wheeled mobility devices (wheelchairs and scooters) that are being used now. The larger circular turning space dimension of 67 inches was placed into the building block provisions of Section 304 and subsequently increases were made throughout the code, in locations such as the loading zone access aisle, where the users would be making turns. At an existing loading zone and where the

503.3.2 continues



Passenger loading zone – New buildings

503.3.2 *continued*

loading zone is constrained due to being at an existing building or facility, the previously permitted 60-inch minimum width will be acceptable for the access aisle.

The access aisle for the loading zone was increased, while the access aisle serving parking spaces was not. Originally both of these access aisles were increased to 67 inches minimum in width during the standard's development process. The committee ultimately revised the parking stall access aisle back to the previous 60-inch width due to the potential impact the size increase would cause for parking spaces. When looking at the number of parking spaces required to be accessible for hospitals or rehabilitation/physical therapy facilities, the committee saw that the larger access aisle would dramatically add to the size of the parking lot or to the facility reducing the number of spaces provided. Generally, there are only a few or perhaps only a single loading zone being provided, and therefore the size impact for the larger access aisle width for the loading zone is not a great burden. Also, the parking space access aisle was not increased because the T-shaped turning space does provide options that can fit within a 60-inch-wide space. Again, the limited number of loading zones made less of an impact on the overall site design, and therefore the larger access aisle and turning spaces were used for them.

The language related to the length of the access aisle has primarily been revised to coordinate with the requirements of the ADA. The A117.1 standard had previously used a 20-foot minimum length but would have accepted longer lengths. One problem with the length being specified at 20 feet minimum is that if the drop-off area was built to that minimum provision, it did not ensure that the access aisle would properly serve a longer vehicle or perhaps vehicles that had their doors for loading or unloading at a variety of differing locations. Since some vehicles may have doors located near the front, middle or back of the vehicle, there was no assurance the access aisle would be located where it was needed for that specific vehicle. By requiring the access aisle to match the full length of the vehicle at the loading zone, the standard ensures that mobility-device users will be able to load or unload regardless of the door's location.

The previously required 20-foot length also created a compliance problem where smaller vehicles and loading zones were used. Mandating a 20-foot minimum length in some situations resulted in the access aisle being longer than the vehicle and therefore affecting parking lot and circulation layouts. By using the requirement for the full vehicle length, the A117.1 standard will coordinate with the federal requirement and eliminate potential confusion, conflicts and inadequate designs.

CHANGE TYPE: Modification

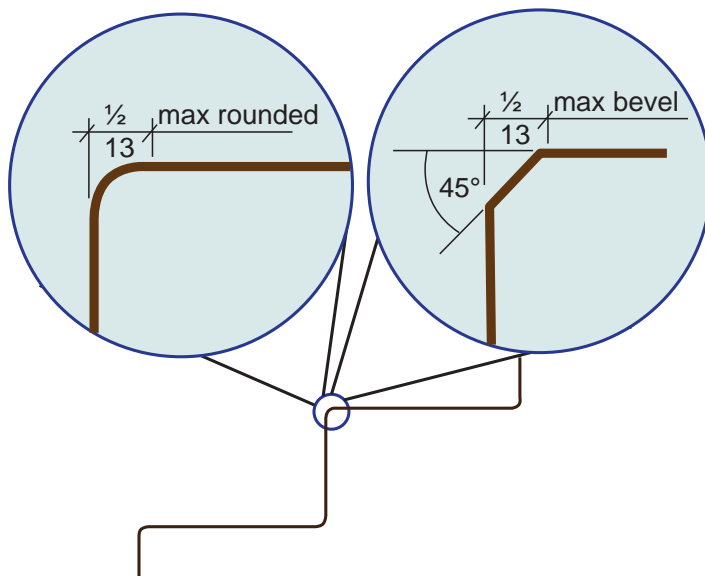
CHANGE SUMMARY: This revision reformats the existing nosing requirements in a clearer and more easily understood way. The arrangement of a beveled nosing has been modified to limit the reduction of the tread depth.

2017 STANDARD: 504.5 Nosings. Nosings shall comply with the following:

1. Nosings within a stairway shall be uniform.
2. If rounded, the radius of curvature at the leading edge of the tread shall be $\frac{1}{2}$ inch (13 mm) maximum.
3. If beveled, the bevel at the leading edge shall slope at 45 degrees to the plane of the top surface of the tread and landing and extend for a horizontal distance of $\frac{1}{2}$ inch (13 mm) maximum.
4. Nosings that project beyond risers shall have the underside of the leading edge curved or beveled.
5. Risers shall be permitted to slope under the tread at an angle of 30 degrees maximum from vertical.
6. The permitted projection of the nosing shall be $1\frac{1}{2}$ inches (38 mm) maximum over the tread or floor below.

CHANGE SIGNIFICANCE: The most apparent aspect of this change is the reformatting of the existing provisions into a clearer more concise arrangement so that the specific requirements and their application is more apparent. These revisions began as an effort to coordinate the provisions of the standard with changes that had been made in the building code. The most significant of the technical revisions is that the bevel at the nosing has been limited to a 45-degree slope, and the distance the bevel can extend from the nosing is a $\frac{1}{2}$ -inch maximum. The importance of the bevel angle is that as the angle increases, a larger portion of the tread surface

504.5 continues



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504.5

Stairway Nosings

504.5 continued

remains. This provides a larger area for the placement of the foot, and the ball of the foot can be supported on the tread and not overhang the nosing or where the tread begins to fall away at the nosing. Although not stated within the text, a larger angle from the horizontal plane along with a reduced horizontal distance should be accepted since it would continue to increase the tread depth up to the point where the tread and riser intersect.

Having uniform nosings on all treads and the landings provides a consistently sized tread and leads to greater stairway safety. This requirement is reflected in item 1 of the new list and is consistent with the intent of the nosing uniformity requirements that were in previous building codes. The wording for the requirement in the standard may be a little better than the building code's simply because the expectation that the nosing is "uniform" will regulate both the distance the nosing extends and also the profile (curvature or bevel) of the nosing. While it may be argued that the building code has the same intent, the language within the IBC would seemingly only limit the nosing "projection" to being a uniform size.

While the overall technical changes for the nosing provisions may not appear to be very important, they should be viewed as a significant change and noticed by all users of the standard due to the frequency this issue comes up, and due to the importance the changes have on stairway safety.

CHANGE TYPE: Modification

CHANGE SUMMARY: The modification provides better consistency on how the contrast and illumination provisions are applied. This consistency should improve stairway safety.

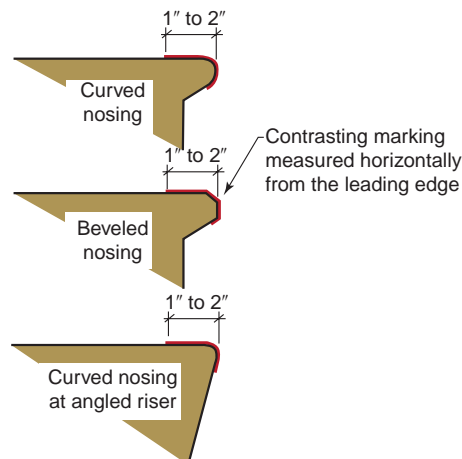
2017 STANDARD: ~~504.5.1~~ **504.6 Visual contrast.** The leading 2 inches (51 mm) of the tread shall have visual contrast of dark-on-light or light-on-dark from the remainder of the tread. Visual contrast shall comply with either 1 or 2:

1. The leading 1 to 2 inches (25 to 51 mm) of every tread and landing, measured horizontally from the leading edge of the nosing, shall consist of a solid color having visual contrast of dark-on-light or light-on-dark from the remainder of the tread. The contrasting marking shall be durable, and shall extend from one side of each tread to the other side of each tread.
2. Durable distinctive warning markings required by the adopted building code or ANSI safety standard.

~~504.8.1~~ **504.9.1 Illumination level.** Lighting facilities shall be capable of providing ~~10 foot-candles (108 lux)~~ of illuminance of stairs measured at the center of tread surfaces and on landing surfaces within 24 inches (610 mm) of step nosings as follows:

1. A 1 foot candle (10.8 lux) minimum illumination at times other than conditions of stair use
2. A 10 foot candle (108 lux) minimum illumination during conditions of stair use
3. The transition from 1 foot candle (10.8 lux) to 10 foot candle (108 lux) under conditions of stair use shall be permitted to be achieved by automatic, motion sensor-type lighting switches provided the switch controllers comply with all of the following:
 - 3.1 The switch controllers are equipped for fail-safe operation and evaluated for this purpose
 - 3.2 The motion sensor is activated by occupant movement on the stair or stair landings

504.6, 504.9.1 continues



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504.6, 504.9.1

Visual Contrast and Illumination Levels for Stairways

*504.6, 504.9.1 continued*3.3 The illumination timers are set for a minimum 15-minute duration.

CHANGE SIGNIFICANCE: In some ways, the visual contrast changes are a companion change to those found in Section 504.5 dealing with nosings. The primary purpose of both of the changes related to the nosing (Sections 504.5 and 504.6) and also those for illumination (Section 504.9.1) is to make the use of stairways safer by making the stairs more consistent, easily identified and apparent to all users, but especially those with visual impairments. The revisions, although they may somewhat seem incidental, will also provide for greater consistency in their application.

Perhaps the biggest technical change within the visual contrast provisions is simply that they have been modified to include both the stair tread nosing and also the companion nosing that occurs at the top landing. Marking the nosing on the landing will help to make the start of the stairs more apparent. While this leading edge of the landing was often marked similar to stair treads, the language of the previous standard could be viewed as not applying to the nosing of the landing but only to the “treads” of the stair. It is important that this transition from level travel to that of the stairway is marked in order to provide users with the visual clue that the steps begin at that point.

The next important change of this section is simply the clarification of how far the contrasting edge marking is to extend. While the previous language specified a 2-inch distance for the leading edge of the tread, it was sometimes questioned whether that measurement was only applicable to the flat portion of the tread, or whether it would also include the distance created by the curved or beveled edge of the nosing. With the new language, the measurement is clearly made from the leading edge of the nosing and is made in a horizontal direction. At the same time, the previously required 2-inch depth has also been modified to be a range of 1 to 2 inches.

Other changes that result from the revisions within Section 504.6 are a clarification that the contrasting nosing is intended to extend across the entire width of the stair tread, and that in lieu of the prescriptive provisions specified in item 1 of the section, it is permissible to allow the contrasting edge marking to comply with the adopted building code or another recognized ANSI (American National Standards Institute) standard which might address the topic.

The illumination requirement for the stairway helps to clarify not only the appropriate level of the lighting but also how it is to be controlled. The standard has used the 10-foot-candle level of illumination in several of the previous editions. However, because there was a difference between the requirements of the A117.1 standard and the building code, there was uncertainty on how the provisions were applied. The lighting control provisions found in Section 504.8.2 of the 2009 standard (Section 504.9.2 of the current standard) helped give a little clarity but were often overlooked or not understood. Those provisions specifically stated that the 10-foot-candle illumination level was required “prior to any step being used.” That intent has been carried into Section 504.9.1 where the standard indicates that the illumination level for the stairs may be reduced to 1 foot-candle when the stair is not being used, but that the 10-foot-candle provision is the minimum “during conditions of stair use.” This revised text helps ensure that people with low vision will have the lighting levels needed when they are using the stairs and allows the lighting to be reduced to a minimal

level when the stair is not in use. The reduction is also an appropriate energy conservation method but still keeps the illumination at the minimum level required for emergency lighting within the building code.

The new text related to the automatic controls provides additional guidance that is not addressed by Section 504.9.2, including the requirement for a 15-minute minimum duration and a “fail-safe” requirement that would keep the lighting at the 10-foot-candle level if the sensor fails. Some of the requirements for lighting controls in Section 504.9.2 are now included within the new text of Section 504.9.1, which addresses the illumination levels and the controls for the lighting. Section 504.9.2 provides guidance that the lighting controls must help illuminate the entry landing as well as each adjacent stair flight and the landings that are above and below the entry landing. Therefore, although it has not been changed, the extent of the illumination is controlled by Section 504.9.2 and should not be overlooked.

504.10, 504.11

Tactile Signage within Stairway Enclosures and at Exits



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CHANGE TYPE: Modification

CHANGE SUMMARY: This change revises existing provisions to clarify their application within the stairway enclosure while adding a new section to ensure the tactile signage is provided on the outside of the exit doors and at exit doors to other locations.

2017 STANDARD: **504.10 504.9 Stair level identification Tactile signage within the stairway enclosure.** Stair level identification signs in raised characters and braille complying with Sections 703.3 and 703.4 shall be located at each floor level landing in all enclosed stairways adjacent to the door leading from the stairwell into the corridor to identify the floor level. The exit door discharging to the outside or to the level of exit discharge shall have a sign with raised characters and braille stating “EXIT.”

504.11 Tactile signage at exits. A sign stating EXIT in raised characters and Braille and complying with Sections 703.3 and 703.4 shall be provided adjacent to each door to an area of refuge providing direct access to a stairway, an exterior area for assisted rescue, an exit stairway, an exit ramp, an exit passageway and the exit discharge.

CHANGE SIGNIFICANCE: The addition of Section 504.11 and the modification of the existing requirement are made to help coordinate the provisions of the standard with those of the building code. Tactile signage is required by the building code both on the inside and outside of the stairway enclosure. The previous provisions of the standard (now shown in Section 504.10) only addressed the signage within the stair tower. As noted within the existing text, the provisions addressed the floor-level identification signage within the enclosure and the exit door that allowed the user to leave the stairway to reach the outside.

The new Section 504.11 helps to coordinate with the requirements for exit doors found within the building code. This requirement will apply to exit doors that are not located “within the stairway enclosure” as stated in Section 504.10. This requirement will require tactile signage consisting of both raised characters (A117.1 Section 703.3) and braille (A117.1 Section 704.4) to be provided adjacent to doors that lead to the exits. This includes doors to an exterior area for assisted rescue, an exit stairway, an exit ramp, an exit passageway or doors that lead directly to the exterior of the building, which is considered to be the exit discharge. In general these are the elements that the building code defines and considers as an “exit.” One important distinction however is that it the tactile signage requirement will also apply to a door leading into an area of refuge that then provides direct access to the various exit elements. While this door does not technically meet the definition of an “exit” within the code, it is the door that leads to the exit and the door that the user would encounter and need to identify in order to reach the exit. An example would be an area of refuge that is located in front of an exit stairway enclosure. In that example, users would need to know to go through the area of refuge in order to get to the exit stairway.

CHANGE TYPE: Modification

CHANGE SUMMARY: The provisions for operable windows have been split to provide separate force requirements for (a) the latch and other operable parts and (b) the window opening force. Changes have been made for Accessible and Type A dwelling units to coordinate with the revised general window provisions.

2017 STANDARD: 506.1 General. ~~Accessible windows shall have operable parts complying with Section 309. Where operable windows are provided in an accessible room or space, at least one shall comply with Section 506. Where operable windows are required to provide natural ventilation or operable windows are required to provide an emergency escape and rescue openings, that window shall be the operable window that complies with Section 506.~~

Exceptions:

1. Operable windows that are operated only by employees shall not be required to comply with this section.
2. Operable windows in Type A units that comply with Section 1103.13.
3. Operable skylights shall not be required to comply with this section.

506.2 Operating force. The operating force for windows includes forces for opening, closing, locking or latching, and unlocking or unlatching and shall be determined in accordance with AAMA 513 listed in Section 106.2.11. Operable parts for locking or latching and unlocking or unlatching shall comply with Section 309. The operating force for opening and closing operable windows shall be as follows:

1. 8.5 pounds (37.7 N) maximum for vertical or horizontal sliding windows.
2. 5 pounds (22.2 N) maximum for all other types of operating windows.

1002.9 1102.9 Operable parts. Lighting controls, electrical panelboards, electrical switches and receptacle outlets, environmental controls, appliance controls, ~~operating hardware for operable windows~~, plumbing fixture controls, and user controls for security or intercom systems shall comply with Section 309.

(Exceptions deleted and relocated to Section 309)

1002.13 1102.13 Windows. ~~Windows shall comply with Section 1002.13. Operable windows shall comply with Section 506.1.~~

Exceptions:

1. Windows in kitchens shall not be required to comply with Section 1102.13.
2. Windows in bathrooms shall not be required to comply with Section 1102.13.

506, 1102.9, 1102.13, 1103.9, 1103.13

Windows



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506, 1102.9, 1102.13, 1103.9, 1103.13 continues

506, 1102.9, 1102.13, 1103.9, 1103.13
continued

~~**1002.13.1 Natural ventilation.** Operable windows required to provide natural ventilation shall comply with Sections 309.2 and 309.3.~~

~~**1002.13.2 Emergency escape.** Operable windows required to provide an emergency escape and rescue opening shall comply with Section 309.2.~~

~~**1003.9 1103.9 Operable parts.** Lighting controls, electrical panelboards, electrical switches and receptacle outlets, environmental controls, appliance controls, ~~operating hardware for operable windows~~, plumbing fixture controls, and user controls for security or intercom systems shall comply with Section 309.~~

(Exceptions deleted and relocated to Section 309)

~~**1003.13 1103.13 Windows.** Operable Windows shall comply with Section 1103.13.~~

Exceptions:

1. Windows in kitchens shall not be required to comply with Section 1103.13.
2. Windows in bathrooms shall not be required to comply with Section 1103.13.

~~**1003.13.1 1103.13.1 Natural ventilation.** Operable windows required to provide natural ventilation shall comply with Sections 309.2 and 309.3.~~

~~**1003.13.2 1103.13.2 Emergency escape.** Operable windows required to provide an emergency escape and rescue opening shall comply with Section 309.2.~~

CHANGE SIGNIFICANCE: The following discussion does get lengthy, but it is appropriate that the topic of windows be discussed at one time so the user can see the effect of the changes and how they were coordinated throughout the standard. The question of which windows are expected to be accessible and operable has varied based on the language in the standard and the interpretational differences between windows that are “provided” and “required.” These revisions not only help to improve the scoping as to which operable windows are required to be accessible, but also how they are to be evaluated.

Perhaps the most significant portion of this change is found within Section 506.2, where the standard distinguishes between the appropriate force for the operable parts on the windows and the operational forces to open and close the windows themselves. In addition, this section references the AAMA 513 standard as the appropriate means to measure the forces and how they are determined.

Under the previous A117.1 standard, accessible windows were directed to comply with Section 309 for the “operable parts,” which in turn imposed the 5-pound maximum force limit. It was not clear whether that limitation was applicable to opening the window itself, or whether it was only for the operable parts (locks, latches, etc.) that allowed the window to be opened. With windows now having to meet greater energy ratings (consider better sealing, along with double-pane or triple-pane glazing as opposed to single-pane glass), and increased requirements for wind resistance, the weight and operation of the windows are substantially different than they were many years ago.

The reference to the AAMA (American Architectural Manufacturers Association) 513 will provide a consistent way to measure the forces required to open, close, lock and unlock many types of operable windows. This should improve compliance simply due to prescribing how the force requirements are evaluated and providing a consistent means of applying and measuring the force. Section 506.2 directs the operating hardware for locking and latching the window to comply with Section 309 and the 5-pound force limits found there. Depending on the window style and how it opens, the text continues by saying an 8.5-pound force is the maximum permitted for opening or closing vertical or horizontal sliding windows, while other types of operable windows, such as awning, hopper or casement, must use a 5-pound maximum force.

Section 506.1 sets two specific requirements before granting three exceptions that will exempt certain windows from the provisions. The first sentence of this section provides a bit of scoping but in essence simply reminds the standard user of the issue of equivalency, which is so important in accessibility requirements. The standard does not require operable windows, but where they are provided in accessible rooms or spaces, then “at least one” window is expected to comply. The second sentence then ensures that if an operable window is used to provide required natural ventilation or as the required emergency escape and rescue opening, then that window must be the accessible operable window. It is reasonable that if these windows are required and required to be operable, they must be usable by the occupants of the accessible spaces in order to serve their intended purpose.

The exceptions in Section 506.1 provide an exemption for windows under the three conditions. The first exception is intended to coordinate with the requirements of ADA Section 229, which regulates the windows when they are “for operation by occupants.” Therefore, an exemption for being operated only by employees is appropriate. The second exception for Type A units recognize that provisions within Section 1103 require only the clear floor space and height limits of Section 309 and do not regulate the force for the operable parts. Skylights are also exempted due to their location and the difficulty of providing access to them or the difficulty in providing controls for them at an accessible location.

The Accessible unit provisions of Section 1102 have been modified so they will essentially use the same requirements as windows in public spaces. Since Section 506 deals with window hardware and opening force separately, the phrase “operating hardware for operable windows” has been removed from the general list of operable parts in Section 1102.9. The Type A unit provisions of Section 1103.9 have been modified in a similar manner, but in the case of the Type A units, the window provisions of Sections 1103.13.1 and 1103.13.2 do not impose the force requirements of Section 309.4.

Exceptions have been added for windows in kitchens and bathrooms in Sections 1102.13 and 1103.13 for Accessible and Type A units. Windows in bathrooms and kitchens are typically located above obstructions such as kitchen counters, at elevated heights for privacy in bathrooms, or at locations that cannot provide a clear floor space adjacent to the window such as over a water closet, tub or counter. Therefore, operable windows in these two rooms are exempt from the typical accessible window provisions.

507

Accessible Routes through Parking

CHANGE TYPE: Addition

CHANGE SUMMARY: This section is added to provide protection for pedestrians and separate them from vehicular traffic when they use an accessible route in a parking facility.

2017 STANDARD:

SECTION 507

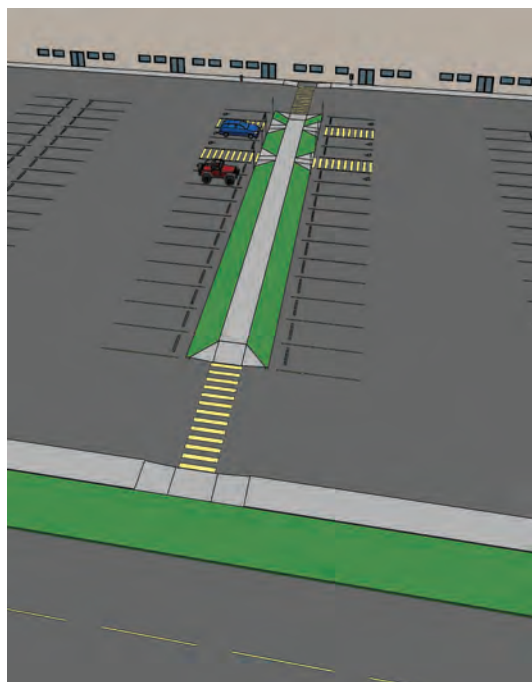
ACCESSIBLE ROUTES THROUGH PARKING

507.1 General. Where accessible routes pass through parking facilities, they shall be physically separated from vehicular traffic.

Exceptions:

1. Accessible routes crossings drive aisles shall not be required to comply with this section.
2. Accessible routes only from parking spaces complying with Section 502 and passenger loading zones complying with Section 503 to accessible entrances shall not be required to comply with this section.

CHANGE SIGNIFICANCE: The intent of this change is to provide a safe means of passage for pedestrians when their accessible path of travel takes them through a parking facility, including both surface parking lots and parking garages. The provisions apply only when the accessible route passes through the parking facility. Therefore, although it may be possible for a direct route through the parking area to be provided, it would also be permissible for a sidewalk around the parking lot to be provided, therefore avoiding this section of the standard entirely. The purpose of the change is to ensure that people moving through areas where vehicles are moving would be adequately protected. Having a protected route across a large parking lot (or a route that would avoid the lot completely) would



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benefit persons who arrive on public transportation or are walking to the building from the public sidewalk (i.e., site-arrival points). When first proposed, the provision addressed all circulation areas such as the entry drive from a public street to the building entrance where the pedestrians may be expected to travel in the vehicular drive aisle instead of on a separated sidewalk. That original proposal was modified, however, to the point that it only regulates the routes where they pass through “parking facilities.” But the basic purpose of the original proposal of protecting people is maintained by the general provisions requiring the accessible route to be “physically separated from vehicular traffic.”

The means of protection is not specified but could be dependent on the specific location and also the judgment of the administrative authority. This could include simply distinguishing a separate route by painting or surfacing materials that create a route separate from the vehicular drive area, or it could include more substantial physical separations using curbs, barriers, railings, landscaping, etc., which would still allow the route to be accessed and used by the pedestrians while keeping them away from moving vehicles.

The intent of the first exception is to allow crosswalks and accessible routes to cross a drive aisle within a parking lot without expecting that path to be “physically separated from the vehicular traffic.” Without this exception, it could force the pedestrian and vehicular paths to be elevated and on different levels, or it could result in barriers that would prevent the vehicle movement through that portion of the drive. While locations where the accessible routes cross the drive aisles should be designed to offer the pedestrians a clear and safe path of travel, laying out the parking facility without an accessible route crossing a drive aisle at some point would be burdensome or impossible to accomplish.

The second exception has been placed into the standard to specifically address parking spaces and passenger loading zones. Those two elements have specific requirements applying to them within Sections 502 and 503

507 continues

507 continued

that should be followed. However, the routes regulated by Section 507 can connect to and join up with the accessible route from the parking spaces and passenger drop offs. The intent of this exception is to reinforce that there should be no obstructions between an accessible parking space and an access aisle if that access aisle happens to coincide with an accessible route from some other point in the parking lot. An example of this situation may be where an accessible route crosses a drive aisle and passes through an access aisle serving a parking or loading space. Another occasion when this exception might be applied regards the issue of whether an accessible route is permitted to pass behind a vehicle. While it may not be the preferred application, there is nothing within the A117.1 standard or the ADA that would prevent an accessible route from passing behind a parked vehicle. Although the issue of passing behind parked cars was not the intent of the new provisions or this exception, without this exception, all accessible routes could be forced to the front of the parking stall, since an accessible route behind a vehicle could not be “physically separated from vehicular traffic” and still allow a vehicle to pull into the stall. The intent of this section is not to prohibit pedestrians and vehicles from crossing paths, but simply to ensure that they do not generally use the same path, and where they must coexist, that some level of separation does keep the pedestrians out of the vehicular traffic lanes.

