Chapter 3
Items 3-1-12 through 3-31-12
June 14, 2013.

This is one of ten documents containing those proposed changes to the A117.1 Standard, 2009 edition; for which Committee Ballot comments or Proponent Comments were received. Each item will be discussed at the meeting of A117.1 Committee during the week of July 15, 2013, in Washington D.C. This document does not contain proposals for which no comments were received. Those proposals, and the Committee decision on each one, can be viewed in the Committee Action Report (CAR) under the title: First Draft Standard Development at this following location: http://www.iccsafe.org/cs/standards/A117/Pages/default.aspx

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3-1 – 12
301.3 (New)

Proposed Change as Submitted

Proponent: Hope Reed, New Mexico Governor's Commission on Disability (NMGCD)

Add new text as follows:

301.3 Children's Standards. Children standards are provided as exceptions to adult standards in order to provide facilities for children's use. Where children are the primary user group children's standards can be applied. The specifications of the chosen age group shall be applied consistently in the area, room, or space.

Reason: Provide a clear statement for application of children's standards. Standards must be written to 'support' those who are expected to enforce those standards.

301.3 (New)-REED.doc

Committee Action

Disapproved

Committee Reason: This proposal was considered in conjunction with other proposal regarding children's standards. There was even an attempt to modify this proposal. The Committee remains concerned that putting children's standards in the Standard will result in confusion in application unless it is done with very clear direction in the adopted text. The term 'primary user' is troubling and the issue of overlapping age groups which often use the same facility.

BALLOT COMMENTS

3-1.1
Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: Consider approving this with the second sentence is stricken. This eliminates the concern over the "primary" age group. It will allow children's fixtures to be counted as part of the overall accessible elements. Of importance is the third sentence that states that the intent is to apply the age group throughout the area - preventing the "cherry-picking" which could be allowed as the rules are presently written.

3-2 – 12
302.1, 303.1

Proposed Change as Submitted

Proponent: Ed Roether, representing the ADA/A117 Harmonization Task Group

Revise as follows:

302.1 General. Floor surfaces shall be stable, firm, and slip resistant, and shall comply with Section 302. Changes in level in floor surfaces shall comply with Section 303.

EXCEPTIONS:

1. Within animal containment areas not exempted by Section 1101.2.1, floor and ground surfaces shall not be required to be stable, firm, and slip resistant.

2. Within areas of sports activity exempted in Chapter 11, the floor and ground surfaces shall not be required to comply with this section.

303.1 General. Changes in level in floor surfaces shall comply with Section 303.

EXCEPTIONS:

1. Animal containment areas not exempted by Section 1101.2.1 shall not be required to comply with this section.

2. Within areas of sports activity exempted in Chapter 11, the changes in level shall not be required to comply with this section.

Reason: The ADA/A117 Harmonization Task Group (HTG) was created as a task group of the A117.1 Committee to compare the 2010 ADA with the 2009 A117.1 Standard. The HTG has recommend a series of changes through a set of change proposals. The HTG is recommending changes, for the most part, address where the ADA was viewed as more stringent than the A117. Where the A117 contained provisions not addressed in the ADA, these were not considered a conflict needing action to amend the A117. In addition there are a number of places where the ADA and A117.1 are different as a result of specific actions, by the A117.1 Committee during the development of the 2009 edition, to remain or create a difference where, in the judgment of the committee the ADA was deficient.

The changes reflect new ADA provisions not in A117. Provides clarity and coordination with exceptions found in Chapter 11.

302.1-ROETHER.doc

Committee Action

Approved

Committee Reason: Provides better reference to provisions contained in Chapter 11. Provides consistency with the ADA 2010.