CHANGE TYPE: Modification

CHANGE SUMMARY: This change reorganizes the drinking fountain provisions into two sections to differentiate between the requirements that apply to wheelchair drinking fountains and standing drinking fountains. It clarifies the requirements for children's drinking fountains by placing an exception with each technical subject in the appropriate section.

2017 STANDARD

**SECTION 602
DRINKING FOUNTAINS AND BOTTLE FILLING STATIONS**

602.1 General. Accessible Drinking fountains for persons using wheelchairs shall comply with Sections 602.2 and 307. Drinking fountains for persons who are standing shall comply with Section 602.3 and 307.

602.2 Drinking fountains for persons using wheelchairs. Drinking fountains for persons using wheelchairs shall comply with Section 602.2.1 through 602.2.5.

602.2 602.2.1 Clear floor space. A clear floor space complying with Section 305, positioned for a forward approach to the drinking fountain, shall be provided. Knee and toe space complying with Section 306 shall be provided. The clear floor space shall be centered on the drinking fountain.

Exceptions:

1. Drinking fountains for standing persons.
2. Drinking fountains primarily for children's use shall be permitted where the spout outlet is 30 inches (760 mm) maximum above the floor; a parallel approach complying with Section 305 is provided and the clear floor space provides a parallel approach and is centered on the drinking fountain.

602.3 602.2.2 Operable parts. Operable parts shall comply with Section 309.

602.4 602.2.3 Spout outlet height. Spout outlets of wheelchair accessible drinking fountains shall be 36 inches (915 mm) maximum above the floor. Spout outlets of drinking fountains for standing persons shall be 38 inches (965 mm) minimum and 43 inches (1090 mm) maximum above the floor.

Exception: At drinking fountains primarily for children's use, the spout outlet shall be 30 inches (760 mm) maximum above the floor.

602.5 602.2.4 Spout location. The spout shall be located 15 inches (380 mm) minimum from the vertical support and 5 inches (125 mm) maximum from the front edge of the drinking fountain, including bumpers.

Exception: Where only a parallel approach is provided, At drinking fountains primarily for children's use, the spout shall be located 3¹/₂ inches (90 mm) maximum from the front edge of the drinking fountain, including bumpers.

602.6 602.2.5 Water flow. The spout shall provide a flow of water 4 inches (100 mm) minimum in height. The angle of the water stream from spouts within 3 inches (75 mm) of the front of the drinking fountain shall be 30 degrees maximum, and from spouts between 3 inches (75 mm) and 5 inches (125 mm) from the front of the drinking fountain shall be 15 degrees

602 continues

602

Drinking Fountains and Bottle Filling Stations



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602 continued maximum, measured horizontally relative to the front face of the drinking fountain.

602.3 Drinking fountains for persons who are standing. Drinking fountains for persons who are standing shall comply with Section 602.3.1 through 602.3.4.

602.3.1 Operable parts. Operable parts shall comply with Section 309.3 and 309.4.

602.3.2 Spout outlet height. Spout outlets of drinking fountains shall be 38 inches (965 mm) minimum and 43 inches (1090 mm) maximum above the floor.

Exception: Drinking fountains primarily for children's use shall be permitted where the spout outlet is 30 inches (760 mm) minimum and 43 inches (1090 mm) maximum above the floor.

602.3.3 Spout location. The spout shall be located 5 inches (125 mm) maximum from the front edge of the drinking fountain, including bumpers.

602.3.4 Water flow. The spout shall provide a flow of water 4 inches (100 mm) minimum in height. The angle of the water stream from spouts within 3 inches (76 mm) of the front of the drinking fountain shall be 30 degrees maximum, and from spouts between 3 inches (76 mm) and 5 inches (125 mm) from the front of the drinking fountain shall be 15 degrees maximum, measured horizontally relative to the front face of the drinking fountain.

602.4 Bottle filling stations. Bottle filling stations shall comply with Sections 602.4.1 and 602.4.2.

Exception: Where bottle filling stations are part of the drinking fountain for persons who are standing, the bottle filling station is not required to comply with this section provided a bottle filling station is located at the drinking fountain for persons using wheelchairs.

602.4.1 Clear floor space. A clear floor space positioned for a forward or side approach, shall be provided.

602.4.2 Controls. Controls for bottle filling stations shall be hand operated or automatic. Hand operated controls shall comply with Section 309.

CHANGE SIGNIFICANCE: The most apparent aspect of this change is the fact that separate sections have been created to regulate wheelchair drinking fountains and standing drinking fountains. These details can be found within Sections 602.2 and 602.3 respectively. The separation of the criteria for the two types of drinking fountains helps identify which pieces of the criteria are appropriate for each type. The reorganization was needed to clarify the requirement for a clear floor space and the need for knee and toe clearance. While an appropriately sized clear floor space is needed for a wheelchair-accessible drinking fountain (see Section 602.2.1), the space is not needed for access to the drinking fountain for standing persons. Although the previous standard seemed to support the fact a the clear floor space was not needed for a standing drinking fountain (see Section 602.2 Exception 1 in the 2009 edition), the operable parts provisions (Section 602.3 of the 2009 edition) with the reference to Section 309 did ask for a clear floor space to access the controls. With the new format, the wheelchair-accessible drinking fountain will require a clear floor space by virtue of Section 602.2.1, and there is no corresponding requirement within Section 602.3 for a standing drinking fountain. Additionally, Section 602.3.1

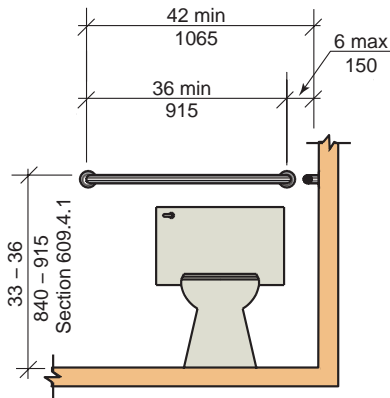
is specific that it requires compliance only with the height and operation provisions of Section 309 and not the clear floor space requirement of Section 309.2.

The technical provisions applicable to each of the two types of drinking fountains have not changed from the previous standard. But because the requirements are divided into different sections for each type of fountain, there are a few provisions that will differ. Therefore, users of this standard need to closely look at the requirements for each distinct type of drinking fountain instead of simply recalling what the previous standard required. An example where this may be apparent is when dealing with the spout location. The requirements for a standing drinking fountain contain the same 5-inch maximum depth from the front edge that was required previously. However, the requirement for the spout to be a minimum of 15 inches from the vertical support (see Section 602.5 in the 2009 edition) is not applicable to standing fountains but is applicable to wheelchair-accessible fountains due to the need for knee clearance. Other examples would be that the requirements for children's-use fountains are found with both types of fountains. Previously the standard was not clear regarding the height allowed for a standing-height drinking fountain that was primarily for children's use. Now the exceptions in Sections 602.2.3 and 602.3.2 resolve this issue.

Water bottle fillers have also been included in the new Section 602.4. These elements are becoming more common due to conservation issues, and guidance was needed to address which provisions were appropriate. The requirements address both stand-alone bottle fillers and those provided in conjunction with a drinking fountain system. One of the most frequent problems had been encountered where the bottle fillers were located only at the drinking fountain for standing persons and therefore were above the reach ranges permitted for reaching over an obstruction. The exception in 602.4 does not require the bottle filler to be installed over both the wheelchair and standing height drinking fountain, but simply insures that the only filler provided may not be located over the standing-height fountain. It is permissible to install the only bottle filler above the wheelchair-height drinking fountain.

604.5.1, 604.5.2

Grab Bars for Water Closets



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CHANGE TYPE: Modification

CHANGE SUMMARY: The requirements for both side-wall and rear-wall grab bars have been reformatted into clear, brief sections to address each type of grab bar. The rear grab-bar provisions are now measured from the side wall as opposed to being taken from the centerline of the water closet.

2017 STANDARD: **604.5.1 Fixed side wall grab bars.** Fixed side-wall grab bars shall ~~be~~ include a horizontal bar complying with Section 604.5.1.1 and a vertical grab bar complying with Section 604.5.1.2. The vertical grab bar at water closets primarily for children’s use shall comply with Section 609.4.2.

604.5.1.1 Horizontal grab bar. A horizontal grab bar 42 inches (1065 mm) minimum in length shall be located 12 inches (305 mm) maximum from the rear wall and extending 54 inches (1370 mm) minimum from the rear wall. ~~In addition;~~

604.5.1.2 Vertical grab bar. A vertical grab bar 18 inches (455 mm) minimum in length shall be mounted with the bottom of the bar located 39 inches (990 mm) minimum and 41 inches (1040 mm) maximum above the floor, and with the center line of the bar located 39 inches (990 mm) minimum and 41 inches (1040 mm) maximum from the rear wall.

Exception: The vertical grab bar at water closets primarily for children’s use shall comply with Section 609.4.2.

604.5.2 Rear wall grab bars. The rear wall grab bar shall be 36 inches (915 mm) minimum in length, and extend from the centerline of the water closet 12 inches (305 mm) minimum on the side closest to the wall, and 24 inches (610 mm) minimum on the transfer side. The fixed rear wall grab bar shall be:

1. 36 inches (915 mm) minimum in length,
2. Located 6 inches maximum (150 mm) from the side wall, and
3. Extend 42 inches (1065 mm) minimum from the side wall.

Exceptions:

1. (No changes)
2. (No changes)

CHANGE SIGNIFICANCE: These changes provide individual sections that deal with each of the grab bars separately. Previously, the paragraph addressing side-wall grab bars included both horizontal and vertical grab bars within the one section, which was not clear.

A technical change occurs for side-wall grab bars serving children’s-sized fixtures. Previously, because vertical grab bars for children’s-sized fixtures were addressed within an exception, users of the A117.1 standard were not required to follow the reference to the provisions of Section 609.4.2. The exception has been deleted, and the reference to Section 609.4.2 has been placed in the base paragraph, so it is now clear that the vertical grab bars serving children’s-sized fixtures are required to be installed at the appropriate locations as opposed to being able to stay at the adult-sized location. While the use of the children’s requirements is always an option (see Exception to Section 604.1), if that option is used, then it is appropriate to use the children’s-sized grab bar provisions instead of allowing the grab bar to be located at the adult location.



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The rear-wall grab bar provisions are also reformatted for clarity, but again there is a slight technical change that may be overlooked. Previously, the rear-wall grab bar location was based on the centerline of the water closet. The new provision allows the bar to be located a maximum of 6 inches from the side wall. Using the side wall as a measuring point provides a fixed location early in the construction process, while the centerline of the water closet can often vary, and the water closet is not installed until later in the sequence of construction. This change also makes the means of measuring both the side-wall and rear-wall grab bars more consistent, since both are measured from the adjacent wall in the corner by the water closet. For the rear-wall grab bar, this change of measuring points is something to be aware of, since it will differ from the requirements of the ADA, and it could result in a longer grab bar being needed in order to meet the three conditions. If the water closet is installed exactly at the 18-inch location, and the grab bar starts at the 6-inch location, then the ADA and A117.1 will coordinate. However, if the water closet is installed 16 inches from the side wall, then the required location of the grab bar could differ between the two standards. Installing the grab bar 4 inches from the side wall would still coordinate with the ADA requirement to extend a minimum of 12 inches from the water closet's centerline, but then a longer bar would be needed to meet the 42-inch minimum requirement in item 3 of Section 604.5.2.

On the whole, the slight differences between the ADA and A117.1 provisions will probably not affect the accessibility and use of the grab bars, and could probably be justified as a compliance alternative that provides "equivalent or greater accessibility," but since the difference does exist, users of this standard should be aware of it.

604.7.1, 604.11.7

Dispensers



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CHANGE TYPE: Modification

CHANGE SUMMARY: This change adds an exception that allows dispensers to be installed in the location allowed by the ADA in lieu of the locations specified by the A117.1 standard. Reformatting the sections helps to clarify that the exception affects only the location requirements and not the other provisions such as the delivery or control of the paper.

2017 STANDARD: 604.7 Dispensers. Toilet paper dispensers shall comply with Section 309.4 and Section 609.3. Dispensers shall not be of a type that control delivery, or do not allow continuous paper flow.

604.7.1 Location. Where the dispenser is located above the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 36 inches (915 mm) maximum from the rear wall. Where the dispenser is located below the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 42 inches (1065 mm) maximum from the rear wall. The outlet of the dispenser shall be located 18 inches (455 mm) minimum and 48 inches (1220 mm) maximum above the floor. ~~Dispensers shall comply with Section 609.3. Dispensers shall not be of a type that control delivery, or do not allow continuous paper flow.~~

Exception: Toilet paper dispensers that accommodate a maximum of 2 toilet paper rolls of not more than 5 inch (125 mm) diameter each shall be permitted to be located 7 inches (180 mm) minimum and 9 inches (230 mm) maximum in front the of the water closet measured to the centerline of the dispenser. The outlet of the dispenser shall be 15 inches (380 mm) minimum and 48 inches (1220 mm) maximum above the floor.

604.11.7 Dispensers. Toilet paper dispensers primarily for children's use shall comply with Section 309.4. ~~The outlet of dispensers shall be located within an area 24 inches (610 mm) minimum and 42 inches (1065 mm) maximum from the rear wall. The outlet of the dispenser shall be 14 inches (355 mm) minimum and 19 inches (485 mm) maximum above the floor. There shall be a clearance of 11/2 inches (38 mm) minimum below the grab bar. Dispensers shall not be of a type that control delivery or do not allow continuous paper flow.~~

604.11.7.1 Location. The outlet of toilet paper dispensers shall be located within an area 24 inches (610 mm) minimum and 42 inches (1065 mm) maximum from the rear wall. The outlet of the dispenser shall be 14 inches (355 mm) minimum and 19 inches (485 mm) maximum above the floor.

Exception: Toilet paper dispensers that accommodate a maximum of 2 toilet paper rolls of not more than 5 inch diameter each shall be permitted to be located 7 inches minimum and 9 inches maximum in front of the of the water closet measured to the centerline of the dispenser. The outlet of the dispenser shall be 14 inches (355 mm) minimum and 19 inches (485 mm) maximum above the floor.

CHANGE SIGNIFICANCE: The 2009 edition of the standard contained a number of revisions to help provide better details related to the location of the toilet paper dispenser, such as measuring off of the back wall, how the dispenser outlet related to the grab bars and also measuring to the paper outlet versus the centerline of the dispenser. Perhaps the most

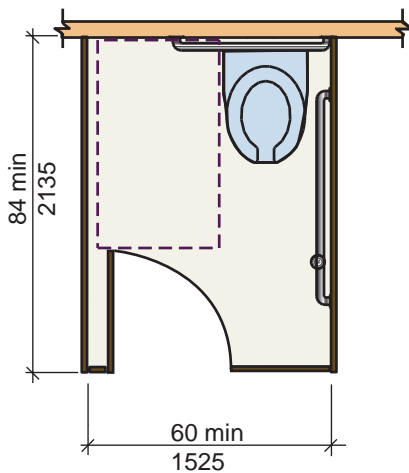
important part of the 2009 change was the allowance of the dispenser to be installed based on measurements from the back wall as opposed to the necessity of measuring from the front of the water closet, which often was not installed until much later in the process and could vary depending on the selected water closet. Much of this effort was undertaken to address the use of larger, multi-roll “commercial” dispensers, as compared to the use of what may generally be referred to as a residential roll, or standard roll of toilet paper. In addition, the A117.1 standard directly addresses the issue of recessed dispensers, which previously had not been mentioned. While the A117.1 committee does believe that the requirements in the standard provide equivalent or greater accessibility than those required by the federal ADA standards, there was concern that the two standards did not coordinate. The intent of adding the exceptions into Section 604.7.1 for adult fixtures and Section 604.11.7.1 for children’s fixtures is to specifically allow the dispensers to be located as required by the ADA and still be viewed as acceptable under the A117.1. Therefore, these two exceptions are provided to allow the two standards to be coordinated so that installing a dispenser as required to comply with the ADA is not viewed as being a violation of, or less adequate than, the A117.1 standard.

The base paragraphs of the two dispenser sections have also been modified so that items that are not related to the location are placed into the base paragraph and are not affected by the exception. Separating the location provisions and exceptions from the base paragraph helps clarify that items such as the operable parts requirements of Section 309.4 and the language related to controlled or continuous flow of the paper are not eliminated by the exception. As stated previously, the intent of the exceptions is to accept the smaller sized roll dispenser being located where it is required by the ADA.

The exception does place a limitation on the number of rolls and size of the rolls that are allowed in the toilet paper dispenser. These limits are included since the committee had previously identified that the federal requirements did not work with many of the large mega-roll dispensers. This is one of the factors that had resulted in the previous changes found within the 2009 edition of the standard and why the committee felt it was important to include these limitations within the current exception.

604.9.2.3, 604.9.3, 604.10.3

Alternate Wheelchair Accessible Toilet Compartments



* Toilet compartment size in accordance with Section 604.9.2.3

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CHANGE TYPE: Addition

CHANGE SUMMARY: This addition provides an alternative design for wheelchair toilet compartments that can permit greater access for a forward approach and transfer by the mobility-device user. Changes have been made to the door requirements for the compartments to coordinate with other existing provisions and to allow the door to swing into the alternate compartment when adequate clearance is provided.

2017 STANDARD: **604.9.2.3 Alternate wheelchair accessible toilet compartments.** Where an alternate wheelchair accessible toilet compartment is provided, the minimum area of the compartment shall be 60 inches (1525 mm) minimum in width, measured perpendicular to the side wall, and 84 inches (2135 mm) minimum in depth, measured perpendicular to the rear wall.

604.9.3 Doors. Wheelchair accessible toilet compartment doors, including door hardware, shall comply with Section 404, except if the approach is to the latch side of the compartment door clearance between the door side of the stall and any obstruction shall be 42 inches (1065 mm) minimum. The door shall be self-closing. A door pull complying with Section 404.2.6 shall be placed on both sides of the door near the latch. Wheelchair accessible Toilet compartment doors shall not swing into the required minimum area of the compartment.

Exceptions:

1. Outside of the compartment, where the approach is to the latch side of the wheelchair accessible toilet compartment, door clearance between the door side of the compartment and any obstruction shall be 42 inches (1065 mm) minimum.
2. Within the wheelchair accessible toilet compartment, maneuvering clearances at the door shall not be required to comply with Section 404.
3. In an alternate wheelchair accessible toilet compartment, the door shall be permitted to swing into the stall where a clear floor space complying with Section 305.3 is provided within the stall beyond the arc of the door swing.

604.10.3 Doors. Ambulatory accessible toilet compartment doors, including door hardware, shall comply with Section 404, except if the approach is to the latch side of the compartment door the clearance between the door side of the compartment and any obstruction shall be 42 inches (1065 mm) minimum. The door shall be self-closing. A door pull complying with Section 404.2.6 shall be placed on both sides of the door near the latch. Compartment doors shall not swing into the required minimum area of the compartment.

Exceptions:

1. Outside of the ambulatory accessible toilet compartment, where the approach is to the latch side of the compartment door, clearance between the door side of the compartment and any obstruction shall be 42 inches (1065 mm) minimum.
2. Within the ambulatory accessible toilet compartment, maneuvering clearances at the door shall not be required to comply with Section 404.

CHANGE SIGNIFICANCE: The original intent of the alternate wheelchair compartment requirements was to allow for a larger size compartment that might allow the mobility-device user to do a forward approach to the water closet while being able to close the compartment door for privacy. The typical compartment is generally set up only for a transfer from the side. The usual 56-inch or 59-inch minimum stall depth does not allow adequate space for a properly sized clear floor space between the front of the fixture and the front partition. Because of this, any wheelchair user who desires a forward approach must generally maneuver in at an angle to the fixture and still leave the door open.

Based on the proponent's original submittal, these larger stalls would have needed some type of additional scoping to state where they would be required, such as that found for requirements like the enhanced reach range lavatories (Section 606.5) or ambulatory toilet compartments (Section 604.10). However, due to the modifications made during the standard development process, the new provisions were changed to be an "alternate," which will simply provide an optional means of compliance. See Section 604.9.2 for the text allowing compliance with either the traditional wheelchair-accessible compartment or the opportunity to use the new alternate wheelchair compartment.

As a part of the work on these provisions, the committee also looked at the prohibition for doors to swing into the minimum-sized compartment. Based on the larger depth in front of the water closet, the availability of a clear floor space beside the fixture, and the increased space for maneuvering within the compartment, the committee added Exception 3 in Section 604.9.3 to allow doors to swing into the alternate compartment provided the clear floor space is located beyond the arc of the door. This language and allowance is similar to what is permitted by Exception 2 in Section 603.2.2 for single-user toilet rooms.

In addition, the format for the door provisions of Section 604.9.3 for wheelchair toilet compartments and in Section 604.10.3 for ambulatory toilet compartments has been modified to help eliminate confusion and to match the general format of the standard. The exemption for a 42-inch minimum width approach from the latch side of door was previously found within the text of the base paragraph of both Sections 604.9.3 and 604.10.3. Placing this as Exception 1 helps to clarify this as an exception and clearly limits where and to what the exception applies. Since Section 404 contains a number of requirements, it was confusing as to whether the exemption only applied to the width of the clearance or if other aspects of Section 404 were also excluded. Therefore, the new exception clearly limits the application to the approach on the outside of the compartment and reduces the width of the path to 42 inches as opposed to the 48-inch minimum width, which would be required by Section 404.2. This exception has previously been permitted by the language in the 2009 standard stating "except if the approach is to the latch side . . . and any obstruction shall be 42 inches minimum." Therefore, the creation of Exception 1 should not be viewed as creating any change in the application of the standard. As explained in the A117.1 commentary, the standard has allowed this reduced-width clearance for the approach to the water closet compartment door, since the door's location aligns with the clear floor space adjacent to the water closet and allows easier movement into the compartment.

604.9.2.3, 604.9.3, 604.10.3 continues

604.9.2.3, 604.9.3, 604.10.3 continued

The second exception in both of the door sections is also new but again is just a clarification of the existing requirements and should not be viewed as a technical change. This exception was needed since the general paragraph requires a compartment door to comply with Section 404. The standard never intended the maneuvering clearances of Section 404.2 to be applicable within the compartment itself. The size of the compartment and the location of the door and water closet were all established to create a space that was large enough for the user of a mobility device to maneuver within the confined compartment area and to approach both the door and fixture and to allow an adequate space to transfer onto the water closet. Without this exception, the literal interpretation of the standard would require the size of the typical compartment to be increased in order to provide the standard door maneuvering clearances beyond any obstruction created by the water closet. Therefore, while it may be important for users of the standard to recognize that Exceptions 1 and 2 are new in the 2017 edition, they should not result in any change of application from the previous edition; they are just clarifications.

CHANGE TYPE: Modification

CHANGE SUMMARY: This change raises the minimum height of partitions in adult-sized wheelchair toilet compartments to 12 inches and increases the required toe depth beyond the partitions to 8 inches.

2017 STANDARD: **604.9.5.1 Toe clearance at wheelchair accessible toilet compartments.** The front partition and at least one side partition of the wheelchair accessible toilet compartments shall provide a toe clearance of ~~9~~ **12** inches (~~230~~ **305** mm) minimum above the floor and extending ~~6~~ **8** inches (~~150~~ **205** mm) beyond the compartment side face of the partition, exclusive of partition support members.

Exceptions:

1. Toe clearance at the front partition is not required in a wheelchair accessible toilet compartment greater than ~~62~~ **64** inches (~~1575~~ **1625** mm) in depth with a wall-hung water closet, or greater than ~~65~~ **67** inches (~~1650~~ **1700** mm) in depth with a floor-mounted water closet.
2. Toe clearance at the side partition is not required in a wheelchair accessible toilet compartment greater than ~~66~~ **68** inches (~~1675~~ **1725** mm) in width.

604.9.5.2 Toe clearance at wheelchair accessible toilet compartments for children's use. The front partition and at least one side partition of wheelchair accessible toilet compartments primarily for children's use shall provide a toe clearance of 12 inches (305 mm) minimum above the floor and extending ~~6~~ **8** inches (~~150~~ **205** mm) beyond the wheelchair accessible toilet compartment side face of the partition, exclusive of partition support members.

Exceptions:

1. Toe clearance at the front partition is not required in a wheelchair accessible toilet compartment greater than ~~65~~ **67** inches (~~1650~~ **1700** mm) in depth.
2. Toe clearance at the side partition is not required in a wheelchair accessible toilet compartment greater than ~~66~~ **68** inches (~~1675~~ **1725** mm) in width.

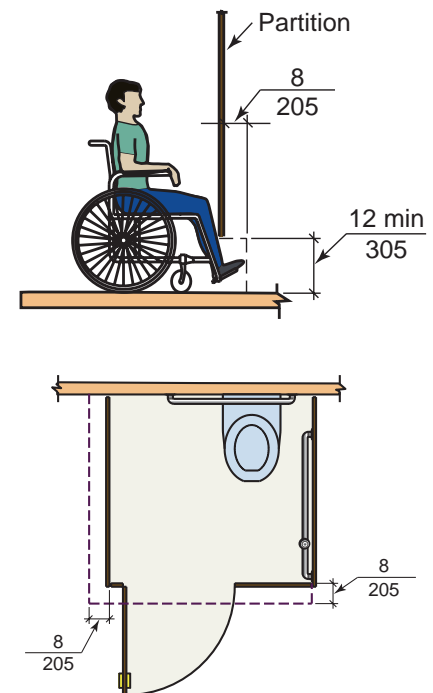
CHANGE SIGNIFICANCE: The height beneath the regulated partitions in a wheelchair-accessible toilet compartment has been raised from the previous minimum height of 9 inches to a 12-inch minimum. In addition, the toe depth that is required beyond the partitions has been increased from a minimum 6 inches to 8 inches beyond the compartment-side face of the partitions. These changes are made to provide a larger space for maneuvering a wheelchair within the confined compartment area.

These revisions are based on the anthropometric data for wheeled-mobility users provided by the Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY (State University of New York). According to the report, the percentage of manual wheelchair users that could be accommodated by the previously allowed partition height of 9 inches was fewer than 50 percent, while the 6-inch horizontal extension of toe clearance beyond the interior of the compartment could accommodate fewer than 25 percent of the users. By increasing these dimensions to 12 inches and 8 inches respectively, the percentage of manual wheelchair users that can be accommodated is increased to 75 percent.

604.9.5.1, 604.9.5.2 continues

604.9.5.1, 604.9.5.2

Toe Clearance at Wheelchair Accessible Toilet Compartments



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604.9.5.1, 604.9.5.2 continued

The two exceptions that eliminate the need for toe clearance outside of the compartment have also been modified to account for the added 2-inch increase in the toe clearance requirement. The dimensions listed within the exceptions are based on the minimum compartment sizes (a depth of 56 inches for wall-hung water closets and 59 inches for floor-mounted water closets, and a width of 60 inches) plus the additional 8-inch toe clearance. This means that if the adjacent compartment or room space does not have the needed 8-inch clearance available, the minimum compartment size within the partitions must be increased to account for the needed toe clearance.

During the discussion of these changes it was pointed out that the increased toe clearances were not being made within the building block provisions of Chapter 3. This distinction was justified to the committee based on the difference of intent between the two provisions. When dealing with a toilet compartment, the main concern or objective is the ability of the wheelchair user to turn within the confined compartment as opposed to the toe clearances within the Chapter 3, which are focused on the wheelchair user moving as close to the wall as possible so that elements are within the allowable reach range. Therefore, the committee agreed to make the change at the compartments to provide for a greater number of people to be able to turn within the space. One other point of data provided by the anthropometric studies was that in order to allow 95 percent of power-wheelchair users and manual-wheelchair users to perform a 180-degree turn, a 67-inch width is necessary. This size is provided by the dimensions within the exceptions.

Finally, the requirements for children’s-sized compartments have also been modified in a similar manner. Because the children’s provisions previously used the 12-inch minimum partition height, it is only the increased toe clearance depth and the exceptions that have been modified. Children’s-sized wheelchairs typically have higher footrests. Therefore, the requirements for children previously specified the 12-inch minimum partition height, and that change was not needed in the new edition of the standard. The higher footrest and the impact it has on turning at the water closet is also why Exception 1 within the children’s provisions differs from those of the adult provisions. Keeping the adult and children’s provisions separate, even though they are very similar now, not only helps to reinforce the distinction between the typical chair dimensions, but also ensures that the requirements are applied appropriately.

CHANGE TYPE: Modification

CHANGE SUMMARY: The clear floor space for a parallel approach to a sink or lavatory is no longer required to be “centered on the sink.”

2017 STANDARD: 606.2 Clear floor space. A clear floor space complying with Section 305.3, positioned for forward approach, shall be provided. Knee and toe clearance complying with Section 306 shall be provided. The dip of the overflow shall not be considered in determining knee and toe clearances.

Exceptions:

1. A ~~clear floor space providing a parallel approach complying with Section 305 and centered on the sink~~, shall be permitted to a kitchen sink in a space where a cook top or conventional range is not provided.
2. The requirement for knee and toe clearance shall not apply to a lavatory in a toilet or bathing facility for a single occupant, accessed only through a private office and not for common use or public use.
3. A knee clearance of 24 inches (610 mm) minimum above the floor shall be permitted at lavatories and sinks used primarily by children ages 6 through 12 where the higher of the rim or counter surface is 31 inches (785 mm) maximum above the floor.
4. A ~~clear floor space providing a parallel approach complying with Section 305 and centered on the sink~~, shall be permitted at lavatories and sinks used primarily by children ages 5 and younger.
5. The requirement for knee and toe clearance shall not apply to more than one bowl of a multibowl sink.
6. A ~~clear floor space providing a parallel approach complying with Section 305 and centered on the sink~~, shall be permitted at wet bars.

CHANGE SIGNIFICANCE: While this may not seem like a significant change, the revision was needed due to the changes made for the clear floor space size in the building block provisions and the potential impact those changes could have had on the location and access to the sinks covered by Exceptions 1, 4 and 6.

Due to the clear floor space in Section 305 being increased from a 48-inch length to the newly required 52-inch length, all sinks using a parallel approach would be moved an additional 2 inches out from any wall or corner in order to comply with the centering requirement.

Where a person is using a side reach from a parallel approach to the sink, he or she is generally able to reach from a point aligned with the shoulder and then forward from that point. The plumbing code requires that lavatories and sinks are not set closer than 15 inches from their center lines to any side wall, partition, vanity or other obstruction. Meanwhile, the A117.1 standard places the shoulder location within a clear floor space as being 12 inches or more from the back of the clear floor space, or 36 inches or more from the front (see Section 802.7.2). Therefore, where the lavatory or sink is located at least 15 inches away from the wall or other

606.2

Clear Floor Space at Lavatories and Sinks



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606.2 continues

606.2 continued obstruction, as required by the plumbing code, it would be located where a person making a parallel approach to the fixture would be able to place themselves where the fixture was either forward of or aligned with their shoulder.

With the size of the clear floor space being increased to 52 inches by the changes in the building block provisions of Section 305, the previous centering requirement would have forced the center line of the sink to be 26 inches minimum from the wall. Since this would not improve the access from the requirements of the previous standard, the committee looked at the way a side reach can be made (aligned with the shoulder or forward from that point) and the plumbing code's location requirement, and elected to remove the "centered on the sink" text from Exceptions 1, 4 and 6. Therefore, the location of sinks within kitchenettes, wet bars and sinks for children under the age of 5 will differ from the 2009 standard and could in fact be located closer to the corner or wall than was allowed by the previous standard's centering requirement.

The change within Exception 3 is intended to clarify how the height of the lavatory is to be measured. This wording coordinates with that of Section 606.3 and helps to address the variety of height issues that can come up with sinks that can be installed in a counter top as an under-mount, top-mount or flush-mount style. The exception now clearly indicates that it is the highest element, whether it is the lavatory or the countertop, that is the controlling dimension.

CHANGE TYPE: Modification

CHANGE SUMMARY: In new buildings, the clearance adjacent to a transfer shower has been increased to 52 inches in length to coordinate with the new clear floor space provisions. The alignment of the clear floor space has been modified to accept measurement from either of two points.

2017 STANDARD: 608.2.1.2.1 New buildings and facilities. In new buildings and facilities, a clearance of 52 inches (1320 mm) minimum in length, and 36 inches (915 mm) minimum in depth shall be provided adjacent to the open face of the compartment. The length of the clear floor space shall be measured perpendicular from either the control wall or from 4 inches (100 mm) behind the control wall.

608.2.1.2.2 Existing buildings and facilities. In existing buildings and facilities, a clearance of 48 inches (1220 mm) minimum in length measured perpendicular from the control wall, and 36 inches (915 mm) minimum in depth shall be provided adjacent to the open face of the compartment.

CHANGE SIGNIFICANCE: As discussed several times earlier in this book, the clear floor space in the building block provisions of Section 305 has been increased to accommodate a greater number of users. Previously the clear floor space was established as being a minimum of 48 inches in length. According to the study used to change the clear floor space size, this 48-inch length only worked for 75 percent of manual wheelchair users and only about 50 percent of powered-chair and scooter users. Therefore, the clear floor space requirements were changed within the building block section of the code.

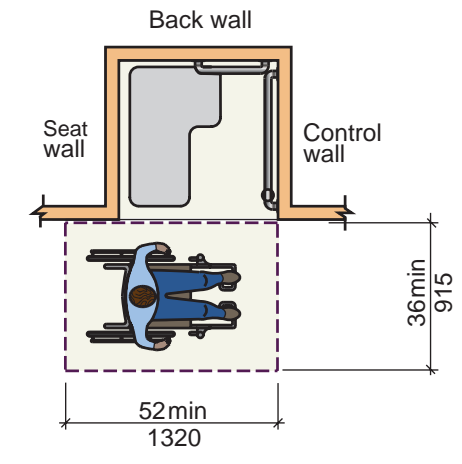
The increase in the clear floor space has been carried over into the provisions related to transfer showers and the required clearance to access the shower. This change in the clearance size has also resulted in several other changes including separating the provisions for new buildings and facilities from those for existing buildings and also where the clearance is measured from.

For new buildings, the clearance to access a transfer shower has been increased to a minimum length of 52 inches. Existing buildings will be able to continue to use the 48-inch clearance length previously permitted by the standard. Since the alignment of the wheelchair seat with the shower seat is so important for a transfer shower, there has been a slight change in the requirements for the location of the enlarged clearance. For new buildings, the clearance can be measured from the control wall as previously permitted, or the clearance may be measured from a point 4 inches behind the control wall. While measuring the clearance from “behind the control wall” will result in the shower being unable to be placed in a corner, it still allows the back of the clearance to extend a minimum of 12 inches behind the seat wall. This 12-inch depth beyond the seat wall should allow most users to align their wheelchair seats with the shower seats, and the depth coordinates with the extension beyond the seat that had previously been required by the standard.

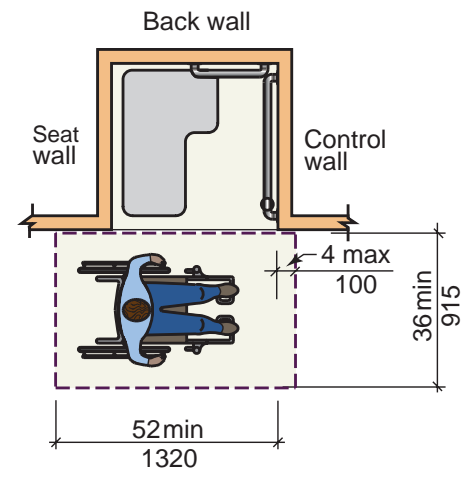
Section 608.2.1.2.2 for existing buildings and facilities will continue to allow transfer showers in existing buildings to meet the requirements that existed in the 2009 edition of the standard. Therefore, the increased clearance length of 52 inches adjacent to the transfer shower will not be required for existing buildings and facilities.

608.2.1.2

Clearance for Transfer Shower



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608.2.1.2 continues

608.2.1.2 *continued*

Although not specifically affected by the changes to the new edition of the standard, compliance with the “alcove” requirements of Section 305.7 is something that should not be overlooked where the shower clearance is confined by walls. A fairly common mistake in the design of transfer showers is that the clearance in front of the shower is restricted by walls or privacy partitions at both the front and the back of the space. Where a parallel approach into an alcove with a depth exceeding 15 inches is provided, the width of the alcove must be a minimum of 60 inches. Therefore, if walls or privacy partitions extend more than 15 inches from the edge of the shower, the actual clearance needed to access the shower is the 60-inch alcove requirement as opposed to either the new 52-inch or the previously permitted 48-inch clearance. Because of this, it is important for the designer to consider and review the alcove provisions of Section 305.7 when designing the clearance layout for a transfer shower that might be within a confined area.

CHANGE TYPE: Modification

CHANGE SUMMARY: In smaller standard roll-in showers, a vertical grab bar is required on the side wall opposite the seat wall. In addition, the requirements for back-wall and end-wall grab bars have been separated to provide better clarity.

2017 STANDARD: **608.3.2 Standard roll-in-type showers.** Grab bars in standard roll-in showers shall comply with Sections 608.3.2.1 through 608.3.2.3.

608.3.2.1 Back wall grab bar. In standard roll-in type showers, a grab bar shall be provided on the back wall beginning at the edge of the seat. The grab bars shall not be provided above the seat. The back wall grab bar shall extend the length of the wall and extend within 6 inches (150 mm) maximum from the adjacent side wall opposite the seat.

Exceptions:

1. The back wall grab bar but shall not be required to exceed 48 inches (1220 mm) in length.
2. The back wall grab bar is not required to extend within 6 inches (150 mm) of the adjacent side wall opposite the seat if it would require the grab bar length to exceed 48 inches (1220 mm) in length.

608.3.2.2 Side wall grab bars. Where a side wall is provided opposite the seat within 72 inches (1830 mm) of the seat wall, a grab bar shall be provided on the side wall opposite the seat. The side wall grab bar shall extend the length of the wall but shall not be required to exceed 30 inches (760 mm) in length. Grab bars shall be 6 inches (150 mm) maximum from the adjacent wall, and extend within 6 inches (150 mm) maximum from the adjacent back wall.

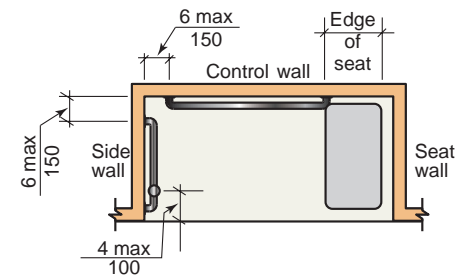
Exception: The side wall grab bar shall not be required to exceed 30 inches (760 mm) in length.

608.3.2.3 Vertical grab bar. Where a side wall is provided opposite the seat within 72 inches (1830 mm) of the seat wall a vertical grab bar shall be provided. A vertical grab bar 18 inches (455 mm) minimum in length shall be provided on the end wall 3 inches (75 mm) minimum and 6 inches (150 mm) maximum above the horizontal grab bar, and 4 inches (100 mm) maximum inward from the front edge of the shower.

CHANGE SIGNIFICANCE: The most significant of these changes is found within Section 608.3.2.3 where a vertical grab bar is now required for standard roll-in showers. This vertical grab bar is to be placed on the side wall opposite the seat wall and is to be located near the open entry into the shower. While this shower is classified as a “roll-in” shower, many people with walking disabilities prefer to walk into the shower and stand, or they may have problems that restrict their ability to easily rise or sit from a wet shower seat. Therefore, the purpose of this vertical grab bar is to provide assistance for people who are standing or moving into or out of the shower.

This vertical grab bar is only required in showers of a more limited size and would not be required in larger showers such as a gang shower in a locker room. Where the side wall that the vertical grab bar is mounted is

608.3.2 Grab Bars in Standard Roll-in-type Showers



Back wall grab bar

- not required to exceed 48"
- not required to extend to corner if it requires bar to exceed 48"

Side wall grab

- not required to exceed 30"

Vertical grab bar

- located 3 to 6" above vertical grab bar

608.3.2 continues

608.3.2 continued

beyond 72 inches from the seat wall, then the vertical grab bar as well as the horizontal grab bar typically required by Section 608.3.2.2 can be eliminated. Since a roll-in shower could be provided in a space such as a gang shower in a locker room, or within a large room, it is debateable whether the wall opposite the seat is even still a portion of the shower. Plus, where the side wall is 72 inches or more away from the seat wall, it is unlikely that the shower users on or near the seat would be able to reach the grab bars to use them to either enter the shower or for assistance to stand while trying to bathe.

Users of the standard will also notice a change in the format for Section 608.3.2. While the previous edition of the standard was one long paragraph addressing all of the grab-bar provisions, the new standard provides three distinct sections that address the requirements for grab bars for the back wall and side walls, as well as the new vertical grab bar provision. Having separate sections for each wall or type of grab bar makes determining the requirements a bit easier to discern. While the text and exceptions within Sections 608.3.2.1 and 608.3.2.2 do appear different than in the previous edition of the standard, the result of the provisions should be consistent between the 2009 and 2017 editions.

The two exceptions in Section 608.3.2.1 serve different purposes and help to modify the base provisions where appropriate. Again, these provisions should be viewed as being consistent with those of the 2009 edition of the standard. In larger sized showers, such as a common/gang shower in a locker room, Exception 1 would limit the size of the back-wall grab bar to 48 inches maximum in length. Depending on the seat configuration (see Section 610.3) this exception would only be used where the back wall of the shower stall was at least 76 inches long where an L-shaped seat was used or 69 inches long where a rectangular seat was used. These wall lengths where the exception would initially apply are determined by adding the minimum seat depth for that particular seat configuration, the 48-inch grab bar length and then the 6-inch maximum corner clearance.

The second exception for the back-wall grab bar helps to resolve an issue that occurred due to the format of the provisions within the 2009 edition of the standard. This exception clearly establishes that the extension of the grab bar to within 6 inches of the shower's corner is not applicable if it would require the grab bar length to exceed 48 inches. While some people may argue that Exception 1 does address this issue and Exception 2 is not needed, the committee did see that the grab bar length and the extension into the corner as two separate requirements, which then needed separate exceptions to address. Therefore, the new standard's formatting and the exceptions should provide the needed clarity.

CHANGE TYPE: Modification

CHANGE SUMMARY: The control and hand shower locations for alternate roll-in showers have been changed to ensure they are (1) not located over the seat when installed on the end wall and (2) located toward the open transfer side of the shower when installed on the back wall across from the seat.

2017 STANDARD: 608.4.3 Alternate roll-in showers. In alternate roll-in showers, the controls and hand shower shall be located:

1. At a height of 38 inches (965 mm) minimum and 48 inches (1220 mm) maximum above the shower floor, and
2. ~~In alternate roll-in showers with~~ Where the controls and hand shower are located on the end wall adjacent to the seat, the controls and hand shower shall be 16 inches (405 mm) minimum and 27 inches (685 mm) maximum from the wall behind the seat wall, ~~or~~
3. ~~In alternate roll-in showers with~~ Where the controls and hand shower are located on the back wall opposite the seat, the controls and hand shower shall be located within 15 inches (380 mm), ~~left or right, of maximum from the centerline of the seat toward the transfer space.~~

CHANGE SIGNIFICANCE: The most apparent aspect of the changes to this section is a reformatting that divides the previous requirements into three separate items. This revised formatting change will coordinate with the style used previously for transfer showers and that has now also been used for standard roll-in showers. Having a consistent format for the three shower types as well as breaking the provisions into smaller chunks will make the requirements clearer and easier to review. This reformatting does not result in any changes to the requirements, but additional changes were made beyond the formatting.

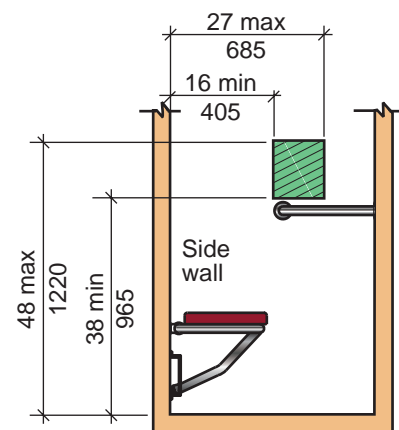
The allowed control and hand shower locations for alternate roll-in showers have been limited from what was previously allowed by the standard. Where the controls are located on the end wall adjacent to the seat, the requirements within the new item 2 establish a location with a minimum distance from the seat wall of 16 inches. Previously the controls were only limited to being a maximum of 27 inches from the seat wall when installed at this location. The problem with the previous provisions is that they could allow the controls and hand shower to be located directly over the seat, which could result in the user needing to reach beside or behind to operate the controls. That would also limit a person from being able to lean against the wall for support. The 2009 edition of the standard established this 16-inch-minimum to 27-inch-maximum location for the controls in a standard roll-in shower. Therefore, the new standard makes both the standard roll-in shower and alternate roll-in shower consistent in regard to control location where the controls are located adjacent to the seat.

The provisions for alternate roll-in showers continue to permit the controls and hand shower to be located on the back wall opposite the seat. However, the new item 3 will also limit the location to ensure the controls are located to the open or transfer side of the shower. Previously, when

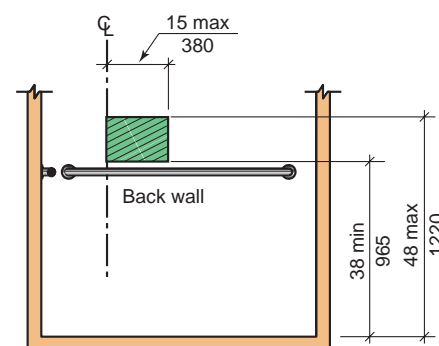
608.4.3 continues

608.4.3

Controls and Hand Showers in Alternate Roll-in Showers



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608.4.3 *continued*

the controls were located on the back wall across from the seat, they were permitted to be located a maximum of 15 inches to either side (“left or right”) when measured from the centerline of the seat. By restricting the controls and hand shower toward the open side, the available location will be cut in half from what was previously permitted. The primary reason for this change is to coordinate with the requirements that are applicable to transfer-type showers. Having the controls located toward the open or transfer side of the shower allows a user to operate the controls and adjust the temperature prior to transferring into the stream of the water. It also places the controls adjacent to the clear floor space where the user would be located prior to making her or his transfer instead of expecting the user to reach all the way into the shower to operate the controls.

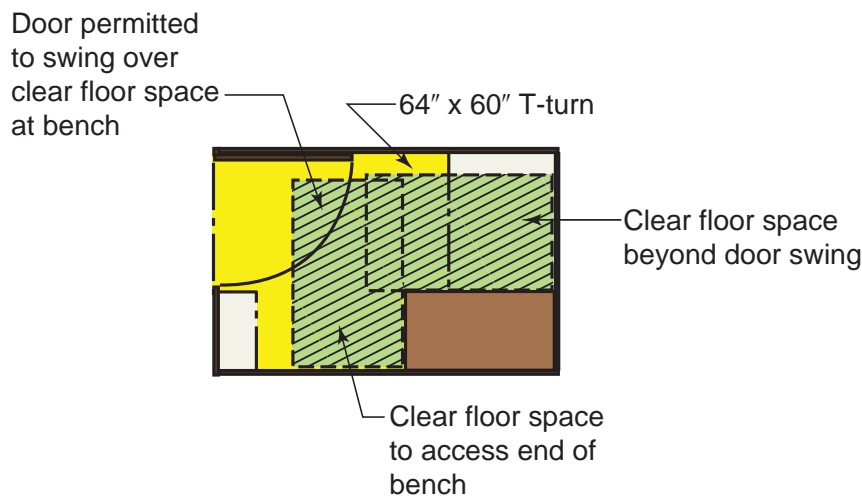
Therefore, the true technical changes for the alternate roll-in shower are that the control location when placed on the end wall adjacent to the seat will coordinate with the standard roll-in shower provisions, while the control locations on the back wall (opposite the seat) will coordinate with those for the transfer showers. These changes make the shower provisions more consistent based on where the user is seated and how the controls are located in relation to the seat.

CHANGE TYPE: Modification

CHANGE SUMMARY: In single-user sauna and steam rooms, the door is allowed to swing into the clear floor space serving the bench, as long as a compliant clear floor space is provided beyond the door.

2017 STANDARD: 612.2 Bench. Where seating is provided in saunas and steam rooms, at least one bench shall comply with Section 903. Doors shall not swing into the clear floor space required by Section 903.2.

Exception: Where the room is for individual use and a clear floor space complying with Section 305.3 is provided within the room beyond the arc of the door swing, the door shall not be required to comply with this section.



CHANGE SIGNIFICANCE: Although not likely to impact a large number of facilities, this new exception is addressed in this book since it provides an exemption to allow something that was previously unacceptable, even in these limited use and occupancy spaces.

The exception is intended to coordinate with other sections of the standard that allow a door to swing into the room or clear floor space serving a fixture if there is adequate space for the wheelchair user to maneuver away from the swing of the door. Examples of where similar language can be found include Exception 2 of Section 603.2.2 for the door swing in single-user toilet and bathing rooms, and Section 803.3 for dressing and fitting rooms. If the user can maneuver away from the door, it should not be a problem for the door to swing into the space.

Although not a change within this section, perhaps the biggest revision to impact this section will be a change made within the referenced provisions of Section 903 related to the bench. That change is discussed later in the book, but users should be aware that the clear floor space to access the bench must be positioned at the end of the bench in accordance with Section 903.2.

612.2

Sauna and Steam Rooms, Bench

702.1

Alarms, General



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CHANGE TYPE: Clarification

CHANGE SUMMARY: This change clarifies the distinction between building fire alarm provisions and the notification requirements applicable within dwelling units.

2017 STANDARD: 702.1 General. Accessible Audible and visible alarms and notification appliances that are part of a building fire alarm system shall be installed in accordance with NFPA 72 listed in Section 106.2.4, be powered by a commercial light and power source, be permanently connected to the wiring of the premises electric system, and be permanently installed.

Exception: Audible and visible notification appliances provided within dwelling or sleeping units shall comply with Section 1106.2 through 1106.4.4.

CHANGE SIGNIFICANCE: The revision provides a clearer reference to the residential standards. This should help to eliminate designers inadvertently using the commercial provisions for residential facilities.

This change was originally proposed because there continues to be misinterpretation that all apartments are required to have compliant visible alarms within every dwelling unit that will work with the building's alarm system. That is not the case. As an example, the *International Building Code* requires visible alarms for the building's fire alarm system in public use areas, common use areas and within a certain number of units within Groups I-1 and R-1 Occupancies. Assisted living facilities and hotels are the main uses in these occupancy classifications; see the IBC for a complete list of uses that may fall within these two occupancies. Within Group R-2 uses (which is generally for apartments, dormitories and various other congregate living facilities), the IBC mandates that any required alarm system be designed so the capability exists for the system to support visible alarm notification appliances within the individual dwelling unit if and when they are needed at some future date. Thus, when a person with hearing problems requests a visible alarm notification within his or her unit, the notification system can be quickly and reasonably adapted to accommodate his or her needs.