BALLOT COMMENTS

3-2.1
Commenter: Edward Steinfeld, Representing RESNA
Ballot: Affirmative with comment:

Comment: Refer to editorial committee: This should not be in building blocks section. Chapter 11 should address this, stating that these specific areas shall not be required to comply with 302.1 and 303.1

3-3 – 12
302.1

Proposed Change as Submitted

Proponent: Russell Kendzior, The National Floor Safety Institute (NFSI), representing NFSI and the ANSI B101 Committee on slip, trip and fall prevention

Revise as follows:

302.1 General. Floor surfaces shall be stable, firm, and ~~slip-resistant,~~ High-Traction, and shall comply with Section 302. Changes in level in floor surfaces shall comply with Section 303.

Reason: - Per ANSI/NFSI B101.1-2009 (wet SCOF) or ANSI/NFSI B101.3-2012 (wet DCOF)
The term slip-resistant is not defined within the A117.1 standard nor is the term adequately defined in any other national standard (ANSI, ASTM, NFPA, etc.) and because of such has been the source of great confusion for both property owners as well as pedestrians and should be removed from the revised A117.1 standard. Prior to 2009, there was no nationally recognized test method by which a property owner can perform as to confirm the slip resistance of their accessible routes/walkways making it difficult to actually insure that such routes/walkways were in compliance with the slip resistant requirement set forth by the A117.1 standard.

In 2009 the ANSI B101 "committee on slip, trip and fall prevention" published a new standard, which addresses this very issue. The ANSI/NFSI B101.1-2009 standard and the recently published ANSI/NFSI B101.3-2012 standards have replaced the term slip resistant with that of "High-Traction" to which both standards provide a specific test method, wet SCOF and DCOF respectively, as well as a table to which the resultant data is defined by one of three "Traction Ranges" to which the High-Traction range provides the highest level of slip resistance and the least level of risk for a slip-and-fall event.
The replacement of the term slip resistant with High-Traction provides clarity to the user of the A117.1 standard and will serve to harmonize the A117.1 standard with that of the newly released ANSI standards.

302.1-KENDZIOR.doc

Committee Action

Disapproved

Committee Reason: The Committee had a number of concerns regarding the proposal and the potential to reference the standards referenced in the proponent's Reason statement. The term 'high-traction' was not defined in the proposal. Without definition, application would be unclear. There is concern that the standards may allow only one test method and the testing doesn't result in replicable results. The Committee was concerned about the enforceability of the standard in the field. There were questions regarding how this affected persons with different disabilities. Finally there was concern that there lacked consensus in the industry of these materials and the testing of slip resistance, and that such should be resolved before a proposal focusing on one method be brought before the A117.1 Committee.

Staff note: The proponent's intent to have the NSFI standards referenced in the A117.1 standard was unclear to staff, therefore the standards were not provided to the Committee members for their consideration. If the proponent seeks reconsideration of their proposal, the materials appropriate to their reconsideration will be made available.

Proponent Comment

3-3.1
Commenter: Russell Kendzior, The National Floor Safety Institute (NFSI), representing NFSI and the ANSI B101 Committee on slip, trip and fall prevention

Reason: I would like to submit a comment on section 3.3-12 of the proposed revision of the ICC A117.1-2015 standard. As you know we had submitted comments on the same section and had spoken at the August 27-31 ICC A117.1 meeting in D.C. It is my

understanding that the ICC A117.1 committee chose not to adopt our recommendation to replace the term "slip resistant" with the term "High-Traction" as used within the published ANSI/NFSI B101 standards based on the following two points:

(a.) Although we had forwarded the ANSI B101 standards which now define and use the term High-Traction, the committee had not received them in advance of the August meeting and therefore were not comfortable with making the recommended to change the current language and
(b.) the A117 committee felt that our recommendation should be presented to the ICC/IBC first.