The intent of this change is to provide guidance toward the special accessible communications features for dwelling and sleeping units that are found within Section 1106 of the standard. Section 1106 contains a number of sections, but the one most relevant to the change in Section 702.1 is in Section 1106.4. This reference to the listed provisions of Section 1106 indicates to alarm designers that within some dwelling or sleeping units, the smoke alarms within the units can also serve as part of the building alarm system and provide any required visible notification within the dwelling or sleeping unit. The number of units that must comply with the visible alarm requirements is dependent on the scoping requirements of the building code or other documents adopted by the jurisdiction.

This revision of the standard should be viewed as a clarification that provides better guidance on the requirements, and it should not result in any changes in how the 2009 and 2017 standards are applied.

CHANGE TYPE: Modification

CHANGE SUMMARY: This change imposes a specific limitation on the glare expected from a sign. Glare on signage can make it difficult to read in general and can have a greater effect on people with vision impairments or light sensitivity.

2017 STANDARD: Visual Characters

703.2.10 Finish and contrast. Characters and their background shall have a non-glare finish. Characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

703.2.10.1 Nonglare finish. The glare from coverings, the finish of characters and their background shall not exceed 19 gloss units (gu) as measured on a 60-degree gloss meter.

Pictograms

703.5.3 Finish and contrast. Pictograms and their fields shall have a nonglare finish. Pictograms shall contrast with their fields, with either a light pictogram on a dark field or a dark pictogram on a light field.

703.5.3.1 Nonglare finish. The glare from coverings and the finish of pictograms and their fields shall not exceed 19 gloss units (gu) as measured on a 60-degree gloss meter.

703.5.3.2 Character contrast. Characters shall contrast with their background, with either light characters on a dark background or dark characters on a light background.

Symbols of accessibility.

703.6.2 Finish and contrast. Symbols of accessibility and their backgrounds shall have a nonglare finish. Symbols of accessibility shall contrast with their backgrounds, with either a light symbol on a dark background or a dark symbol on a light background.

703.6.2.1 Nonglare finish. The glare from coverings and the finish of symbols of accessibility and their backgrounds shall not exceed 19 gloss units (gu) as measured on a 60-degree gloss meter.

CHANGE SIGNIFICANCE: The intent of this provision is to provide a specific limitation for what is acceptable as a nonglare finish on a sign. Glare on a sign is a problem when a light source reflects off the surface, making the information on the sign difficult to read. Most commonly the issue with a sign is the glare from the finish chosen for the cover on the sign or on the background. This provision also requires evaluation of not only the coverings but also the finish on the characters and on the background. Having a specific set of requirements provides for a consistent means of determining compliance versus simple visual preference or the subjective judgment of the person evaluating the sign.

Gloss is determined by projecting a beam of light of a fixed intensity and angle onto a surface and measuring the amount of reflected light at an equal but opposite angle. There are a number of different geometries available for gloss measurement, each being dependent on the type of surface to be measured. When measuring glare on signage, a 60-degree gloss meter should be used. Specifying the angle of measurement is important

703.2.10.1, 703.5.3.1, 703.6.2.1 continues

703.2.10.1, 703.5.3.1, 703.6.2.1

Nonglare Finish for Visual Characters, Pictograms and Symbols of Accessibility



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703.2.10.1, 703.5.3.1, 703.6.2.1
continued

since it can affect the measured results and their accuracy depending on the coatings and materials. The 60-degree angle was selected since it is a good general angle to obtain a clear differentiation over a broad range of finishes. Three measurement angles are commonly used to address the majority of coatings with the angle being selected based on the anticipated or measured gloss. For example, the 85-degree glossmeter test is more sensitive to differences in gloss below 10 GU at 60 degrees (Gloss Unit = GU), while the 20-degree test has higher accuracy on high gloss coatings (above 70 GU at 60 degrees). Therefore the 60-degree test is established since it works well for the 19 gloss unit measurement that the A117.1 requirement imposes.

Section 703.5.3.2 has been added to address the character contrast for text descriptors or other characters provided with pictograms. Section 703.1.3 requires that where pictograms are provided as designations of permanent interior rooms and spaces that a text descriptor is located beneath the pictogram field. Section 703.5.3 regulates the finish and contrast for the pictogram but does not address the characters in the text descriptor. Section 703.5.3.2 is added to ensure that the text descriptor field and characters below the pictogram are also provided with appropriate contrast. While it may be argued that Section 703.2.10 and 703.2.10.1 would be applicable because these are visual characters, having the additional reminder that Section 703.5.3.2 provides helps to eliminate any confusion that could result from the recognition that Sections 703.5.3 and 703.5.3.1 apply only to the pictogram and its field. Designers should also remember that Section 703.1.3 requires the text descriptors beneath pictograms to meet the provisions for visual characters, raised characters and braille. Therefore, the requirements for finish and contrast from both Sections 703.2.10 and 703.3.12 would be applicable, but having a statement directly within the pictogram section helps clarify the requirements and eliminates the need to follow the trail of references.

CHANGE TYPE: Clarification

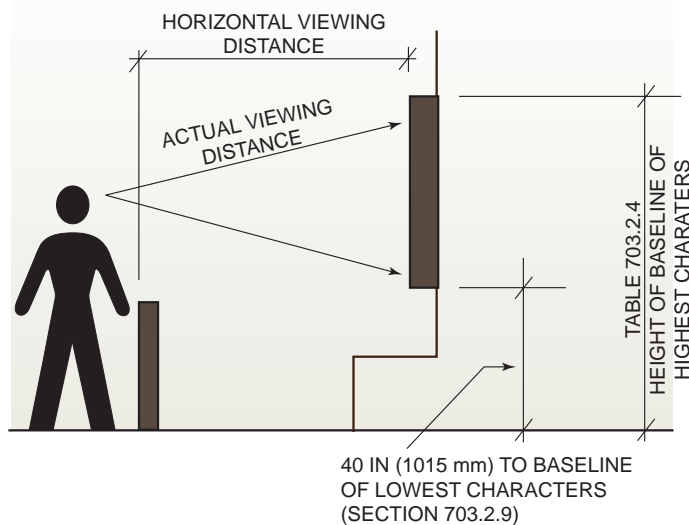
CHANGE SUMMARY: A new footnote clarifies how the ranges of viewing heights are to be measured when a designer is determining the appropriate minimum character height for visual characters or low resolution VMS characters.

2017 STANDARD: **TABLE 703.2.4 Visual Character Height**

Height above Floor to Baseline of Character ¹	Horizontal Viewing Distance	Minimum Character Height
40 inches (1015 mm) to less than or equal to 70 inches (1780 mm)	Less than 6 feet (1830 mm)	$\frac{5}{8}$ inch (16 mm)
	6 feet (1830 mm) and greater	$\frac{5}{8}$ inch (16 mm), plus $\frac{1}{8}$ inch (3.2 mm) per foot (305 mm) of viewing distance above 6 feet (1830 mm)
Greater than 70 inches (1780 mm) to less than or equal to 120 inches (3050 mm)	Less than 15 feet (4570 mm)	2 inches (51 mm)
	15 feet (4570 mm) and greater	2 inches (51 mm), plus $\frac{1}{8}$ inch (3.2 mm) per foot (305 mm) of viewing distance above 15 feet (4570 mm)
Greater than 120 inches (3050 mm)	Less than 21 feet (6400 mm)	3 inches (75 mm)
	21 feet (6400 mm) and greater	3 inches (75 mm), plus $\frac{1}{8}$ inch (3.2 mm) per foot (305 mm) of viewing distance above 21 feet (6400 mm)

1. The vertical height is measured from the floor of the viewing position to the baseline of the highest line of characters

Tables 703.2.4, 703.7.4 continues



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Tables 703.2.4, 703.7.4 Visual and Low Resolution VMS Character Height

Tables 703.2.4, 703.7.4 continued

TABLE 703.7.4 Low Resolution VMS Character Height

Height above Floor to Baseline of Character ¹	Horizontal Viewing Distance	Minimum Character Height
40 inches (1015 mm) to less than or equal to 70 inches (1780 mm)	Less than 10 feet (3050 mm)	2 inch (51 mm)
	10 feet (3050 mm) and greater	2 inch (51 mm), plus $\frac{1}{5}$ inch (5.1 mm) per foot (305 mm) of viewing distance above 10 feet (3048 mm)
Greater than 70 inches (1780 mm) to less than or equal to 120 inches (3050 mm)	Less than 15 feet (4570 mm)	3 inches (76 mm)
	15 feet (4570 mm) and greater	2 inches (76 mm), plus $\frac{1}{5}$ inch (5.1 mm) per foot (305 mm) of viewing distance above 15 feet (4570 mm)
Greater than 120 inches (3050 mm)	Less than 20 feet (6095 mm)	4 inches (100 mm)
	20 feet (6095 mm) and greater	4 inches (100 mm), plus $\frac{1}{5}$ inch (5.1 mm) per foot (305 mm) of viewing distance above 20 feet (6095 mm)

1. The vertical height is measured from the floor of the viewing position to the baseline of the highest line of characters.

CHANGE SIGNIFICANCE: The addition of the footnotes within each of the tables will clarify how the provisions are to be applied. Section 703.2.9 establishes that visual characters must be a minimum of 40 inches above the floor of the viewing position, thereby establishing the height to the baseline of the lowest line of characters. Sections 703.2.4 and 703.7.4 and the corresponding Tables 703.2.4 and 703.7.4 are then used to establish the minimum character heights based on the viewing distance and the height range in which the characters are located. Unfortunately, the 2009 edition of the standard did not explain whether the ranges were for the highest, lowest, average or each individual line of text. The lack of clarity caused confusion as the ranges were interpreted and applied differently by users.

The 2017 standard has now added footnotes that will clarify that the three ranges within the tables (40 inches to 70 inches, 70 inches to 120 inches, and greater than 120 inches) are to be “measured from the floor of the viewing position to the baseline of the highest line of characters.” This has generally been the way the provisions have been interpreted and applied in the past, but there was no specific language within the standard to point to in support of that decision. Previously, the commentary for the A117.1 standard did indicate that the height of the tables was to be taken “to the baseline of the highest line of the characters,” and most designers followed that advice. Therefore, this change is a clarification of the existing intent and provisions, and the application of the 2017 standard should not result in any change of requirements, only provide added support as to the proper application.

CHANGE TYPE: Modification

CHANGE SUMMARY: The revised exception clarifies that it is only the clear floor space that is exempted for drive-up phones. All other aspects of Section 704 will apply to the drive-up phones.

2017 STANDARD: 704.2 Wheelchair accessible telephones. Wheelchair accessible public telephones shall comply with Section 704.2.

Exception: Drive up only public telephones ~~are~~ shall not be required to be provided with a clear floor space complying ~~comply~~ with Section 704.2.

704.2.1 Clear floor space. (Unchanged)

704.2.2 Operable parts. (Unchanged)

704.2.3 Telephone directories. (Unchanged)

704.2.4 Cord length. (Unchanged)

704.2.5 Hearing-aid compatibility. (Deleted)

CHANGE SIGNIFICANCE: The revised exception exempts drive-up telephones from complying with the requirements for clear floor space. This means that the exception removes only the provisions within Section 704.2.1 for drive-up phones. As previously written, the exception allowed drive-up public telephones to be exempt from all of the general requirements, including the operable parts, telephone directories and cord length provisions found in the other subsections of Section 704.2.

The exception in the earlier edition of the standard was worded as it was in order to coordinate with the federal 2010 ADA *Standards for Accessible Design*. The federal requirements exempt a drive-up telephone from all of the provisions including hearing-aid compatibility and volume-control.

The revised exception found in the 2017 A117.1 standard will therefore exceed the federal requirements since it will impose all of Section 704.2 except for the clear floor space requirement. Having drive-up public telephones comply with all of the requirements may still not make them usable and accessible. For example, Section 704.2.2 requires operable parts to comply with Section 309, which would include the reach range provisions of Section 309.3. Whether those height limitations are appropriate for a drive-up telephones can be debated, since the reach ranges should be based on the variety of vehicle seat heights as opposed to a standard wheelchair seat height. It would be unlikely that a person in a vehicle could reach the 15-inch minimum dimension, and, for taller vehicles, the 48-inch upper reach limit may be inadequate.

Users of this standard should probably look at this set of code requirements on a case-by-case basis as opposed to simply following the literal provisions. Since the federal ADA provisions exempt all of these aspects for drive-up telephones, the enforcing jurisdiction could accept variations without violating the federal law. Ultimately, instead of trying to cover all telephone aspects in one section, it may be wise in the future to create separate sections to address mobility (wheelchair) and hearing aspects and then to determine which items may be needed for drive-up telephones and which items may not make sense or would need to be revised to address the potential different user positions.

704.2

Wheelchair Accessible Telephones



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704.2 continues

704.2 continued Section 704.2.5 was deleted from the current standard since the U.S. federal law requires such capability for all phones. This provision did not exist within the ADA, and because it is regulated by other federal law provisions, there was no longer need for the A117.1 standard to contain this requirement. The federal *Hearing Aid Compatibility Act of 1998* is the law that requires all public telephones installed in the U.S. to be hearing-aid compatible.

CHANGE TYPE: Deletion and Addition

CHANGE SUMMARY: This section was added to provide the basic design details needed to make a visual relay service booth usable and functional. These requirements replace an existing section for protruding objects that was considered redundant.

2017 STANDARD: ~~704.7 Protruding objects.~~ Telephones, enclosures, and related equipment shall comply with Section 307.

704.7 Visual relay service booth. Each public visual relay service booth shall accommodate one user with seating and privacy enclosure, a two-way video communication system and diffuse lighting with a minimum lighting level of 20 foot candles (215 lux). The background of the seating area, and within range of the two-way video communication system, shall have a flat, non-textured surface and finish color in the bright green or blue range.

CHANGE SIGNIFICANCE: In previous editions of the standard, there were no special requirements for protruding objects for telephones; therefore, the text previously found in Section 704.7 has been deleted. Since the building block provisions of Section 307 contain the detailed requirements, and Section 704.7 essentially served to provide a cross-reference, there was no reason to maintain the duplicative text.

The new requirement in Section 704.7 for a visual relay service booth provides a framework for the design of such spaces. These booths need to provide a privacy enclosure and certain features such as a two-way communication system and lighting in order to be usable by a caller who needs to use a visual relay service when making or receiving a call. The privacy enclosure could be as simple as a curtain or more substantial such as something like a photo booth or an old telephone booth, which may have been constructed within the building.

The intent of a visual relay service booth is to allow a location for a deaf person to sign to a video interpreter via a webcam or video phone. The interpreter voices the visual message to a hearing telephone user and relays the response message back to the video caller. This type of system is similar to a TTY relay service but allows for a person to sign instead of type.

The standard has specified a background color of bright green or blue in addition to a minimum level of lighting. The colors were selected because they are seldom within the human skin color spectrum and allow the person to stand out from the background. While other colors may work, these colors are used in the film industry, and without additional contrast information being given they were deemed to provide a degree of contrast that would be adequate for most people. The entirety of the privacy enclosure is not required to be of these colors, but only the portion of the background that would appear within the range of the video camera. Having adequate lighting also helps ensure the booth user and her or his gestures are visible.

These visual relay service booths will need to be scoped by the jurisdiction to indicate where they may be required or under what situations they must comply with Section 704.7. Perhaps at this point the best way to view these provisions is as a design standard and as what the A117.1 committee believes is appropriate for them to serve their intended purpose.

704.7 continues

704.7

Visual Relay Service Booth



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704.7 continued While it may be the best practice to regulate these booths where they are provided, the standard does not impose that type of scoping nor does it indicate in what occupancies or in what number the visual relay service booths should be provided. Scoping would have to be done by adopting jurisdictions in accordance with Section 201 before these booths would be considered as being “required.”

The requirements also do not specify any specific size, additional configuration or elements within the booth. For example, there are no requirements related to the size, such as whether a clear floor space is needed, whether a minimum-sized work surface is needed to support the two way communication system, or to establish a minimum or maximum viewing distance. Therefore, without additional guidance, people designing or installing these visual relay service booths will just need to consider the users the booths are intended to serve and then design for them as they believe is appropriate.

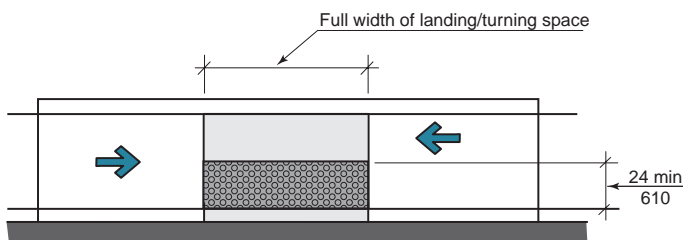
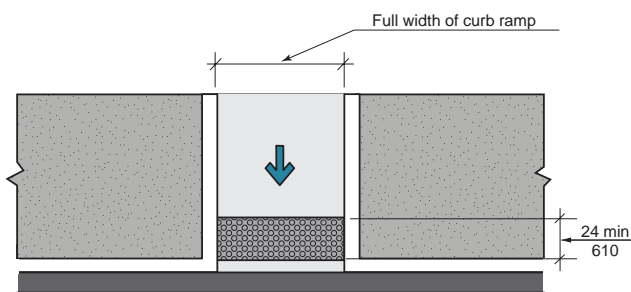
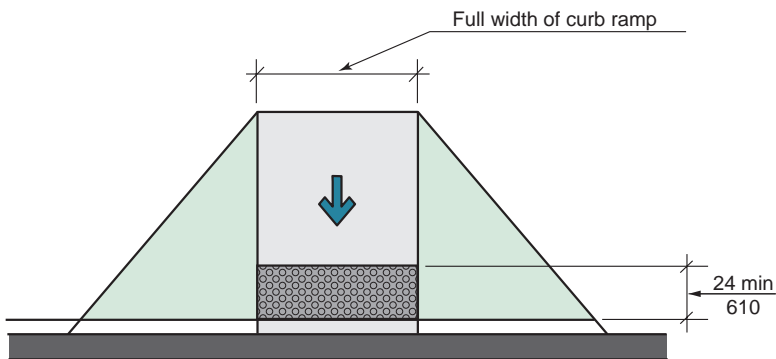
CHANGE TYPE: Modification

CHANGE SUMMARY: This consolidated section provides details regarding the depth and width of detectable warning surfaces.

2017 STANDARD: 705.6 Depth and width of detectable warning surfaces. Detectable warnings shall comply with the following:

1. Detectable warning surfaces shall extend 24 inches (610 mm) minimum in the direction of pedestrian travel.
2. At curb ramps and blended transitions, detectable warning surfaces shall extend the full width of the curb ramp run excluding any flared sides or blended transition.
3. At pedestrian at-grade rail crossings not located within a street or highway, detectable warnings shall extend the full width of the crossing.
4. At boarding platforms for buses and rail vehicles, detectable warning surfaces shall extend the full length of the public use areas of the platform.
5. At boarding and alighting areas at sidewalk or street level transit stops for rail vehicles, detectable warning surfaces shall extend the full length of the transit stop.

705.6 continues



Depth and width of detectable warning surfaces

705.6

Depth and Width of Detectable Warning Surfaces

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705.6 continued **CHANGE SIGNIFICANCE:** The changes within Section 705.6 need to be viewed as a part of the revisions found within Section 406 for the curb ramps and a small portion of the related changes for detectable warnings found within Section 705. This section addresses the intended placement for the detectable warnings and is appropriately located within Section 705 with the other technical requirements for detectable warnings. As an example, the previous edition of the standard included the 24-inch depth requirement within Section 406.12 for raised marked crossings, Section 406.13.1 for curb ramps, Section 406.14 for islands or cut-through medians, Section 705.6 for transportation platform edges and Section 805.10 for track crossings. The width provisions could also be found in those same sections. Having a single location addressing these depth and width requirements should provide more consistent application and make the provisions easier to find.

These criteria for the size and location are intended to be consistent with the requirements found within the proposed federal requirements for public rights-of-way. See Sections R208.1 and R305.1.4 of the proposed Public Rights-of-Way Accessibility Guidelines (PROWAG)

CHANGE TYPE: Modification

CHANGE SUMMARY: This consolidated section provides details regarding the placement of detectable warning surfaces that are dependent on the location they are intended to protect.

2017 STANDARD: 705.7 Placement. The placement of detectable warning surfaces shall comply with Section 705.7.

705.7.1 Perpendicular curb ramps. On perpendicular curb ramps, detectable warning surfaces shall be placed as follows:

1. Where the ends of the bottom grade break are in front of the back of curb, detectable warning surfaces shall be placed at the back of curb.
2. Where the ends of the bottom grade break are behind the back of curb and the distance from either end of the bottom grade break to the back of curb is 60 inches (1525 mm) or less, detectable warning surfaces shall be placed on the ramp run within one dome spacing of the bottom grade break.
3. Where the ends of the bottom grade break are behind the back of curb and the distance from either end of the bottom grade break to the back of curb is more than 60 inches (1525 mm), detectable warning surfaces shall be placed on the lower landing at the back of curb.

705.7.2 Parallel curb ramps. On parallel curb ramps, detectable warning surfaces shall be placed on the turning space at the flush transition between the street and sidewalk.

705.7.3 Blended transitions. On blended transitions, detectable warning surfaces shall be placed at the back of curb. Where raised pedestrian street crossings, depressed corners, or other level pedestrian street crossings are provided, detectable warning surfaces shall be placed at the flush transition between the street and the sidewalk.

705.7.4 Pedestrian refuge islands. At cut-through pedestrian refuge islands, detectable warning surfaces shall be placed at the edges of the pedestrian island and shall be separated by a 24 inches (610 mm) minimum length of surface without detectable warnings.

705.7.5 Pedestrian at-grade rail crossings. At pedestrian at-grade rail crossings not located within a street or highway, detectable warning surfaces shall be placed on each side of the rail crossing. The edge of the detectable warning surface nearest the rail crossing shall be 6 feet (1830 mm) minimum and 15 feet (4680 mm) maximum from the centerline of the nearest rail. Where pedestrian gates are provided, detectable warning surfaces shall be placed on the side of the gates opposite the rail.

705.7.6 Boarding platforms. At boarding platforms for buses and rail vehicles, detectable warning surfaces shall be placed at the boarding edge of the platform.

705.7.7 Boarding and alighting areas. At boarding and alighting areas at sidewalk or street level transit stops for rail vehicles, detectable warning surfaces shall be placed at the side of the boarding and alighting area facing the rail vehicles.

705.7

Placement of Detectable Warnings



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705.7 continues

705.7 *continued*

CHANGE SIGNIFICANCE: The changes within Section 705.7 need to be viewed as a part of the revisions found within Section 406 for curb ramps and the other revisions of Section 705. Perhaps the most substantial technical changes are found within the curb ramp provisions (Sections 705.7.1, 705.7.2 and 705.7.3) where details for the placement of the detectable warning systems with the three types of curb ramps (perpendicular, parallel and blended transitions) can be found.

The placement of the detectable warnings will often differ from what had previously been done due to the changes found within Sections 406 and 705.7 and how the curb ramps and grade breaks align with the curb. For example, Section 406.5.2 requires that grade breaks occur so they are perpendicular to the direction of the curb ramp run. (See the discussion related to grade breaks with Section 406.5 earlier in this book and Figures 406.5.2 and 406.5.5 of the standard.) The location of the detectable warnings in relationship to the grade break and the back of the curb will differ based on the distance the grade break occurs behind the curb. Previously, grade breaks were often aligned with the curb itself, and the detectable warnings were then located directly at the back of the curb. Figures 705.7.1(A) and (B) of the standard show how the location of the grade break and the back of curb can affect the placement of the detectable warning surfaces, with Figure 705.7.1(A) showing a placement that although permitted, would have been unusual under the previous standard.

The requirements of Section 705.7.2 are important since they are new within the standard and provide specific guidance for the placement of detectable warnings at parallel curb ramps. Since these types of curb ramps were not previously addressed within the standard, it was common to see the detectable warnings on the curb ramps in some jurisdictions or at all or part of the turning space within other jurisdictions. Addressing the placement within the standard will provide more consistent applications and provide greater consistency for the visually impaired users who rely on the detectable warnings for their notice of potential dangers.

Users of this standard should be aware of a few specific revisions including those of Section 705.7.4 for pedestrian refuge islands and Section 705.7.7 for boarding and alighting areas. While it may not be apparent from the text of Section 705.7.4, detectable warnings are not required for cut-through pedestrian refuge islands that are less than 6 feet in length. A minimum of 6 feet would be needed to provide detectable warnings at both edges as well as the 24-inch separation between the warnings. This exemption is in the exception in Section 406.6.2. Small islands under 6 feet do not provide adequate space for a person in a wheelchair to safely wait outside of the flow of traffic. Previously the standard would have placed detectable warnings for the entire width and depth of the pedestrian route through a refuge island that was less than 48 inches in depth.

Section 705.7.7 should also be recognized as a change since it applies only to rail vehicles and because it also regulates boarding areas that are either at the street or sidewalk level. These boarding areas may not necessarily be elevated similar to the boarding platforms covered by Section 705.7.6, Sections 805.2 or Section 805.5. It is important to notice the distinctions that Section 705.7.6 applies to boarding platforms for both buses and rail vehicles, while Section 705.7.7 only applies to the “boarding and



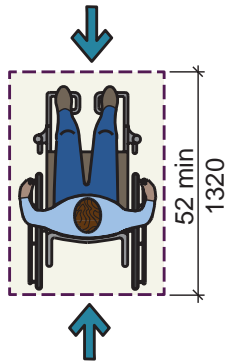
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alighting areas at sidewalk or street level” and only to rail vehicles. Based on the difference in wording, transit stops for buses that have boarding and alighting areas at the sidewalk or street level as opposed to at a “platform” would not need detectable warning surfaces. (See Section 805.2 for bus boarding and alighting requirements.)

Again, these provisions are intended to be consistent with the requirements found within the proposed federal requirements for public rights-of-way (PROWAG).

802.4, 802.5.1

Depth of Wheelchair Space in Assembly Areas



CHANGE TYPE: Modification

CHANGE SUMMARY: The size and access to the wheelchair spaces of assembly seating areas have been altered based on the changes to the building block requirements for a clear floor space.

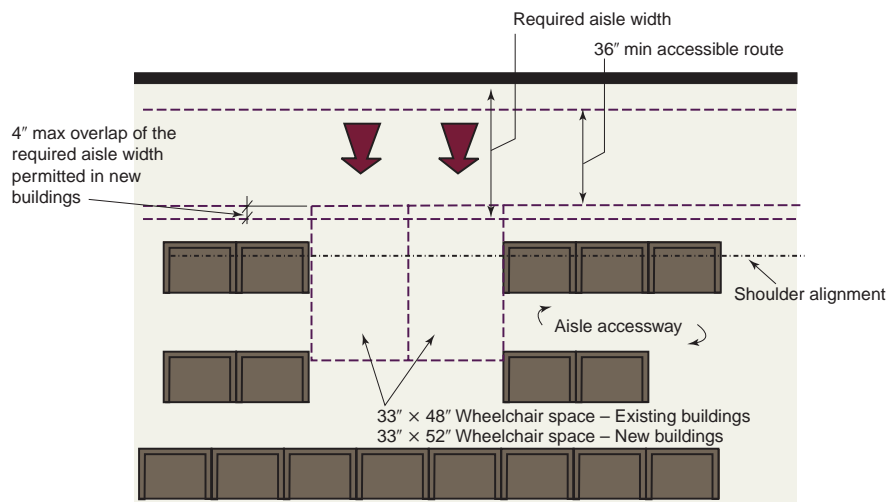
2017 STANDARD: **802.4.1 New buildings and facilities.** In new buildings and facilities, where a wheelchair space is entered from the front or rear, the wheelchair space shall be 52 inches (1320 mm) minimum in depth. Where a wheelchair space is only entered from the side, the wheelchair space shall be 60 inches (1525 mm) minimum in depth.

802.4.2 Existing buildings and facilities. In existing buildings and facilities, where a wheelchair space can be entered from the front or rear, the wheelchair space shall be 48 inches (1220 mm) minimum in depth. Where a wheelchair space can be entered only from the side, the wheelchair space shall be 60 inches (1525 mm) minimum in depth.

802.5 Approach. The wheelchair spaces shall adjoin an accessible route. The accessible route shall not overlap the wheelchair space.

802.5.1 Overlap. A wheelchair space shall not overlap the required width of an aisle.

Exception: In new buildings the depth of a wheelchair space shall be permitted to overlap the required aisle width a maximum of 4 inches (100 mm).



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CHANGE SIGNIFICANCE: These changes relate to the revisions made in the building block requirements for a clear floor space for a wheelchair. Since the size of the clear floor space has been increased from 48 inches to the new 52-inch depth requirement, that increased size has been added into Section 802 for wheelchair seating spaces in assembly areas. As shown from the research submitted with these changes, a length of 48 inches accommodates about 75 percent of manual wheelchair users and only about 50 percent of powered chair and scooter users.

As discussed earlier in this book, the committee decided to limit the application of the increased size so that it only applies to new buildings or facilities. Section 802.4.2, which is essentially the text from Section 802.4 of the previous edition of the standard, has been modified so that it

applies to existing buildings. The decision to allow existing buildings to continue to use the smaller depth for the wheelchair space was based on the potential impact that could occur if the larger-sized space was mandated in any type of alteration of an existing building or facility.

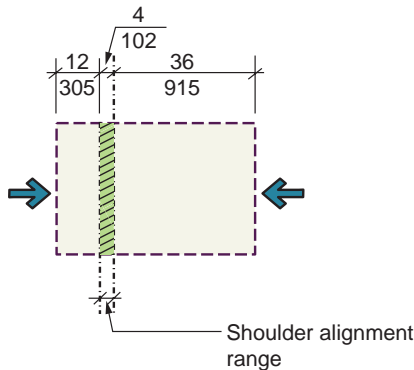
When designers apply the exception in Section 802.5.1, Figure 802.5.1(a) of the standard provides a good visual representation of what is intended. The increased depth of the wheelchair space is permitted to overlap and extend into the aisle a maximum of 4 inches. This overlap is permitted to extend into the minimum required aisle width, but because the exception is located within the subsection of Section 802.5.1, it does not allow the space to extend into the clear width of the accessible route, which is required by the base paragraph of Section 802.5. While some concern was expressed regarding this potential obstruction of the aisle width, the committee elected to approve it based on several factors including (a) many aisles are designed so the width exceeds the required egress capacity; (b) the user of the wheelchair or other mobility device would also be exiting the building if egress is necessary, therefore removing the width obstruction of the aisle; and (c) without the exception, the greater clear floor space would require reconsideration of basic sight lines in stadiums, theaters and similar spaces. Therefore, the exception limits the overlap to the depth measurement and does not permit any overlap to occur from the width of the wheelchair space.

802.7.2

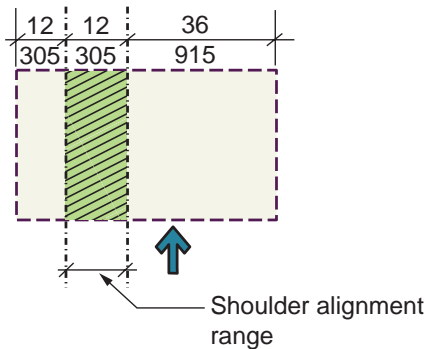
Companion Seat Alignment



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Alignment – Forward approach



Alignment – Side approach

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CHANGE TYPE: Modification

CHANGE SUMMARY: This change creates a range for shoulder alignment that works with the larger wheelchair space required for new buildings. An exception eliminates shoulder alignment for wheelchair spaces where the user is in tiered seating at a dining surface or work surface.

2017 STANDARD: 802.7 Companion seat. A companion seat, complying with Section 802.7, shall be provided beside each wheelchair space.

802.7.1 Companion seat type. (No change)

802.7.2 Companion seat alignment. In row seating, the companion seat shall be located to provide shoulder alignment with the wheelchair space occupant. The shoulder of the wheelchair space occupant shall be measured either is considered to be 36 inches (915 mm) or more from the front or and 12 inches (305 mm) or more from the rear of the wheelchair space. The floor surface for the companion seat shall be at the same elevation as the wheelchair space floor surface.

Exception: Companion seat alignment shall not be required in tiered seating that includes dining surfaces or work surfaces.

CHANGE SIGNIFICANCE: Previously the point of alignment for the wheelchair space was 36 inches from the front or 12 inches from the rear. Where the minimum-sized 48-inch wheelchair space was used, this provided a single reference point that was to be aligned with the shoulder location of person occupying the companion seat. With the minimum depth of the wheelchair space now being increased to 52 inches, the shoulder alignment requirement now establishes a range where the shoulder of the wheelchair user can be assumed to be located. The standard will still use the 36-inch and 12-inch dimensions as previously done, but now both dimensions include the phrase “or more.” While this may at first look appear to grant the designer a fairly loose set of requirements, the shoulder alignment must comply with both the requirements to be measured from the front “and” from the rear of the wheelchair space. Therefore, in a minimum-sized wheelchair space with a 52-inch depth, the result is a range of 4 inches, which could satisfy both of the requirements for being 36 inches from the front and 12 inches from the back. If the depth of the wheelchair space exceeds 52 inches, this range will also increase and allow the shoulder alignment to be set to any point within that range.

The exception eliminates the requirement for shoulder alignment where the wheelchair space is situated at a dining surface or a work surface in a tiered seating area. This portion of the change is a companion piece to changes made in Section 802.1. Shoulder alignment with the companion seat is not required since the intent is to address the positioning to the dining or work surface for both the person using the wheelchair and for her or his companion.

Although not covered in this book, readers should be aware of the changes in Section 802.1 and the impact and allowances they will provide. In essence, they will allow the number of wheelchair spaces in these types of spaces to be determined based on the scoping for dining or work spaces (typically 5 percent) but allow the distribution of the wheelchair spaces and locations to be done based on the sightline and distribution requirements that are appropriate for the tiered assembly seating arrangements.

CHANGE TYPE: Modification

CHANGE SUMMARY: These revisions provide clarity and options by the addition of text and requirements that are found within the ADA.

2017 STANDARD: 802.10.4 Spaces utilized primarily for viewing motion picture projections. In spaces utilized primarily for viewing motion picture projections, wheelchair space locations shall comply with Section 802.10.4.

802.10.4.1 Spaces with seating on risers. Where tiered seating is provided, wheelchair space locations shall be integrated into the tiered seating area on a riser or a cross-aisle.

802.10.4.2 Distance from the screen. Wheelchair space locations shall be located in accordance with one of the following:

1. Within the rear 60 percent of the seats provided; or
2. Located within the area of an auditorium in which the vertical viewing angles, as measured to the top of the screen, are from the 40th to the 100th percentile of vertical viewing angles for all seats as ranked from the seats in the first row (1st percentile) to seats in the back row (100th percentile).

CHANGE SIGNIFICANCE: On the whole, these changes are intended to provide harmonization between the 2010 *ADA Standard for Accessible Design* and the A117.1 standard. Both of the revisions have existed in the ADA, and because they were not listed within the A117.1 standard it caused confusion and occasional conflicts.

The added text within Section 802.10.4.1 specifically indicates that placing the wheelchair space on either a riser or a cross aisle is permitted for integration with the tiered seating. When a designer is dealing with stadium-styled seating in a theater, it is important that he or she integrates the wheelchair spaces into the main seating area and does not locate them where they are outside of the general seating area of the assembly space.

802.10.4 continues



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802.10.4

Spaces Utilized Primarily for Viewing Motion Picture Projections

802.10.4 continued

Including the wording “on a riser or cross-aisle” within the text shows that locating the wheelchair space on a cross aisle can be considered an acceptable means of integration provided it is located there along with other seats. These spaces could be located along the cross aisle either in the front, middle or back of the seating area. Without the wording from the ADA, it could be interpreted that the wheelchair seating must be located on one of the elevated tiers within the seating area. Figure 802.5.1(A) and to some extent also the sightline depictions of Figures 802.9.1.1 and 802.9.1.2 show how the wheelchair spaces can be located on a riser or cross aisle and be integrated within the footprint of the general seating area. Adding the language helps provide better consistency for interpretations and with the ADA.

The second compliance option within Section 802.10.4.2 dealing with the distance the wheelchair seating space should be located from the screen has also been taken from the ADA. This provides two options for determining if the wheelchair seating and viewing distance from the screen has been adequately distributed to provide equivalency for the users. The two options may provide different results, and it is acceptable to use either option. While option 1 is based strictly on the total seat count and the locations of the seats, option 2 is based on the viewing angles for the seats. Therefore, option 2 allows the wheelchair seating spaces to be located differently within the auditorium, since it is less dependent on the size of the seating area and more dependent on the viewing angles available from the seats.

CHANGE TYPE: Addition

CHANGE SUMMARY: This new section provides the design parameters for sign-language interpreter stations including the size, location, lighting levels and appropriate backdrop.

2017 STANDARD: **802.11 Sign language interpreter stations.**

802.11.1 General. Sign language interpreter stations shall comply with Section 802.11.

802.11.2 Area. A sign language interpreter station shall provide a level and clear floor of a minimum size of 24 inches (610 mm) deep and 36 inches (915 mm) wide that is located to provide a direct line of sight from the seating area identified in Section 802.11.3.

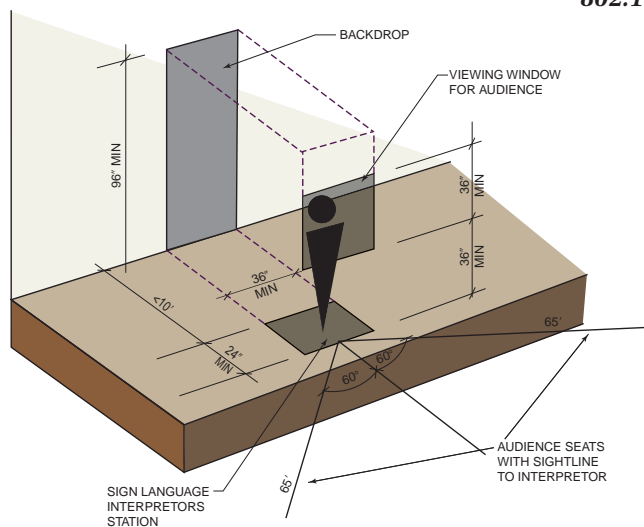
802.11.3 Location. Sign language interpreter stations shall be located so that seating within an arc from the station and measured to the left and to the right 60 degrees within 65 feet (19.8 m) horizontal distance from the station is provided with sightlines providing a view of the sign language station from a height of 36 inches (915 mm) to 72 inches (1830 mm) above the floor of the station.

802.11.4 Illumination. The sign language interpreter station shall have lighting facilities capable of providing 10 footcandles (108 lux) of illuminance while signing is underway measured at the center of the floor of the sign language station at a height of 48 inches (1220 mm) above the floor.

802.11.5 Backdrop. When a sign language interpreter station is located with a permanent wall less than 10 feet (3050 mm) behind the sign language interpreter station, the permanent wall to a height of 96 inches (2440 mm) from the finish floor shall be considered as a backdrop. The backdrop shall provide a flat, smooth surface with a monochromatic, low-luster finish treatment.

Exception: The wall shall not be required to comply with this section where a backdrop with a monochromatic, low luster finish treatment is provided.

802.11 continues



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802.11 continued

CHANGE SIGNIFICANCE: The intent of this section is to provide guidance to designers and facilities related to the appropriate design features for a sign-language interpreter's station. The standard does not require these facilities, but a jurisdiction could provide scoping as discussed in Section 201. The appropriate occupancies for and location of these facilities within the space will be dependent on the type of program that is being presented. The design parameters listed should make the space of an adequate size for the interpreter to accomplish her or his task and provide a well-lighted and adequate viewing area so that the interpreter's signing can be easily seen by the audience members using this service.

Section 802.11.2 establishes a minimum size for the interpreter station and specifies that the station be located to provide a direct line of sight from the seating area that is being served. Preferably, the interpreter will have a place to stand at the front of the room, close to the same level as the person speaking, so that the people in the audience using the service can watch both. While having an interpreter on stage near a single presenter may be appropriate for a lecture or conference, that location would be inappropriate for a live performance such as a play or presentation where the interpreter could interfere with the actors or become obstructed by people moving in front of the interpreter. Though not mentioned in the standard, the size of the space specified is adequate for the signer who is working. Consideration should be given to the need to periodically switch out interpreters and how an off-duty interpreter would access the space so the trade-off of duties could be done fairly easily.

The viewing angle and distance specified within Section 802.11.3 are intended to ensure that the signer is visible from the front and not from an extreme angle. This allows the person relying on the interpreter to appropriately see their signing and expressions. The 60-degree angle from both directions does not imply that the interpreter's station needs to be located in the center of the seating or performing area. It is a recognition that only the patrons seated in a specific area of the audience would have the appropriate fairly straight-on view of the interpreter and her or his signing. Because it is important for the audience to see the signing and expressions of the interpreter, the standard establishes that the sightlines must allow the portion of the station between 36 inches and 72 inches in height to be seen.

Adequate lighting is needed for the audience to see the interpreter. This is especially important if the interpreter is off to the side in a darkened theater. Section 802.11.4 addresses this issue, but additional effort should be made so that the lighting does not create shadows that may leave portions of the interpreter darkened and make it difficult for the audience to view his or her gestures or expressions. The lighting requirements therefore will be somewhat dependent on the layout of each specific interpreter station and facility. The backdrop requirements will work well with the lighting provisions so that the signer is emphasized by the lighting and more visibly apparent.

CHANGE TYPE: Modification

CHANGE SUMMARY: This change clarifies that kitchens without a cooktop or conventional range will need to meet the 40-inch minimum clearance and not either the pass-through or U-shaped kitchen provisions. Islands installed within U-shaped kitchens permit a 40-inch minimum clear width between obstructions similar to the requirements for pass-through kitchens.

2017 STANDARD: 804.2 Clearance. Where a pass-through kitchen is provided, clearances shall comply with Section 804.2.1. Where a U-shaped kitchen is provided, clearances shall comply with Section 804.2.2. Kitchens where a cook top or conventional range is not provided shall comply with Section 804.2.3.

Exception: ~~Spaces that do not provide a cooktop or conventional range shall not be required to comply with Section 804.2 provided there is a 40-inch (1015 mm) minimum clearance between all opposing base cabinets, counter tops, appliances, or walls within work areas.~~

804.2.1 Pass-through kitchens. (Unchanged)

804.2.2 U-shaped kitchens. In kitchens enclosed on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum.

Exception: U-shaped kitchens with an island complying with Section 804.2.1.

804.2.3 Spaces where a cooktop or conventional range is not provided. In a kitchen space where a cooktop or conventional range is not provided, clearance between all opposing base cabinets, countertops, appliances and walls within kitchen work areas shall be 40-inch (1015 mm) minimum.

Type A units

1103.12.1.2 U-Shaped kitchens. In kitchens with counters, appliances, or cabinets on three contiguous sides, clearance between all opposing

804.2, 1103.12.1.2, 1104.12.1.2 continues



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804.2, 1103.12.1.2, 1104.12.1.2 Kitchen Clearance

804.2, 1103.12.1.2, 1104.12.1.2
continued

base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum.

Exception: U-shaped kitchens with an island complying with Section 1103.12.1.1.

Type B units

1104.12.1.2 U-Shaped kitchens. In kitchens with counters, appliances, or cabinets on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum.

Exception: U-shaped kitchens with an island complying with Section 1104.12.1.1.

CHANGE SIGNIFICANCE: Historically, the standard’s general kitchen provisions have addressed two types of kitchens: pass-through and U-shaped. The key distinction between the two is whether there are two entries (pass-through), or if the kitchen is bounded on three sides and therefore only provides a single entry (U-shaped). The 2009 standard provided an exemption for some requirements in a “kitchenette.” The standard has now eliminated the term kitchenette in most locations and will address them as kitchens that have limited features such as those “where a cooktop or conventional range is not provided.” This now establishes that there are essentially three types of kitchens: pass-through, U-shaped and those without a cooktop or conventional range. Where appropriate, the standard addresses kitchens that do not provide a cooktop or conventional range, allows reduced clearances or changes requirements based on the reduced intensity of use.

Perhaps the most important portion of these changes is the addition of the exceptions into the U-shaped kitchen provisions both within Chapter 8 and within the Type A and Type B dwelling unit provisions of Chapter 11. These exceptions provide clear direction on how kitchens with islands are to be addressed. Previously, depending on the layout, a difference of opinion could result as to whether the kitchen was a U-shaped layout, which would require a 60-inch clearance between cabinets, walls, appliances or the island; or whether the island created a pass-through condition, which permitted the reduced 40-inch clearance. The standard now indicates that U-shaped kitchens with an island will be allowed to use the 40-inch clearance permitted by the pass-through kitchen provisions, or in the case of the dwelling units, the separate provisions (often called galley kitchens) that are found within the Type A and Type B unit requirements. Therefore, where an island is provided within the kitchen, the clearance between the island and any other cabinet, wall or appliance is permitted to be 40 inches minimum in width.

Although there is no revision in the 60-inch clearance required for U-shaped kitchens, it may be appropriate to explain why. The intent of the U-shaped kitchen provisions is to allow appliances or the cabinets at the base of the “U” to be accessed. The 60-inch clearance therefore was essentially setting up that base of the U-shaped kitchen to comply with the parallel approach alcove requirements found within Section 305.7.1, since the kitchen or the cabinets would exceed the triggering 15-inch depth. In addition, the increase to 67 inches would have also created problems by making the kitchen work area larger to the point that the rule-of-thumb requirement for a maximum of 15 steps for the kitchen triangle among the three kitchen work stations (refrigerator, cooking appliance and sink)

would be exceeded, thereby making the kitchen less efficient. It is important to understand this historical perspective and reasoning since many people assume that the 60-inch requirement was based on the size of the turning circle, which of course has now been increased to 67 inches as stated in Section 304.3.1 of the standard. This is mentioned here because U-shaped kitchens within Accessible and Type A dwellings that are designed using the 60-inch minimum clearance would still need to provide a turning space, which, due to the clearance between the cabinets, would need to be T-turn compliant with Section 304.3.2. Turning spaces are required within the kitchens of Accessible and Type A units by Sections 1102.3.2 and 1103.3.2 respectively. Within public kitchens regulated by Section 804, there is no specific requirement for a turning space within the kitchen. However, within most U-shaped kitchens complying with Section 804.2.2, any of the three options for a T-shaped turning space within Section 304.3.2 could be placed within the U-shaped space itself, based on the 60-inch minimum dimension. Where a pass-through kitchen or galley kitchen is used, Accessible units and Type A units require a turning space within the room (Sections 1102.3.2 and 1103.3.2 respectively). The turning space within these pass-through or galley kitchens of Accessible or Type A units need to be accomplished by increasing the width of the knee and toe clearance beneath either the sink or the work surface to be a minimum of 40 or 42 inches depending on whether the option 2 or option 3 T-turn was selected. There is no specific requirement to provide a turning space within a pass-through kitchen in a public area that is required to comply with Section 804.2.1. Most wheelchair users would be able to use the clearance required beneath the sink or work surface to make a T-turn, even though the width beneath the element may not comply with the requirements of Section 304.3.2. If not, the wheelchair user would end up needing to use the pass-through feature and make a turn in the adjacent space, then re-enter the kitchen.

808

Enhanced Acoustics for Classrooms

CHANGE TYPE:

CHANGE SUMMARY: This new section provides guidance to improve the acoustics in classrooms by controlling the reverberation time and background noise within the classroom.

2017 STANDARD:

SECTION 808 ENHANCED ACOUSTICS FOR CLASSROOMS

808.1 General. Classrooms not exceeding 20,000 cubic feet (565 m³) and required to provide enhanced acoustics shall comply with Section 808.

808.2 Reverberation time. Classroom reverberation times shall comply with either Section 808.2.1 or Section 808.2.2, depending on the size of the room.

808.2.1 Performance method. For each of the octave frequency bands with center frequencies of 500, 1000, and 2000 Hz, the reverberation time (T60) shall not exceed the times specified below:

1. 0.6 seconds in classrooms with volumes up to and including 10,000 cubic feet (285 m³).
2. 0.7 seconds in classrooms with volumes of more than 10,000 cubic feet (285 m³), but less than 20,000 cubic feet (566 m³).

Reverberation times shall apply to fully-furnished, unoccupied classrooms. Reverberation times shall be field-verified via measurements over a minimum 20 dB decay in each octave frequency band in accordance with ASTM E2235 listed in Section 106.2.13.

808.2.2 Prescriptive method. The Noise Reduction Coefficient (NRC) ratings for floor, wall and ceiling surface finishes shall conform to the following equations:

For a classroom with a volume less than or equal to 10,000 cubic feet (285m³):

$$(NRC_{\text{Floor}} \times S_{\text{Floor}}) + (NRC_{\text{Ceiling}} \times S_{\text{Ceiling}}) + (NRC_{\text{Wall}} \times S_{\text{Wall}}) \geq \text{Volume}/12$$



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For a classroom with a volume between 10,000 cubic feet (285 m³) and 20,000 cubic feet (565 m³):

$$(NRC_{\text{Floor}} \times S_{\text{Floor}}) + (NRC_{\text{Ceiling}} \times S_{\text{Ceiling}}) + (NRC_{\text{Wall}} \times S_{\text{Wall}}) \geq \text{Volume}/14$$

Where:

NRC_{Floor} = NRC rating of the floor finish material

S_{Floor} = floor area in square feet

NRC_{Ceiling} = NRC rating of the ceiling finish material

S_{Ceiling} = ceiling area in square feet

NRC_{Wall} = NRC rating of the wall acoustical treatment

S_{Wall} = wall treatment area in square feet

Volume = room volume in cubic feet

Where a floor, ceiling or wall has multiple surface finishes, the NRC x S product for each surface finish shall be added to the left side of the equation.

808.3 Ambient sound level. Classroom ambient sound levels shall comply with Sections 808.3.1 and 808.3.2. Ambient sound levels from sound sources outside and inside the classroom shall be evaluated individually. The greatest one-hour averaged sound levels shall be evaluated at the loudest usable location in the room at a height of 36 inches (915 mm) to 42 inches (1065 mm) above the floor and no closer than 36 inches (915 mm) from any wall, window, or object. The ambient sound level limits shall apply to fully-furnished, unoccupied classrooms, and with only permanent HVAC, electrical and plumbing systems functioning. Classroom equipment, including, but not limited to, computers, printers, fish tank pumps shall be turned off during these measurements.

808.3.1 Sound sources outside of the classroom. Classroom ambient sound levels shall not exceed 35 dBA and 55 dBC due to intruding noise from sound sources outside of the classroom, whether from the exterior or from other interior spaces.

808.3.2 Sound sources inside the classroom. Classroom ambient sound levels shall not exceed 35 dBA and 55 dBC for noise from sound sources inside the classroom.

CHANGE SIGNIFICANCE: The intent of these requirements is to help improve the education process by providing better acoustics within classrooms. Research shows that good classroom acoustics are essential to support language acquisition and learning for all children, particularly younger children. For example, where speech and words are fully audible, children and adults do well in understanding what is being said. When only a portion of the words can be heard, a child's performance drops quickly, while adults are more able to use their experience, background and contextual clues to typically fill in the blanks better than what a child's experience would permit.

These provisions are not simply directed at people with hearing loss or with disabilities that may be affected by high ambient noise levels. Research has shown that good acoustics and low background noise in a classroom benefits everyone, including the teacher. Inappropriate levels of reverberation and/or noise can negatively affect speech perception, reading and spelling ability, classroom behavior, attention, concentration

808 continues

808 continued and educational achievement. Thus, all educational settings should have an incentive to develop acoustical conditions that enhance the educational process.

As mentioned previously, these provisions address the acoustic qualities of the space by addressing both the reverberation time and the ambient sound level of the room. Reverberation is defined as the persistence of a sound after its source has stopped, and it is caused by the sound reflecting within the space. The reverberation time is regulated by Section 808.2 and provides two options for compliance: a performance method in accordance with Section 808.2.1 or a prescriptive method using Section 808.2.2. The performance method involves actual testing of the room to show compliance, while compliance with the standard’s prescriptive method is shown by calculation. The committee’s intent was to provide something that was accurate enough to accomplish the acoustic performance without being so complex that it would be unusable by people without an acoustic background. This issue of complexity is mentioned here since people with an acoustic background may use some methodology other than the Noise Reduction Coefficient (NRC) ratings, such as a calculation method that uses octave band absorption coefficients. Since this type of calculation would generally be more accurate than the NRC method, this calculation should be considered acceptable by using the compliance alternative provisions of Section 104.

The second aspect that the standard addresses under the acoustic provisions is the ambient sound levels within the classroom. These provisions address both the sound sources from within the classroom itself as well as those sound sources that originate outside of the classroom. Anyone who has ever sat in a classroom or a meeting where a noisy mechanical system affected their ability to hear the speaker or listen to the TV will understand the way that ambient sound levels can affect the ability to hear and understand what is being said. Limiting the sound level within the classroom—whether the source is from within the room itself, from an adjacent classroom or space, or from outside from the traffic or playground—will help to improve the classroom experience and the interaction between those within the classroom.

Some of the important details to recognize with these current provisions are the fact that the provisions are applicable to classrooms that do not exceed 20,000 cubic feet and that Section 808 is not applicable unless the jurisdiction has provided scoping as required by Section 201. The reason for the 20,000-cubic-foot size limit is that rooms larger than that are still being evaluated, and therefore there is not sufficient information to set a standard at this point. Future editions of the standard could incorporate changes as additional research becomes available, or designers could elect to comply with appropriate requirements as either a “best practices” or because compliance would exceed the requirements of the standard—which currently don’t exist—for larger rooms. In addition, it may be that these requirements are not the correct provisions to use for rooms with other types of acoustical concerns such as choral practice rooms, band rooms or libraries.

CHANGE TYPE: Modification

CHANGE SUMMARY: The location of a clear floor space in order for a mobility-device user to access a bench has been relocated to the end of the bench to coordinate with the requirements of the ADA.

2017 STANDARD: 903.2 Clear floor space. A clear floor space complying with Section 305, positioned for parallel approach to the bench seat at the end of the bench seat and parallel to the short axis of the bench, shall be provided.

CHANGE SIGNIFICANCE: Here the committee has reversed a change made in the 2009 edition of the standard by returning to the requirements of the 2003 edition in order to coordinate the A117.1 standard with the ADA requirements. The ADA has, since its origination, required the clear floor space providing access to the bench to be located at the end of the bench on the short side. This requirement for an end approach was set into the 2004 *ADA and ABA Accessibility Guidelines*. During the development of the 2009 edition of the A117.1 standard, the committee recognized that having the approach at the end of the bench created problems and led to a difficult transfer. The committee therefore elected to require a parallel approach to the front of the bench. Unfortunately, because this put the A117.1 and the ADA standard in direct conflict, it caused confusion and led to concerns that forced designers to elect one option over the other, or they tried to comply with both sets of requirements. While providing both approach options gave the people using the bench the choice of transfer locations, it also created additional design constraints.

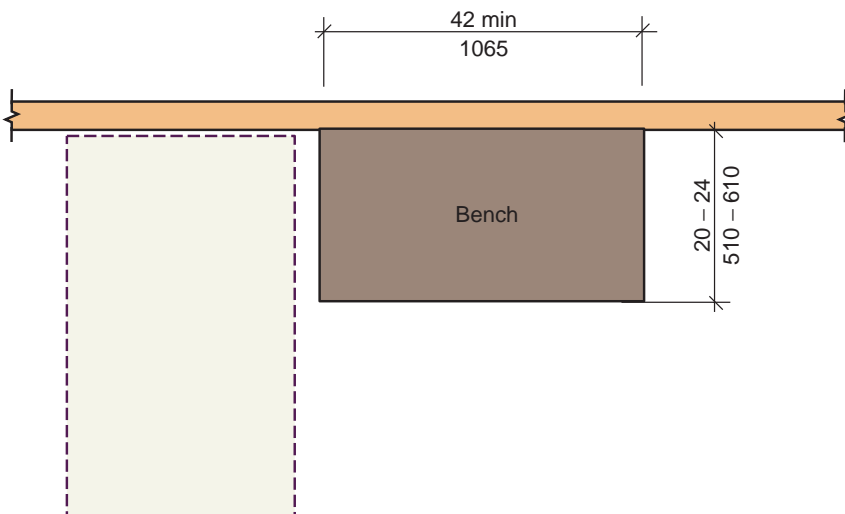
The A117.1 committee had several reasons for originally deciding to allow for a parallel approach versus an approach to the end of the bench. One reason was that the clear floor space at the end of the bench was not required to be recessed 12 inches behind the back of the seat as it was in a transfer shower. Therefore, if a wheelchair user backed into the space, her or his wheelchair seat was not aligned with the bench, or she or he was required to lift up and over the armrest of the wheelchair to transfer. Many people elected instead to enter the clear floor space at the end of the bench by either a forward approach or at an angle. This essentially gave

903.2 Clear Floor Space at Benches



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903.2 continues



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903.2 *continued* them improved access to the bench by placing their seats closer to the bench and somewhat eliminating the need to transfer over the armrest on the wheelchair.

An unintended, although useful, consequence of the 2009 standard's requirements was that if the bench ran across the back end of the dressing room, the result was a bench that was at least 60 inches in length (due to the alcove and turning space provisions). Plus, having walls at both ends allowed a user to brace herself or himself in either corner if she or he needed that assistance while changing clothes.

So although the A117.1 committee was torn between providing a solution that seemed practical and more usable than that required by the ADA, the committee ultimately elected that coordination with the federal requirements and eliminating the conflict was the best option until additional research can be done. In the meantime, if designers believe that the parallel approach to the front of the bench provides better access, they could either try to justify that viewpoint under the compliance alternative provisions of Section 104 or could locate the bench so that an approach to both the end and to the front of the bench is provided. This would always be acceptable since it would clearly exceed the base requirement of both the standard and the ADA.

CHANGE TYPE: Modification

CHANGE SUMMARY: These revisions help clarify the requirements for sales and service counters and windows, with an effort to make a distinction between the employee side of the counter and the public portion. The changes should provide better equity for accessible counters.

2017 STANDARD: 904.3 Sales and service counters and windows. Sales and service counters and windows shall comply with Section 904.3.1 or and either Section 904.3.2 or Section 904.3.3. Where counters are provided, the accessible portion of the countertop shall extend the same depth as the public portion of the sales and service countertop provided for standing customers.

Exception: In alterations, when the provision of a counter complying with this section would result in a reduction of the number of existing counters at work stations or a reduction of the number of existing mail boxes, the counter shall be permitted to have a portion which is 24 inches (610 mm) minimum in length complying with Section 904.3.2 provided that the required clear floor space is centered on the accessible length of the counter.

904.3.1 Vertical barriers. At service windows or service counters, any vertical barrier between service personnel and customers shall be at a height of 43 inches (1090 mm) maximum above the floor.

Exception: Transparent security glazing shall be permitted above the 43 inches (1090 mm) maximum height.

904.3.1-904.3.2 Parallel approach. A portion of the public use side of the counter surface 36 inches (915 mm) minimum in length and 26 inches (660 mm) minimum to 36 inches (915 mm) maximum in height above the floor shall be provided. A clear floor space complying with Section 305, positioned for a parallel approach adjacent to the accessible counter, shall be provided. The space between the accessible counter surface and any projecting objects above the accessible counter shall be 12 inches (305 mm) minimum.

Exception: Where the counter surface is less than 36 inches (915 mm) in length, the entire counter surface shall be 26 inches (660 mm) minimum to 36 inches (915 mm) maximum in height above the floor.

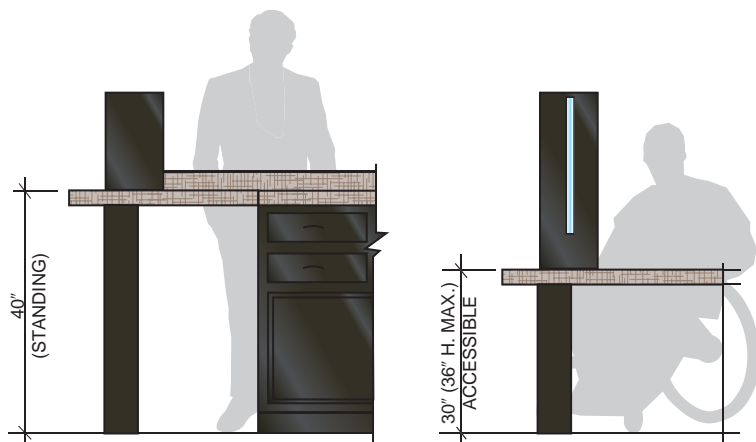
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904.3

Sales and Service Counters and Windows



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904.3 continued

904.3.2 904.3.3 Forward approach. A portion of the public use side of the counter surface 30 inches (760 mm) minimum in length and 36 inches (915 mm) maximum in height above the floor shall be provided. A clear floor space complying with Section 305, positioned for a forward approach to the accessible counter shall be provided. Knee and toe clearance complying with Section 306 shall be provided under the accessible counter. The space between the accessible counter surface and any projecting objects above the accessible counter shall be 12 inches (305 mm) minimum.

CHANGE SIGNIFICANCE: Service “windows” have been added into Section 904.3 in order to complete changes that began in the 2009 edition. While the term “windows” was added previously into the general provisions in Section 904.1, there were no references to those elements within the technical provisions in the subsections of 904 that followed. Adding this term into Section 904.3 makes the provisions applicable to such service windows as a box office ticket window.

Section 904.3 has also been modified to clarify that these sales and service counters or windows are not required by the standard, but that “where counters are provided” the standard does expect the accessible portion of the counter to be compliant. The text also helps to reinforce that these provisions are only regulating the “public portion” of the counters and are not regulating the employee side of the counter. The intent of these provisions is to allow for a seated customer to have access to the same depth of counter as the standing customer.

The exception to Section 904.3 is very limited, and a designer must consider several factors before using it. In an existing building, if the counter is for work stations or at mailboxes, there is an allowance for a 24-inch length instead of a 36-inch length, where the longer of the two would reduce the number of work stations or mailboxes available. A centered parallel approach would still be required in front of that portion of counter. This exception was added to coordinate with the ADA, which contained the exception, but the previous A117.1 did not provide anything equivalent to provide the exemption or guidance for this situation.

Where a barrier is provided between the customer and employee, the provisions of Section 904.3.1 intend to allow for face-to-face interaction at any portion that is designed for a person using a wheelchair. This section applies whether the barrier is a segment of the service counter or is a window, including a window provided for employee/customer interaction without a counter. The 43-inch height limitation will coordinate with the vision panels at doors (Section 404.2.10) and fall at the bottom of the range that is considered the average eye height for a person using a wheelchair (43 to 51 inches). The exception does allow the barrier to extend above the 43-inch height, provided it is transparent and allows visual interaction between the employee and customer. This exception could be used in any location but may commonly be seen at locations where added security or separation is needed between the public and employee side of the service location.

The primary changes within the parallel and forward approach provisions of Sections 904.3.2 and 904.3.3 are the clarification that the provisions apply to the “public use side of the counter,” therefore making it clear that they do not regulate the employee or work side of the counter. The second change within both sections is the restriction that the accessible

counter should not be obstructed by anything that overhangs or projects above it within a 12-inch vertical height. Projections or objects above the counter would create an obstruction and limit their use.

The parallel-approach provisions have what at first appears as a new exception, but the provision existed previously within the text of the base paragraph. However, it was confusing since it appeared to contradict the 36-inch minimum length requirement without explaining that it was an exception or what the limitations were. This exception applies where the entire length of the counter is less than 36 inches. Therefore, where the overall public use side of the counter exceeds 36 inches in length, then the base paragraph should be used. And where the overall counter length is less than 36 inches, then the standard would not force the counter to be increased in size, but would expect that the length of “the entire counter” that was provided was made accessible. Perhaps the easiest way to think of these provisions is that where there is a long counter, the 36-inch minimum length from the base paragraph is required. Where the entire counter is shorter (less than 36 inches in length), the exception accepts the shorter length for the accessible counter but does require the length of the entire counter to comply. The exception for the counter length is applicable only for a parallel approach, and the forward-approach counter must always provide a 30-inch minimum length segment.

906, 802.10.3.1, 1102.15.4

Charging Stations



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CHANGE TYPE: Addition

CHANGE SUMMARY: This new section addresses “charging stations.” Providing these stations will allow a user of an electric wheelchair or scooter to recharge her or his device when seated at certain clear floor spaces.

2017 STANDARD: **Section 906 Charging Stations**

906.1 General. A charging station shall consist of a grounded duplex outlet.

906.2 Clear floor space. A clear floor space shall be provided at the charging station.

906.3 Height. Charging stations shall comply with at least one of the reach ranges specified in Section 308.

802.10.3.1 Charging stations. Where charging stations are provided at wheelchair space locations they shall comply with Section 906.

1102.15.4 Wheelchair charging area. The clear floor space required by Section 1102.15.1 shall also serve as a wheelchair charging area complying with Section 906.

CHANGE SIGNIFICANCE: This section provides the design parameters for a “charging station,” which is essentially a clear floor space located adjacent to an electric duplex outlet. The requirements are minimal in that they only mandate the charging station to have a compliant clear floor space and an electrical outlet located within the normal accessible reach ranges specified in Section 308. Since the wheelchair will be stationary while someone is sleeping or sitting through a performance or sporting event, it is a good time to allow the user adequate time to recharge their device.

Currently the standard only references the charging station provisions from two other sections, and only one of the sections requires that the charging station be provided. This limited scoping for the charging station needs to be recognized so it is not assumed that every clear floor space must comply with the provisions. The only place the charging station is required by the standard is in the clear floor space adjacent to an accessible bed within an Accessible dwelling or sleeping unit (Section 1102.15.4). Because the clear floor space is already required (Section 1102.15.1), the only added element to make this a “charging station” is a grounded duplex outlet that complies with the reach range provisions.

Section 802.10.3.1, which addresses the wheelchair space locations in assembly areas, also references the charging space provisions of Section 906, but the reference is only applicable “where charging stations are provided.” In this situation, the charging stations are not required but will need to follow the design parameters of Section 906 if provided. Therefore, if a venue chooses to provide this amenity, the duplex outlet should be located adjacent to the wheelchair space and at a height and location where a person could plug in without moving his or her chair or obstructing the clear floor space.

CHANGE TYPE: Addition

CHANGE SUMMARY: This new section provides guidance on making gaming machines and tables accessible for a wheelchair user by either allowing a transfer space to a fixed seat or making it possible for wheelchair users to approach the game/machine in their wheelchairs.

2017 STANDARD: 907.1 Clear floor space. Gaming machines and tables shall have a clear floor space positioned for transfer or for use by an individual seated in a wheelchair. Clear floor spaces required at gaming machines and tables shall be permitted to overlap.

CHANGE SIGNIFICANCE: This new section is a first attempt at addressing access to gaming machines and tables. Because of the variety of devices and games, it is somewhat difficult to develop criteria that will address all aspects of accessibility for these devices. These provisions will help to provide access for wheelchair users to the machines or gaming tables.

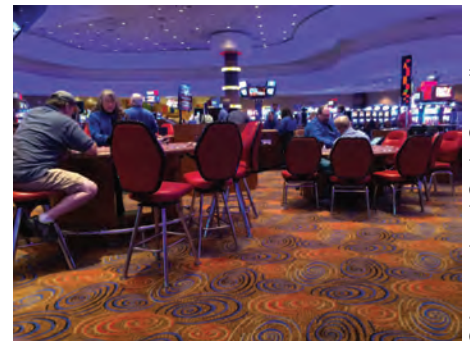
The provisions establish two options for access: a clear floor space provided and positioned to allow a wheelchair user to transfer to a seat, or a clear floor space provided for the wheelchair user to access the game or table itself. Some machines have a fixed seat that is provided and connected to the machine itself. Other gaming situations, such as table games like blackjack, may provide seats for the players. The standard does not indicate the type of access required and whether it must be a forward or parallel approach. Therefore, either one should be viewed as being acceptable. These provisions should be viewed as being fairly limited and simply providing the clear floor space to allow access to the machine or table. While accessibility could be improved by providing for things not mentioned in this section, it would definitely be beyond what the standard requires. For example, the standard does not specify that knee and toe clearance must be provided if a forward approach is used. It only requires the clear floor space. At the same time, the requirements do not address the reach range or height requirements for the machines or tables. This is in recognition that items such as a craps table with high rails would be difficult to make accessible by providing the knee and toe clearance beneath the table and still allowing wheelchair users to be able to reach or see over the rails or bumpers of the table. Therefore, these provisions should not be stretched to require anything beyond the clear floor space. Perhaps in the future when additional research and work has been done, there may be a way to make additional requirements for accessibility that would not fundamentally alter the gaming machines, tables or the way the games are played.

907

Gaming Machines and Tables



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Chapters 10 and 11

Recreational Facilities and Dwelling Units and Sleeping Units



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CHANGE TYPE: Modification

CHANGE SUMMARY: The order of these two chapters has been reversed, with Chapter 10 now dealing with recreational facilities and dwelling and sleeping unit provisions moving to Chapter 11.

2017 STANDARD:

**CHAPTER ~~11~~-10
RECREATIONAL FACILITIES**

**CHAPTER ~~10~~ 11
DWELLING UNITS AND SLEEPING UNITS**



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CHANGE SIGNIFICANCE: This revision is simply a reorganization of the placement of these two chapters within the standard. The recreational facilities requirements that previously were found within Chapter 11 have been relocated to Chapter 10. The dwelling unit and sleeping unit requirements that had been in Chapter 10 are now located within Chapter 11.

This format change was made in order to have the format of the A117.1 standard coordinate with the 2010 *ADA Standards for Accessible Design*. Within the ADA standard, Chapter 10 is for recreational facilities. There is no Chapter 11 within the federal accessibility standard, and that is why the A117.1 has now placed the various housing requirements at that location. Making this change will allow users of the two documents to be able to find and compare the requirements for recreational facilities much easier.

Users of the A117.1 standard need to be aware of this formatting change since the housing provisions have been located within Chapter 10 since the 1998 edition.

CHANGE TYPE: Addition

CHANGE SUMMARY: This addition separates the details for accessible routes that are regulated by Chapter 4 from the exterior accessible route that allows a golf car to be used for access to the regulated elements.

2017 STANDARD: 1106.2 1006.2 Accessible routes. Accessible routes serving teeing grounds, practice teeing grounds, putting greens, practice putting greens, teeing stations at driving ranges, course weather shelters, golf car rental areas, bag drop areas, and course toilet rooms shall comply with Chapter 4. Exterior routes and shall be 48 inches (1220 mm) minimum in width. Where handrails, guards, barriers or rails are provided, accessible routes shall be 60 inches (1525 mm) minimum in clear width.

Exception: Handrails shall not be required on golf courses. Where handrails are provided on golf courses, the handrails shall not be required to comply with Section 505. Accessible golf car passages in accordance with Section 1006.3 shall be permitted to be used for all or part of accessible routes required by this section.

1006.2.1 Teeing grounds. Where one teeing ground is provided for a hole, the teeing ground shall be designed and constructed so that a golf car can enter and exit the teeing ground. Where two teeing grounds are provided for a hole, the teeing ground closest to the hole shall be designed and constructed so that a golf car can enter and exit the teeing ground. Where three or more teeing grounds are provided for a hole, at least two teeing grounds, including the teeing ground closest to the hole, shall be designed and constructed so that a golf car can enter and exit each teeing ground.

Exception: Where existing golf courses are being altered, the forward teeing ground shall not be required to be one of the teeing grounds on a hole designed and constructed so that a golf car can enter and exit the teeing ground where compliance is not feasible due to terrain.

1006.2 continues

1006.2

Accessible Routes for Golf Facilities



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1006.2 continued **1006.2.2 Putting greens.** Putting greens shall be designed and constructed so that a golf car can enter and exit the putting green.

1006.2.3 Practice putting greens, practice teeing grounds, and teeing stations at driving ranges. At least 5 percent, but not less than one, of practice putting greens, practice teeing grounds, and teeing stations at driving ranges shall be designed and constructed so that a golf car can enter and exit.

1106.4 1006.2.4 Weather shelters. Where provided, weather shelters shall be designed and constructed so that a golf car can enter and exit the weather shelter. A clear floor space 60 inches (1525 mm) minimum by 96 inches (2440 mm) minimum shall be provided within weather shelters.

CHANGE SIGNIFICANCE: Golf course facilities provide a unique challenge since some elements that are required to be accessible are regulated as a part of the built environment, while other elements are exterior and regulated by a differing set of requirements. An easy example is the slope of a ramp or walking surface. Within the building, ramps and walking surfaces will use smaller clear widths (36 inches) and limit the slope on the route to a maximum 1:12 slope in accordance with the provisions of Section 405.2. On exterior areas of the facility, the accessible route would generally be a golf car passage constructed to serve a motorized golf car. These exterior paths will therefore be wider and not face the same slope limitations that a person using a wheelchair would expect on an accessible route.

Section 1006.2 now makes the distinction between regulated interior and exterior accessible routes, while the exception permits golf car passages to provide the accessible route. Where the accessible route is exterior, the minimum width is set at 48 inches with an increase to 60 inches being required where the route is constrained by guards, rails or barriers. In general, the exterior accessible route connects areas that are outside of the boundary of the course itself, such as the golf car rental area, bag drop off area, practice putting greens and driving ranges.

The weather shelter provisions of Section 1006.2.4 should be noted since the standard now clarifies these provisions apply “where provided.” This was the intent of the previous standard, but occasionally people assumed the provision required that the course provide weather shelters. The standard simply expects that if weather shelters are provided along the course, they will be large enough to allow a golf car to drive directly into the shelter to accommodate someone who is not capable of leaving the golf car.

CHANGE TYPE: Addition

CHANGE SUMMARY: This change adds a new general exception for elevated shooting platforms or positions that are of limited size and at or above a specific height. Counters at accessible firing positions are also limited in height.

2017 STANDARD: ~~1101.2.1~~ **1001.2.1 General exceptions.** The following shall not be required to ~~be accessible~~ comply with this standard or to be on an accessible route:

Items 1-10: (Unchanged)

11. Shooting facilities with firing positions on free-standing platforms that are elevated above grade 12 feet (3660 mm) minimum provided that the aggregate area of elevated firing positions is 500 square feet (46 m²) maximum.

SECTION ~~1110~~ 1010 SHOOTING FACILITIES WITH FIRING POSITIONS

1010.1 General. Shooting facilities with firing positions shall comply with Section 1010.

~~1110.1~~ **1010.2 Turning space.** A circular turning space complying with Section 304.3.1 with slopes not steeper than 1:48 shall be provided at shooting facility firing positions.

1010.3 Firing position counters. Where a firing position requires shooting over a counter or wall, the top of the counter or wall shall be 34 inches maximum in height above the floor surface. If counter surfaces are provided at other firing positions of the same type, equivalent counter surfaces shall be provided at the firing position complying with Section 1010.2.

1010.3, 1001.2.1 Item 11 continues



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1010.3, 1001.2.1 Item 11

Shooting Facilities with Firing Positions

1010.3, 1001.2.1 Item 11 continued

CHANGE SIGNIFICANCE: The added general exception addresses an issue where providing access in a reasonable manner is generally impractical if not impossible. Due to the intended purpose and function of the facility, there are very few options for providing any type of equivalent facilitation for a mobility-device user. Firing positions may be elevated to allow people to practice shooting from an angle that could simulate a tree blind or other elevated location. Generally these exterior facilities are in remote areas where there is no power available to operate a lift or elevator, and such items would be exposed to weather and vandalism and nearly impossible to maintain. In addition, providing access would often be prohibitively expensive when compared to the expense of maintaining the facility itself. The standard has created this exemption by using the same criteria that are used for exempting access to limited-size elevated press boxes. Since these firing positions would generally have less usage than a press box, it seemed reasonable to establish the exception. Without the exception, many of these elevated firing positions would not be built due to the difficulty of providing access to the raised area.

Where a counter or barrier is provided at firing positions and a user must shoot over that element, the added text of Section 1010.3 will set a maximum height similar to what the standard uses for dining surfaces and work surfaces. Some shooting facilities are set up with a shelf or table to set the ammunition, ear protection or weapons on, or to support a rifle when firing. Typically a shooter must fire over the shelf at the target, which is located down range. A maximum 34-inch height for the counter or barrier at the accessible firing position should be low enough to allow a seated person to shoot over it. The provision does not specify that knee and toe clearance be provided beneath the counter. However, the standard does expect the accessible firing position counter to be equivalent to what is provided at the non-accessible firing positions.

CHANGE TYPE: Clarification

CHANGE SUMMARY: This new exception clarifies that the door maneuvering clearances are not required within closets or pantries where a wheelchair user is unable to enter and turn around due to the limited depth of the space.

2017 STANDARD: ~~1002.5~~ **1102.5 Doors and doorways.** The primary entrance door to the unit, and all other doorways intended for user passage, shall comply with Section 404.

Exceptions:

1-6 (No Change)

7. The maneuvering clearances required by Section 404 shall not be required within a closet or pantry complying with Exception 2 of Section 1102.3.2.

1003.5 ~~1103.5~~ **Doors and doorways.** The primary entrance door to the unit, and all other doorways intended for user passage, shall comply with Section 404.

Exceptions:

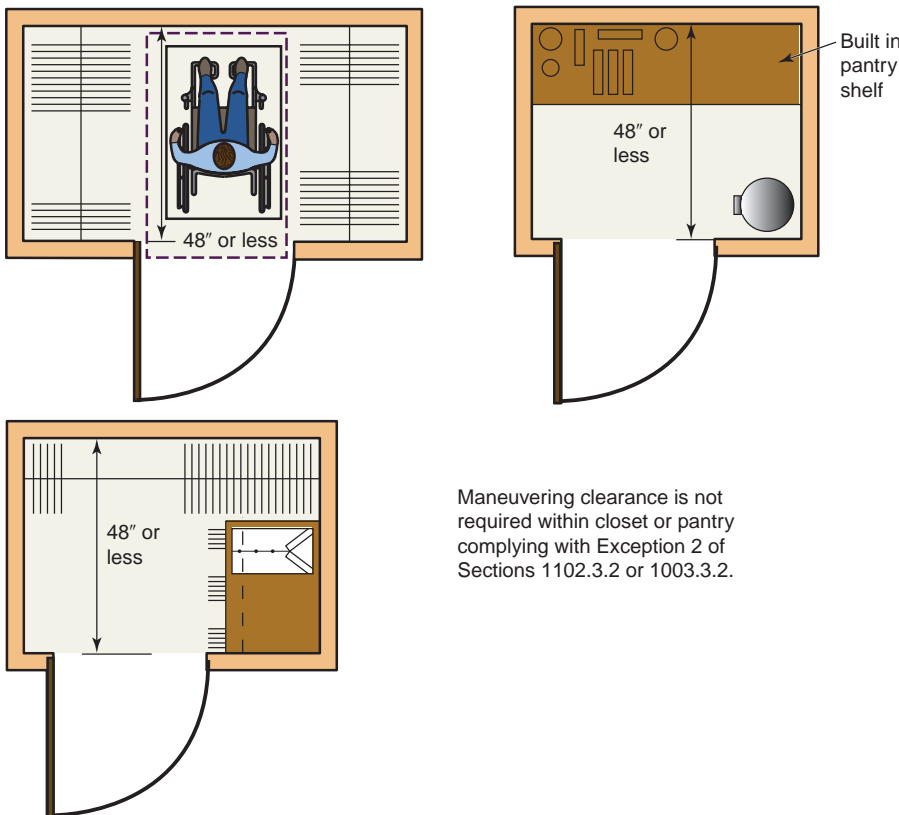
1-6 (No Change)

7. The maneuvering clearances required by Section 404 shall not be required within a closet or pantry complying with Exception 2 of Section 1103.3.2.

1102.5, 1103.5

Doors and Doorways

1102.5, 1103.5 continues



1102.5, 1103.5 continued

CHANGE SIGNIFICANCE: This revision clarifies the standard’s intent by correlating these new door maneuvering exceptions with the exemption for a turning space in closets or pantries of very limited size. The 2009 standard added an exception that eliminated the turning space requirements within small closets and pantries (now found in Exception 2 of Sections 1102.3.2 and 1103.3.2). Unfortunately, the door provisions for Accessible and Type A units did not exempt the interior side of these closet and pantry doors from the maneuvering clearance requirements of Section 404. This created an inconsistency within the standard that these new exceptions will resolve.

Obviously, if a closet or pantry is not deep enough to allow a person in a wheelchair to fully enter it, and if the room does not provide a turning space within it, then certainly the user would not be able to maneuver within the room to approach the door from the inside. The only option for these limited size closets and pantries is for the user to reverse the course of travel he or she used to enter the space. Because none of the door maneuvering clearances specified in Section 404 would work within the room, this new Exception 7 is included.

Exception 7 provides an exemption only for the door maneuvering clearance inside the closets and pantries (Exception 2 of Sections 1102.3.2 and 1103.3.2). The room-side maneuvering clearances for the door into a toilet room or bathroom is exempted by Exception 2 of Sections 1102.5 and 1103.5 (Sections 1002.5 and 1003.5 in the 2009 edition). If the standard exempts a space where the wheelchair user can fully enter the room, then clearly it is appropriate to also exempt these limited-size closets and pantries where the wheelchair user would never be capable of fully entering. In retrospect, when the turning space exception for the closets and pantries was added to Sections 1002.3.2 and 1003.3.2 of the 2009 standard, an exception similar to that for the door maneuvering clearance shown for bathrooms probably should have been created. Perhaps a single exception should ultimately be created to address any space that does not provide a turning space within the room.

CHANGE TYPE: Addition

CHANGE SUMMARY: Two requirements related to the accessible bed within an Accessible dwelling or sleeping unit have been added. A range is established for the bed height to ease transfer, and the clear floor space adjacent to the bed must serve as a charging station.

2017 STANDARD: ~~1002.15~~ **1102.15 Beds.** In at least one sleeping area, a minimum of five percent, but not less than one bed shall comply with Section 1102.15.

~~1002.15.1~~ **1102.15.1 Clear floor space.** A clear floor space complying with Section 305 shall be provided on both sides of the bed. The clear floor space shall be positioned for parallel approach to the side of the bed.

Exception: Where a single clear floor space complying with Section 305 positioned for parallel approach is provided between two beds, a clear floor space shall not be required on both sides of the bed.

~~1002.15.2~~ **1102.15.2 Bed frames.** At least one bed shall be provided with an open bed frame.

1102.15.3 Bed height. At least one bed shall measure 17 to 23 inches (430 to 585 mm) high from the floor to the top of the uncompressed mattress.

1102.15.4 Wheelchair charging area. The clear floor space required by Section 1102.15.1 shall also serve as a wheelchair charging area complying with Section 906.

1102.15.2

Beds



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CHANGE SIGNIFICANCE: Heights of beds have been increasing over the past decade, which has led to problems for people who must transfer from a wheelchair or other mobility device into the bed. It is not uncommon to find many beds that would fall within the 25-inch to 30-inch height range. The new provision in Section 1102.15.3 requires that at least one bed within an Accessible unit be of a style or placed on an

1102.15.2 continues

1102.15.2 continued

appropriate frame so that the top of the mattress will fall within the range of 17 to 23 inches above the floor. To provide more consistent application, the standard specifies that this height is measured when the mattress is uncompressed, meaning without any load being placed on it. This wording would also mean the measurement is made without any mattress pad, sheets or comforter being included. Having the bed height located within the 17-inch to 23-inch range should provide an easier means of transfer for someone who is trying to get into the bed from a wheelchair or other mobility device. In addition, this large a range should still accommodate the option for the wheelchair user to transfer without giving up the ease of transfer that some of the lower-height mattresses may provide or the comfort that a plusher mattress may give. Conversely, because the standard measures the bed height when uncompressed, a taller yet softer mattress may compress adequately where the person transferring from her or his wheelchair is not truly trying to lift herself or himself up to a height that is greatly above her or his seated height. In this type of circumstance, a softer mattress that begins at the 23-inch height may actually compress down during a transfer to a point that may be closer to the typical seat height.

This height requirement is only applicable to one bed within an Accessible unit, and all other beds are permitted to be at any height desired. In addition, although Section 1102.15.2 also requires at least one bed within the unit to have an open frame beneath it, there is nothing that mandates that both requirements apply to the same bed if there is more than one bed within the unit. While it may be logical to establish one bed as being the accessible bed that meets both requirements, there is nothing within the standard to require that.

The provisions of Section 1102.15.4 regarding the charging station are briefly discussed with Section 906 earlier in this book. When a person uses an electric wheelchair, it does need to be recharged. This is typically done at night while a person is sleeping or when he or she is expecting to be stationary for an extended period of time. Since charging a wheelchair at night is common, the standard committee has elected to make the clear floor space that is provided to access the bed also serve as a charging station. This will basically mean that the only added requirement from this new provision is that a compliant outlet is provided adjacent to the clear floor space. This will allow a wheelchair user to plug her or his chair in for charging, and transfer from the same location. This eliminates the need for someone else to move the wheelchair to a charging station and then bring the chair back once the charging is completed.

The number of charging stations required by Section 1102.15.4 will be dependent on the access that is provided based on Section 1102.15.1. Where clearance is provided on both sides of the bed, then two charging stations will be required. Where the exception is used to allow a single clear floor space positioned between two beds, then only a single charging station is required.

See the discussion of Section 906 for additional information and the specific details for a charging station.

CHANGE TYPE: Modification

CHANGE SUMMARY: Exceptions have been added to eliminate the work surface and to allow a parallel approach to the kitchen sink where a kitchen within a Type A unit does not contain a cooktop or a conventional range.

2017 STANDARD: ~~1003.12.3~~ **1103.12.3 Work surface.** At least one section of counter shall provide an accessible a work surface 30 inches (760 mm) minimum in length complying with Section 1103.12.3.

Exception: Spaces that do not provide a cooktop or conventional range shall not be required to provide an accessible work surface.

~~1003.12.4~~ **1103.12.4 Sink.** ~~The sink~~ Sinks shall comply with Section 1103.12.4.

~~1003.12.4.1~~ **1103.12.4.1 Clear floor space.** A clear floor space, positioned for a forward approach to the sink, shall be provided. Knee and toe clearance complying with Section 306 shall be provided.

Exceptions:

1 and 2 (No change)

3. A clear floor space providing a parallel approach and centered on the sink, shall be permitted at a kitchen sink in a space where a cook top or conventional range is not provided.

4. A clear floor space providing a parallel approach and centered on the sink, shall be permitted at wet bars.

~~1003.12.5.5~~ **1103.12.5.5 Oven.** Ovens shall comply with Section 1103.12.5.5. ~~Ovens shall have controls on front panels, on either side of the door.~~

CHANGE SIGNIFICANCE: The option to eliminate the work surface and to permit a parallel approach to the kitchen sink were permitted within both an Accessible unit and within general kitchens based on exceptions in Sections 1002.12 and 804 of the 2009 edition of the standard. Because both of these types of kitchens are considered to be more accessible and yet allowed an exemption that was not permitted within the Type A units, the standard has now been modified to allow Type A units to have a similar exemption. This allowance probably should have been allowed under the 2009 edition of the standard based on the committee’s intention of not making less accessible units have elements that exceed the requirements of more accessible units. This concept of a step-down of requirements between the various unit types was the basis of many changes within the previous edition of the standard. Unfortunately, these items failed to be coordinated, leaving the Type A units with requirements exceeding the Accessible units or general kitchens. Perhaps the most likely reason this was overlooked for the Type A units was the assumption that what the standard previously called a “kitchenette” were more common in hotel rooms that would have been using the Accessible unit provisions, while they were not very common within apartment buildings that would be built using the Type A unit provisions.

The expectation is that the level of food preparation will be more limited (less intense) in a kitchen that is not equipped with either a cooktop or

1103.12.3, 1103.12.4 continues

1103.12.3, 1103.12.4

Work Surface and Kitchen Sink – Type A Units



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1103.12.3, 1103.12.4 continued

a conventional range. Therefore, the assumption is that the level of work and the access needed to ease that work load can be reduced. The exception within Section 1103.12.3 removes the work surface requirement, while Exception 3 in Section 1103.12.4.1 permits a parallel approach to the kitchen sink in these limited-capacity kitchens. Under the previous edition of the standard, these kitchens without either a cooktop or conventional range were typically called “kitchenettes.” As discussed previously in Section 804.2 in this book, the term kitchenettes has generally been eliminated from the standard, and a listing or limiting of the equipment within the kitchen will be used instead.

The word “accessible” has been added to ensure that an accessible work surface compliant with the provisions within the subsections of Section 1103.12.3 is provided. This clarifies that it is only the 30-inch minimum length work surface that is required to be at a 34-inch maximum height (Section 1103.12.3.2) and not the entire counter top space within the kitchen.

A parallel clear floor space for a mobility-device user to access the sink within a wet bar is also permitted based on the inclusion of Exception 4 in Section 1103.12.4.1. This option was previously permitted for Accessible units and wet bars in general due to Exception 6 in Section 606.2. Again, the logical expectation should be that if the parallel approach is acceptable for those spaces needing greater access, then it should also be permitted for Type A units.

Though not directly related to the topics listed within the subject heading, the oven provisions for Type A units also contain a change that was made in order to coordinate these provisions with the provisions for ovens in Accessible units and with those regulated by the general kitchen requirements. Designers should be aware of this revision since it was discussed in the 2009 *Significant Changes* book, and it also required the ovens in Type A units to comply with something that was not required for any other unit, including the more accessible general kitchens and Accessible units. Due to a glitch in the way a code change was processed in the previous edition of the standard, the Type A unit’s oven requirements maintained the text stating the oven “shall have controls on front panels, on either side of the door.” This text created confusion, since Section 1003.12.5.5.4 (now 1103.12.5.5.4 in the 2017 edition) limited the location of the controls so the user was not required to reach across burners. The requirement for the oven controls to be on the front panel have been removed

Therefore, the changes discussed here for Type A units are all the logical extension of requirements previously permitted for Accessible units or in general kitchens.

CHANGE TYPE: Modification

CHANGE SUMMARY: Numerous changes have been made throughout the Type B unit provisions, but the intent of most of the revisions is to keep the requirements as they were without making technical changes.

2017 STANDARD:

1104

Type B Units

SECTION 1004-1104 TYPE B UNITS

1004.1 1104.1 General. Type B units shall comply with Section 1104.

1004.4.1 1104.4.1 Clear width. The clear width of an accessible route shall comply with Section 403.5.

Exceptions:

1. The clear width shall be permitted to be reduced to 32 inches (815 mm) minimum for a length of 24 inches (610 mm) maximum provided the reduced width segments are separated by segments that are 48 inches (1220 mm) minimum in length and 36 inches (915 mm) minimum in width.
2. Where an accessible route makes a 180 degree turn around an object that is less than 48 inches (1220 mm) in width, clear widths shall be 42 inches (1065 mm) minimum approaching the turn, 48 inches (1220 mm) minimum during the turn and 42 (1065 mm) inches minimum leaving the turn.
3. Where an accessible route makes a 180 degree turn around an object that is less than 48 inches (1220 mm) in width, the clear width approaching the turn and leaving the turn shall be 36 inches (915 mm) minimum provided the clear width during the turn is 60 inches (1525 mm) minimum.
4. Where an accessible route makes a 90 degree turn the clear widths approaching the turn and leaving the turn shall be 36 inches (915 mm) minimum.
5. An accessible route with a clear width less than 60 inches (1525 mm) shall provide passing spaces at intervals of 200 feet (61 m)

1104 continues



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1104 continued

maximum. Passing spaces shall be either a 60-inch (1525 mm) minimum by 60-inch (1525 mm) minimum space, or an intersection of two walking surfaces that provide a T-shaped turning space complying with Section 304.3.2.2, provided the base and arms of the T-shaped space extend 48 inches (1220 mm) minimum beyond the intersection.

Because these code changes affected substantial portions of Section 1104, the entire code change text is too extensive to be included here. Refer to the A117.1 section of the ICC website for the complete text and history of the code changes. <https://www.iccsafe.org/icc-asc-a117/>.

CHANGE SIGNIFICANCE: When the changes within the building block sections of Chapter 3 were made, they had a potential to dramatically alter the requirements for Type B units. This would have included items such as the increased depth of a clear floor space (52 inches in length versus 48 inches), and the accessible route requirements such as those for 90-degree and 180-degree turns. Such dramatic changes would have also moved the Type B units farther away from the criteria of the U.S. Department of Housing and Urban Development (HUD) Fair Housing Accessibility Guidelines. In order to minimize the impact of these building block changes, revisions were made to separate Section 1104 from some of the rest of the standard and allow the technical requirements for the Type B units to remain largely unchanged. So while there may appear to be many changes in Section 1104, they have little technical impact on Type B units and most often are done in order to leave the provisions equivalent to the 2009 standard’s requirements.

Some examples of this situation of making revisions without making technical changes from the previous edition of the standard include the following:

- Section 1104.4.1 – Clear width. Five exceptions have been added. All permit the Type B units to use the design parameters that were included in Section 403.5 of the 2009 standard. Exception 4 was permitted previously by the general accessible route requirements in Section 403.5 but needed to be included due to the revised requirements found in Section 403.5.3.1 of the 2017 standard.
- Section 1104.5.1 – Primary entrance door. The three new exceptions maintain the 48-inch minimum depth requirement from Sections 404.2.3.2, 404.2.3.3 and 404.2.3.4 of the 2009 standard. These changes were needed due to revisions for the door maneuvering clearances found in these same sections in the 2017 standard.
- Sections 1104.7 and 1104.8 – Elevators and Platform lifts. The exceptions permit the clear length to be a minimum of 48 inches and are needed due to revisions in Sections 409.4.1.1 and 410.5.1.1 of the 2017 standard. The 48-inch dimension was previously allowed by Sections 409.4.1 and 410.5.1 in the 2009 standard.

There are numerous additional examples throughout Section 1104. It is suggested that when designers are looking at the “changes” for Type B units, they look at the new text in the standard and then compare it to what was required by the 2009 standard. This will generally show that most of the revisions do not result in any technical changes.

See also the discussion of Section 1104.1.1 of this book for additional related information.

CHANGE TYPE: Modification

CHANGE SUMMARY: This new section establishes that for Type B dwelling units, the minimum length of a clear floor space is 48 inches. The change within the building block provisions of Section 305.3 to a 52-inch length will not apply in Section 1104.

2017 STANDARD:

1104.1.1

Clear Floor Space

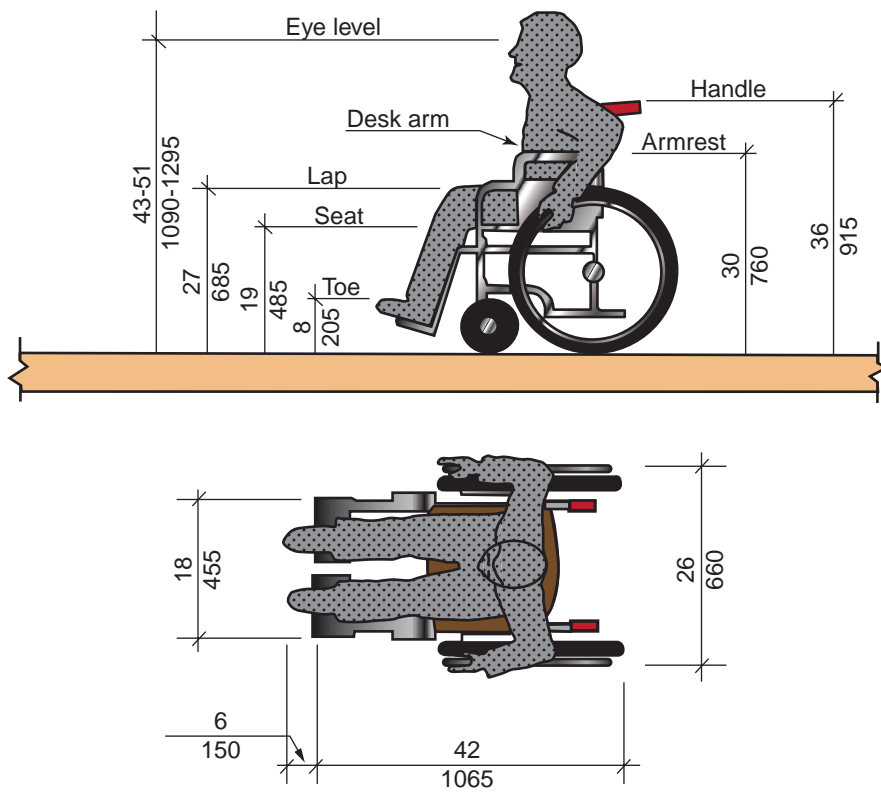
SECTION 1104.1.1 TYPE B UNITS

1104.1.1.1 General. Type B units shall comply with Section 1104.

1104.1.1.1. Clear floor space. For Type B units, clear floor spaces shall be 48 inches (1220 mm) minimum in length and 30 inches (760 mm) minimum in width.

CHANGE SIGNIFICANCE: This section serves as the basis for many of the revisions that occur in Section 1104. As discussed on the pages related to Section 1104, the result of most of the “changes” will be that the technical requirements of the 2009 standard will remain unchanged. This typically is accomplished by adding new exceptions or references that reapply the 2009 provisions. One of the primary elements users of this standard will notice is that throughout Section 1104, the text of the standard will either refer to a “clear floor space” or it will reference Section 1104.1.1.

1104.1.1 continues



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1104.1.1 continued

Regardless of which option is used within Section 1104, the clear floor space in Type B units is specified as being a minimum of 48 inches in length and 30 inches minimum in width due to Section 1104.1.1. This helps establish that Section 1104 and the Type B provisions are unique in regard to the size of the clear floor space, and it reinforces that the 52-inch by 30-inch requirement set out in Section 305.3 is not applicable to this portion of the standard.

Some of the examples of where this occurs and the effect it has are found in the following:

- Section 1104.9 – Operable parts. In the 2009 edition, this section included a reference to Section 309.2, which in turn referenced the general clear floor space provisions of Section 305. The 2017 edition of the standard directly references Section 1104.1.1 and therefore uses the 48-inch length for the clear floor space.
- Section 1104.11.2 – Clear floor space in toilet and bathing facilities. The text in this section in the previous edition of the standard provided a direct reference to Section 305.3, which contained the size requirements for the general clear floor space. Leaving that reference in the general requirements would have imposed the longer 52-inch length for the clear floor space. As designers can see, the reference is now directing them to Section 1104.1.1, which results in the clear floor space of 48 inches in length.
- Section 1104.10.1 – Clear floor space at laundry equipment. The text requires that a “clear floor space” is provided for each washing machine and clothes dryer. Based on the fact that Section 1104.1.1 specifically says “for Type B units, clear floor spaces shall be,” readers are aware that a 48-inch by 30-inch space is permitted and that the larger clear floor space required by Section 305.3 is not applicable here.
- Section 1104.11.3.1.1 – Lavatory. The exception is revised to reference specific portions of Section 606 and provides a direct reference to Section 1104.1.1. This keeps the depth of the clear floor space at 48 inches minimum. If the reference had included all of Section 606, as was done in the previous standard, this would have included the larger clear floor space due to Section 606.2 and its reference to Section 305.3.

Although it has been mentioned several times, it is worth repeating that the intent of this change is to allow the Type B units to continue to use the technical criteria that were previously used in the standard and to not modify the provisions by imposing the larger clear floor space or other changes to the accessible route that would have resulted by applying the new larger criteria found within the 2017 standard.

CHANGE TYPE: Modification

CHANGE SUMMARY: The reach range height for mailboxes for Type B units is increased to 54 inches. Previously they were limited by the 48-inch height for the reach range.

2017 STANDARD: **1104.1.2. Mailboxes.** Mailboxes serving Type B units shall be permitted an unobstructed side reach range at 54 inches (1370 mm) maximum above the floor.

CHANGE SIGNIFICANCE: Mailboxes and the appropriate height for them has been an issue of discussion for several years. Part of this debate has dealt with differing opinions from the U.S. Department of Housing and Urban Development (HUD), as the developers of the Fair Housing Act, and the U.S. Postal Service (USPS). Most of the debate has focused on the scoping requirements and what percentage of mailboxes must be accessible. The scoping aspect is not within the purview of the A117.1 committee, but the technical requirements (appropriate reach ranges, etc.) are items that the standard can address. Because of the debate on scoping, it is important to notice this technical requirement from the A117.1 standard will only apply to Type B units. Therefore, when a jurisdiction provides the scoping, and the units are not required to be Type B units, then their mailboxes are not required to comply with this provision. Mailboxes for other types of units or occupancies are only scoped to provide a limited number of mailboxes (the scoped number or percentage) that must be placed within the general reach ranges. All other mailboxes will be regulated by the USPS guidelines.

HUD has an expectation that 100 percent of the mailboxes serving units covered by the Fair Housing Act need to be accessible and need to be located within the reach range. With the current reach range limitations being 15 inches minimum and 48 inches maximum (Section 308), there is a fairly limited band for the mailboxes to be placed, resulting in larger

1104.1.2 continues



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1104.1.2

Mailboxes

1104.1.2 continued

facilities needing large amounts of wall space to place all of the regulated mailboxes within the reach range. While the standard accepts a 15 inch minimum height, the U.S. Postal Service guidelines establish a limit of 28 inches to the bottom of the lowest mailbox and a 67-inch height limitation to the operable hardware of the highest mailbox. (The USPS guideline heights are based on the needs of the postal employees who must service and place the mail within the boxes.) Therefore, in order for this standard to comply with both the HUD and USPS requirements, the minimum height is set at 28 inches (based on the USPS guidelines), and the maximum height is set at 48 inches (based on the A117.1 reach range), offering only a 20-inch band for the regulated mailboxes to be located within.

Since the Type B units are intended to be consistent with the Fair Housing Accessibility Guidelines (FHAG) and need to either meet or exceed those federal requirements, the committee decided that one option to solve the restrictive limitations for mailboxes was to increase the reach range allowed for the Type B mailboxes to the 54-inch reach range limitation found within the Fair Housing requirements.

While the increased reach range of 54 inches may be seen by some as being a decrease in accessibility, the USPS has the ability and authority to assign or reassign mailboxes as necessary. If a user of a mailbox serving a Type B unit did need to have a mailbox located at a lower height, it could easily be accomplished. The new provision allowing mailboxes serving units regulated by Fair Housing or by the Type B unit provisions under the A117.1 standard to be located up to a 54-inch height should help provide a greater height range for mailboxes and help decrease the length of walls that must be used for the mailboxes. Designers again need to remember that the percentage of mailboxes that must be accessible and regulated for other uses is a limited percentage. Therefore they may be able to locate any mailboxes that are not regulated as serving the HUD FHA/Type B units at the 67-inch height allowed by the USPS.

Hopefully, HUD and the USPS will continue working with ICC, architects, builders and owners, and perhaps ultimately a compromise can be obtained that resolves the mailbox problems to the satisfaction of all parties.

CHANGE TYPE: Modification

CHANGE SUMMARY: A new exception clarifies that shower doors are not required to comply with the user passage doorway provisions. This allows doors with a reduced clear width and allows tracks or “thresholds” for the door that exceed the half-inch height limitation.

2017 STANDARD: 1004.5.2 1104.5.2 User passage doorways. Doorways intended for user passage shall comply with Section 1104.5.2.

Exception: Doors that are part of a shower door assembly shall not be required to comply with this section.

1004.5.2.1 1104.5.2.1 Clear width. Doorways shall have a clear opening of $31\frac{3}{4}$ inches (805 mm) minimum. Clear opening of swinging doors shall be measured between the face of the door and stop, with the door open 90 degrees.

1004.5.2.1.1 1104.5.2.1.1 Double leaf doorways. (No changes)

1004.5.2.2 1104.5.2.2 Thresholds. Thresholds shall comply with Section 303.

Exception: Thresholds at exterior sliding doors shall be permitted to be $\frac{3}{4}$ inch (19 mm) maximum in height, provided they are beveled with a slope not steeper than 1:2.

CHANGE SIGNIFICANCE: The added exception helps resolve the debate as to whether a shower stall door is “intended for user passage” and therefore regulated by these general door provisions. This exception allows for doors on showers to be of any size and type that works with the shower enclosure and door system chosen. In addition, this also removes the limitation for the “threshold” to be of a limited height. On many glass shower doors with sliding door panels, the track at the bottom of the door will generally exceed the “changes in level” requirements that are found in Section 303 and are required for user passage doorways by Section 1104.5.2.

There are several reasons the shower door exemption can be justified. One of the most obvious is that within Type B units, there is no maximum rim or threshold height for a tub or shower as there is for the general bathing facilities in Sections 607 or 608 and for the Accessible and Type A units that reference those sections. While Section 607.7 prohibits the installation of tracks on the rim of a bathtub, the bathing fixture provisions of Section 1104.11.3.1.3 are the only provisions applicable in a Type B unit and do not contain a similar limitation. Similarly, Section 608.6 regulates the threshold height and slope for showers, but there are no comparable limits for the showers in Type B units. Because of this, a step-over into the bathing fixture is acceptable. It is common to use a standard shower pan that has a 4-inch-high “threshold” (curb or turned-up edge) or even something like a standard-height bathtub with much higher sides, simply because the threshold height is not regulated within the Type B units or by Fair Housing. Another reason to not apply the user passage doorway provisions to shower compartments is the inclusion of a new Exception 2 within Section 1104.11.3.1.3.3. That exception is intended to allow the installation of a shower door where the assembly is adaptable without excessive modifications if the needs of the user should change.

1104.5.2

User Passage Doorways



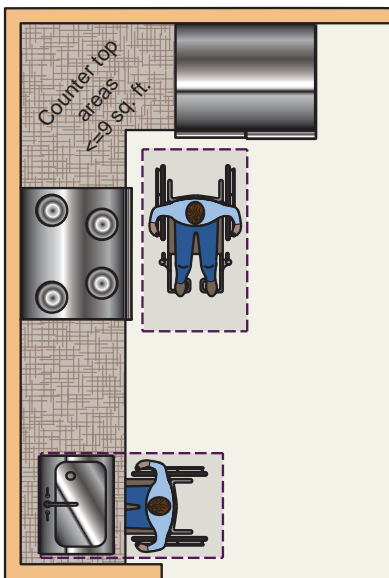
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1104.9

Operable Parts



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CHANGE TYPE: Modification

CHANGE SUMMARY: The operable parts requirements for Type B units are retained within Section 1104 instead of being consolidated in Section 309 with the general operable parts provisions. A new exception exempts accessible outlets from being required in the corner of kitchen cabinets.

2017 STANDARD: ~~1004.9~~ **1104.9 Operable parts.** Lighting controls, electrical switches and receptacle outlets, environmental controls, electrical panelboards, and user controls for security or intercom systems shall comply with Sections ~~309.2 and 309.3~~ and 1104.1.1.

Exceptions:

1. Receptacle outlets serving a dedicated use.
2. In a kitchen, where two or more receptacle outlets are provided in a kitchen above a length of countertop that is uninterrupted by a sink or appliance, only one receptacle outlet shall not be required to comply with Section ~~309~~ this section.
3. In a kitchen, where a clear floor space for a parallel approach cannot be located at a countertop in a corner between appliances, receptacle outlets over the countertop shall not be required to comply with this section provided that the countertop area does not exceed 9 square feet (0.835 m²) maximum.

4.3: Floor receptacle outlets.

5.4: HVAC diffusers.

6.5: Controls mounted on ceiling fans.

7.6: Controls or switches mounted on appliances.

8.7: Plumbing fixture controls.

9.8: Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.

10.9: Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible comply with this section.

11.10: Within kitchens and bathrooms, lighting controls, electrical switches and receptacle outlets are permitted to be located over cabinets with countertops 36 inches (915 mm) maximum in height and 25¹/₂ inches (650 mm) maximum in depth.

CHANGE SIGNIFICANCE: There are three distinct changes within this section that users of this standard should be aware of. The first is in the base paragraph with the reference to Section 1104.1.1. The purpose of this change is to allow Type B units to use the previously allowed 48-inch minimum length for a clear floor space. Because the size of the general clear floor space in Section 305.3 was changed to 52 inches minimum in length, it was important for the committee to revise the reference to the newly inserted Section 1104.1.1. For related discussion regarding this portion of the change, see the pages for Sections 1104 and 1104.1.1 earlier in this book.

The second and perhaps most important of the three changes is in the new Exception 3. Exception 3 addresses the outlets occurring in the corner of two kitchen cabinets and reflects the realization that when users are

located at the inside corner of the cabinets, any outlets located over the cabinets or along the back wall behind the cabinets are beyond the allowable reach range limits and therefore cannot comply with the provisions. The exception contains a number of important limitations on outlets, including those (a) limited to kitchens, (b) located in a space where a parallel approach cannot be provided, (c) over the counter top, (d) in an excluded area that does not exceed 9 square feet, and (e) in the excluded corner area “between appliances.” Given the depth of most appliances and the location required to make them accessible, these factors would generally make it impossible for designers to provide a close parallel approach to the cabinets, resulting in the outlets being beyond the permitted reach range. Despite these factors, there was never a provision within the standard to exempt outlets within this corner area.

The third item readers should be aware of is that the operable parts requirements have been retained in Section 1104.9 instead of being relocated to the building block provisions of Section 309 as was done for the Accessible and Type A dwelling units. This was done primarily because operable parts for Type B units are not required to comply with all of the aspects of Section 309 as all of the other uses are required to do. Type B units are only required to comply with the height or reach range provisions, thus the reference to Section 309.3, which in turn references Section 308 and also the clear floor space provisions. As was discussed earlier, the Type B units will use a 48-inch minimum length for the clear floor space and not the 52-inch length that would be required if Section 1104.9 referenced Section 309.2 of the standard as it did in the 2009 edition. With the change in the building block provisions for clear floor spaces, the reference in the base paragraph was changed to Section 1104.1.1. Because of the limited references to Section 309 from within Section 1104.9, it was important for the committee to retain the exceptions in the Type B provisions. The limited cross-reference issue and additional support as to why these provisions must be retained within Section 1104.9 as stand-alone requirements is (a) that Type B units do not need to comply with the operation and force provisions found in Section 309.4, and (b) that the exceptions corresponding with those of Section 1104.9 are found in Section 309.1 and therefore would not be applicable for the Type B units, since there is no reference in Section 1104.9 to that particular section. For additional information related to this topic of operable parts and the new exceptions, see the discussion earlier in this book with Section 309.1.

1104.10.1

Clear Floor Space at Laundry Equipment



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CHANGE TYPE: Clarification

CHANGE SUMMARY: The revision clarifies that a clear floor space is required for each appliance and that it is not permissible to provide a single clear floor space where both a washer and a separate dryer are being provided.

2017 STANDARD: ~~1004.10~~ **1104.10 Laundry equipment.** Washing machines and clothes dryers shall comply with Section 1104.10.

1004.10.1 ~~1104.10.1~~ **Clear floor space.** A clear floor space complying with Section 305.3, shall be provided for each washing machine and clothes dryer. A parallel approach shall be provided for a top loading machine. A forward or parallel approach shall be provided for a front loading machine.

CHANGE SIGNIFICANCE: The intent of this change is to clarify that “each” separate machine (washer and dryer) in a Type B unit needs to be provided with its own separate clear floor space. Where the appliance is a stacked washer and dryer, then that is viewed as being a single appliance and allowed to have a single clear floor space.

The intent behind this code change may perhaps be best seen by looking back at the 2003 edition of the standard where the text required the clear floor space and indicated the clear floor space was to be centered on the appliance. When revisions were made in the 2009 edition of the standard, the text was revised so that the provision first required a compliant clear floor space and went on to address how it was positioned. At that point the standard lost the clarity that a separate clear floor space was needed for each appliance.

Designers need to recognize this requirement for each machine to have its own clear floor space, especially where a parallel approach is used for access. With a parallel approach, the clear floor space will typically extend 12 inches or so beyond the edges of the machine, and thus the room containing the laundry equipment must be large enough to accommodate the machines and the additional extension beyond them where each machine has its own clear floor space.

One potential problem that could arise from the new text stating that each appliance have a clear floor space would be the limited situations where a Type B unit is provided with multiple washers and dryers. Given that most elements within the various dwelling units or within the standard are set up so that “at least one” is accessible, it would be reasonable to assume that the same viewpoint could apply for the laundry equipment. This would be something to discuss with the code official enforcing the accessibility provisions for those unique situations where multiple washers and dryers are provided within a Type B unit.

CHANGE TYPE: Modification

CHANGE SUMMARY: Where a shower is the only bathing facility, this exception helps clarify that the shower is not required to meet the 36-inch minimum dimensions, provided it meets the approximate area limitation.

2017 STANDARD: ~~1004.11.3.1.3.3~~ **1104.11.3.1.3.3 Shower compartment.** If a shower compartment is the only bathing facility, the shower compartment shall have dimensions of 36 inches (915 mm) minimum in width and 36 inches (915 mm) minimum in depth. A clearance of 48 inches (1220 mm) minimum in length, measured perpendicular from the shower head control wall, and 30 inches (760 mm) minimum in depth, measured from the face of the shower compartment, shall be provided. Reinforcing for a shower seat is not required in shower compartments larger than 36 inches (915 mm) in width and 36 inches (915 mm) in depth.

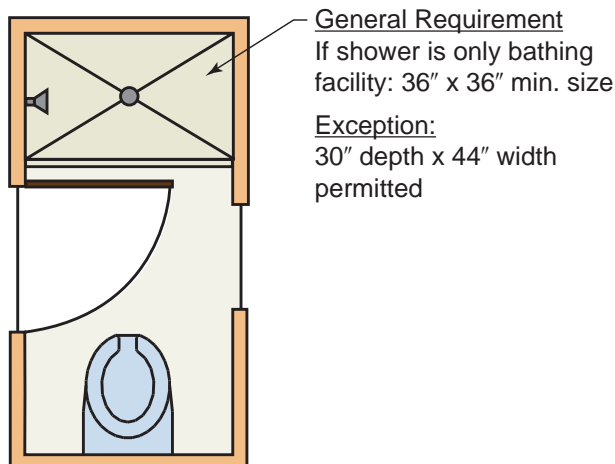
Exceptions:

1. A shower compartment with dimensions of 30 inches (760 mm) minimum in depth and 44 inches (1120 mm) minimum in width shall be permitted.
2. A shower door assembly shall be permitted where the assembly can be removed without removal or replacement of the surrounding walls and floor to which it is affixed.

CHANGE SIGNIFICANCE: The most significant change in this section is the inclusion of Exception 1. Previously, where a shower was the only bathing facility within the unit, the standard indicated a 36-inch by 36-inch minimum compartment was required. This limitation created confusion as to whether something such as a standard roll-in shower complying with Section 608.2.2 was acceptable because it only required a 30-inch depth.

The original reason for specifying the 36-inch by 36-inch minimum shower compartment was based on the fact the plumbing codes required showers to be a minimum of 900 square inches with no dimension being less than 30 inches. Therefore, the plumbing codes permitted a shower that could be 30-inches by 30-inches. This minimum-size shower was

1104.11.3.1.3.3 continues



1104.11.3.1.3.3 Shower Compartment



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1104.11.3.1.3.3 continued

considered inadequate for accessibility, and the Fair Housing provisions therefore specified a 36-inch by 36-inch requirement to increase the size and because it also coordinated with the size specified for a transfer shower. Over the years many people have held that the 36-inch minimum dimensions must be provided in both directions and therefore they would not accept showers that may provide better access such as a standard roll-in shower. The new exception has now recognized the original intent and will permit a shower having a minimum depth dimension of 30 inches but is at least 44 inches in width. The exception will offer slightly more space than what is required by the 36-inch by 36-inch requirement (1,320 square inches versus 1,296 square inches). The 44-inch width was selected since it was the smallest whole number capable of providing the equivalent shower area if a 30-inch minimum depth was used. Thus, the exception will comply with the minimum size and area requirements of the plumbing code as well as providing the larger shower area that is needed to make a shower more usable and accessible. With the exception setting the minimum depth at 30 inches, the standard will clearly permit the more accessible 30-inch by 60-inch standard roll-in shower or many other configurations that may have a depth dimension less than the previously specified 36 inches. This will also help eliminate confusion and debate where Type B units are being altered. Since accessibility must be maintained when existing buildings are altered, this exception would allow existing bathtubs to be switched out for a shower without reconfiguration of the room. Because the standard clearly accepts the 30-inch minimum width, there is no debate that the replacement shower must be a minimum of 36 inches in width. The new shower can simply be placed within the same footprint of the previous bathtub, and accessibility will most likely be improved because the shower generally has a lower step-in height than the tub.

Exception 2 has been added into Section 1104.11.3.1.3.3 in order to allow shower doors that can easily be removed as an adaptable feature. This second exception was added to coordinate with the new exception in Section 1104.5.2, which clarifies that shower doors are not regulated by the general requirements for “user passage doorways.” The Fair Housing provisions allow shower doors without any limitations such as the door panel width or the height of any type of track at the bottom. This exception shows that shower curtains are not the only option and will allow doors where they can be removed without extensive reconstruction. See the pages addressing Section 1104.5.2 in this book for additional related information.

The text in the base paragraph regarding reinforcement for a shower seat has been deleted since it is redundant with Exception 7 in Section 1104.11.1. It is more appropriate to keep the reinforcement requirements all in one section, and therefore the text has been deleted from the shower compartment section.

CHANGE TYPE: Modification

CHANGE SUMMARY: The change permits a forward approach and reformats the section to address the forward and parallel approach as separate options. The clear floor space for a forward approach is limited to a maximum offset.

2017 STANDARD: ~~1004.12.2.5 1104.12.2.5 Refrigerator/freezer.~~ A clear floor space, positioned for a parallel approach to the refrigerator/freezer, shall be provided. The centerline of the clear floor space shall be offset 24 inches (610 mm) maximum from the centerline of the appliance. The refrigerator/freezer shall comply with Section 1004.12.2.5.

1004.12.2.5.1 1104.12.2.5.1 Approach. A clear floor space positioned for a parallel or forward approach to the refrigerator/freezer shall be provided.

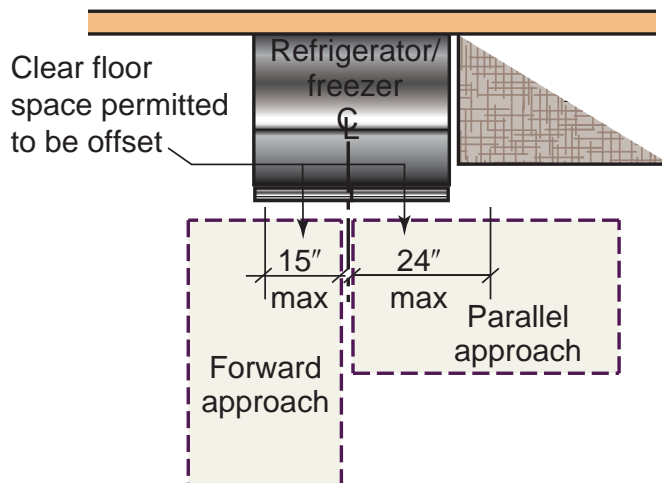
1104.12.2.5.2 Forward approach. Where the clear floor space is positioned for a forward approach, the centerline of the clear floor space shall be offset 15 inches (380 mm) maximum from the centerline of the appliance.

1104.12.2.5.3 Parallel approach. Where the clear floor space is positioned for a parallel approach, the centerline of the clear floor space shall be offset 24 inches (610 mm) maximum from the centerline of the appliance.

CHANGE SIGNIFICANCE: This change provides greater flexibility for designers regarding access to a refrigerator or freezer. Previously, the A117.1 standard only permitted a parallel approach for this appliance even though HUD's Fair Housing Accessibility Guidelines permitted either a parallel or forward approach. Therefore, this change was submitted by HUD to provide users with either approach option.

The format of this section is based on the similar format used in the cooktop provisions and creates separate subsections to address the forward and parallel approach. The forward approach option will limit the amount of offset from the centerline of the appliance to a maximum of 15 inches. Previously, a 24-inch maximum offset was permitted by this

1104.12.2.5 continues



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1104.12.2.5

Refrigerator/Freezer Clear Floor Space

1104.12.2.5 continued

section, but that was based on a parallel approach. The provision for a 24-inch offset has been relocated from the base paragraph into the subsection for a parallel approach to help distinguish between the offsets permitted by the two approach options.

The 24-inch offset for a parallel approach is permitted for the appliance regardless of the configuration of the refrigerator/freezer. So whether the appliance has the freezer above, below or in a side-by-side arrangement, a single clear floor space for the appliance is permitted and is allowed to be offset the 24-inch maximum. In order to provide better access, designers may wish to consider how access for side-by-side units are provided, and it may be better to provide two clear floor spaces that are offset in different directions in order to provide better access to both the refrigerator and the freezer. However, this option of providing two clear floor spaces is not a requirement.

Section 1004.12.2.5.1 is another example of how the Type B units will permit a 48-inch length for the clear floor space as opposed to the 52-inch length now required by Section 305.3. Because Section 1004.12.2.5.1 requires a “clear floor space,” and Section 1104.1.1 establishes the 30-inch by 48-inch limits for the clear floor space within Type B units, the space required by Section 1004.12.2.5.1 must only be a minimum of 48 inches in length. This issue has been discussed numerous times, but for a detailed discussion, see the pages in this book related to Section 1104.1.1.

CHANGE TYPE: Modification

CHANGE SUMMARY: This change requires that a means of disconnecting visible doorbell signals be provided for sleeping areas.

2017 STANDARD: ~~1006.5~~ **1106.5 Unit primary entrance.** Communication features shall be provided at the unit primary entrance complying with Section 1106.5.

1006.5.1 1106.5.1 Notification. A hard-wired electric doorbell shall be provided. A button or switch shall be provided on the public side of the unit primary entrance. Activation of the button or switch shall initiate an audible tone within the unit. Where visible doorbell signals are located in sleeping areas, controls shall be provided to deactivate the signal.

CHANGE SIGNIFICANCE: This text is being added into the notification section in order to address visible notification appliances. It is probably not a major change, but it is being covered here so readers are aware of the revision.

The primary reason for adding this text is to coordinate this standard with a similar requirement found in Section 809.5.5.1 of the 2010 *ADA Standards for Accessible Design*. However, the ADA requires both an audible tone and visual signal in the dwelling unit, while the A117.1 standard only specifies that the doorbell provide an audible tone.

Where visible alarms are provided within a sleeping unit, the visible notification appliances are also installed directly in the bedrooms themselves. This contrasts with audible signals, which are generally just installed at a central location within the unit. With audible doorbell notifications, a person can typically close a door and reduce the likelihood of hearing the bell. However, when the visible signal is installed directly in the sleeping area, there is no way to avoid the notification. Having the opportunity to deactivate the visible signal within the sleeping area permits a parent, for example, to shut off the alarm notification within a bedroom of a child who does not need to be awakened at night, or so a user who does not need the visual notice could shut off the device in his or her room while

1106.5.1 continues

1106.5.1 Notification



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1106.5.1 continued another user in a different room in the unit could leave the signal on within his or her sleeping area.

It is interesting that this change was inserted into the A117.1 standard for the purpose of coordinating with the ADA, yet the coordination did not extend to adding the visible signal requirement into Section 1106.5.1.

After considering that difference between the two standards, the next question may be why a person with visible notification has the option to shut off the doorbell signal within the sleeping area and yet a person with visual impairments would not have the same opportunity to shut off the audible signal within the sleeping area. This is mentioned here because the standard strives throughout to treat all people in an equitable manner, so perhaps in the next edition the provision should be revised to allow both features of the doorbell (audible and visual) to be turned off within the sleeping area and therefore allow everyone to pursue a good night of sleep.

If you are ready for sleep after reading all the way through this book, then take advantage of this new requirement in Section 1106.5.1 and shut the visible doorbell signal off and have a good night of sleep. Hopefully this book has helped you learn more about the new 2017 standard and the significant changes to the provisions.

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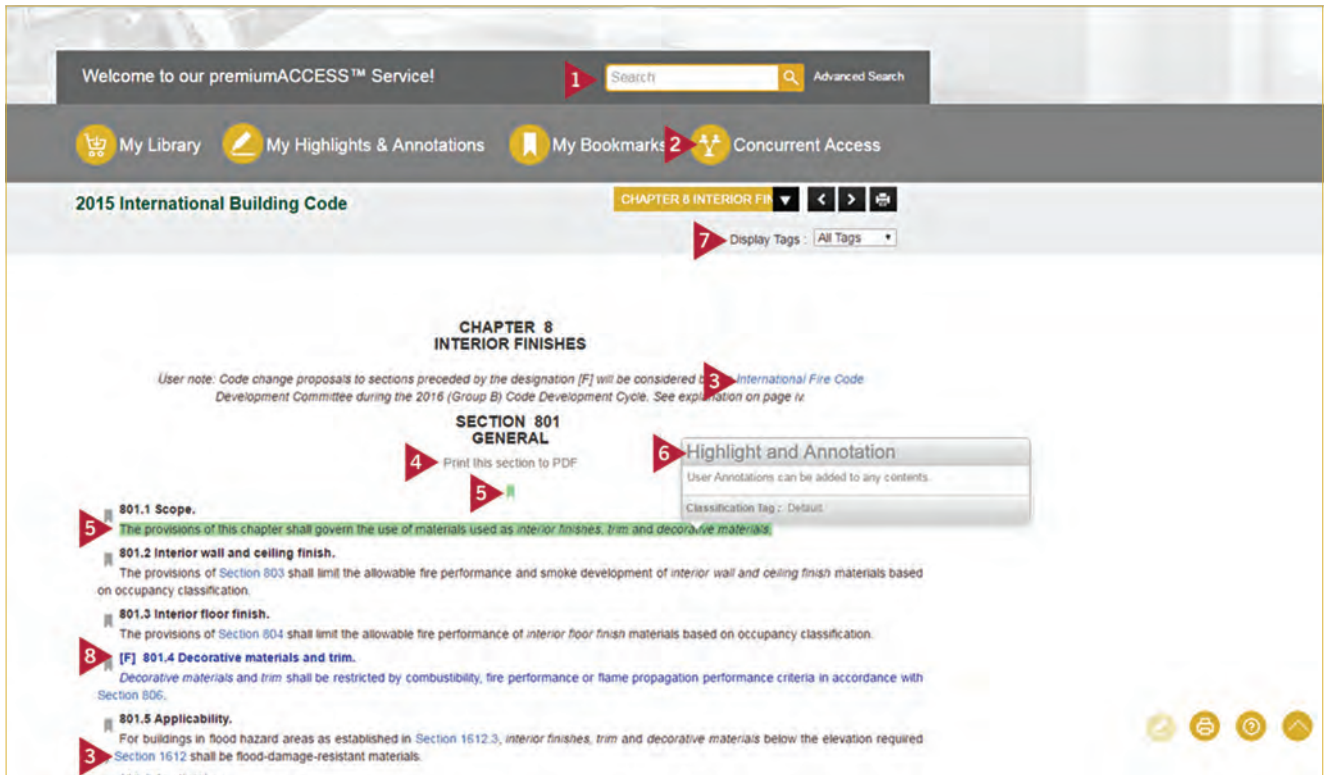
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