We firmly believe that our recommendation to change the terms be re-reconsidered and adopted by the ICC A117.1 committee based on the fact that all of the new ANSI B101 standards no longer use the term slip resistant and now use the term high-traction to define the slip resistance requirements of walkways and if unchanged, the revised A117.1 standard will serve to both contradict and confuse the reader of the ICC A117.1 standard as to the current walkway safety requirements. In short, the phase slip-resistant is undefined and incapable of being measured and therefore is an ambiguous and somewhat meaningless term that does not protect those with a disability while the term High-Traction is well defined, capable of measurement and provides a better understanding as to the level of slip resistance required to insure safe ambulation for those with or without a disability.

As of date there are five published American National Standards which use the term High-Traction in lieu of slip resistant to which we are requesting that the ICC A117 committee reconsider their decision and replace the phase slip resistant with the term high-traction in section 302.1 "General" of the proposed revision of the ICC A117.1-2015 standard. We are further requesting that in an effort to assist the user of the revised ICC A117.1-2015 standard that the committee agree to provide a reference to the following approved ANSI standards in the appendix of the revised ICC A117.1-2015 standard each of which uniformly use the term high-traction. I am enclosing .pdf copies of each standard to which you are granted permission to distribute to the members of the committee.

ANSI/NFSI B101.0 Walkway Surface Auditing Procedure for the Measurement of Walkway Slip Resistance

ANSI/NFSI B101.1 Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials

ANSI/NFSI B101.3 Test Method for Measuring Wet DCOF of Common Hard-Surface Floor Materials (Including Action and Limit Thresholds for the Suitable Assessment of the
Measured Values)

ANSI/NFSI B101.5 Standard Guide for Uniform Labeling Method for Identifying the Wet Static Coefficient of Friction (Traction) of Floor Coverings, Floor Coverings with Coatings,
and Treated Floor Coverings

ANSI/NFSI B101.6 Standard Guide for Commercial Entrance Matting in Reducing Slips,Trips and Falls.

Please note that we intend to present the same recommendation to the ICC when the IBC comes up for renewal in 2016 and intend to present our make another presentation at the July 15-19 ICC 117.1 meeting.

STAFF NOTE: Mr. Kendizor's supporting documentation can be viewed under the Agendas tab; July 15-19, 2013; Supporting Documentation at the following link: http://www.iccsafe.org/cs/standards/A117/Pages/default.aspx

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3-4 – 12
303.3

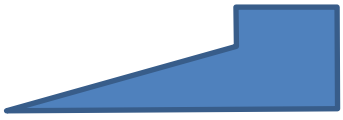
Proposed Change as Submitted

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

Add a new figure which is similar to the existing figure (a). Have the new figure show that the bottom ¼ inch can be beveled and that the ¼ inch vertical change of elevation can be at the top of the figure.

Similar to this configuration.



Reason: The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and

publishes a Commentary on the standard and writing the commentary illuminates issues of the text and figures; and 3. ICC provides an interpretation service for the standard which results in the observation of provisions the users find most confusing.

The addition of a third figure may help eliminate some questions that have been received regarding the correct application of the change in level requirements. This type of arrangement with the beveled portion of the level change in the lower ¼ inch and the ¼ inch vertical portion located in the upper portion of the ½ inch maximum level change corresponds to what is used for most thresholds.

When reading the text of Section 303.3 it indicates that "Changes in level greater than ¼ inch in height and not more than ½ inch maximum in height shall be beveled. Unfortunately that language is sometimes being interpreted to limit the ¼ inch vertical change to being the bottom or first change and not allowing the vertical change to occur between the height of ¼ and ½ inches from the floor.

Providing this new configuration will show that the ¼ inch vertical is permitted at any point in the ½ inch level change. Unfortunately I have also received calls which indicate that Sections 303.2 and 303.3 cannot be combined [as shown in Figure 303.3(a)] and that Section 303.3 requires any level change which is greater than ¼ inch in height to be done only by a beveled slope.

While we will never eliminate all potential bad interpretations, showing the various options will eliminate most confusion and debate.

If the committee would prefer to change the text of the standard, an option would be as follows.

> **303.3.1 Beveled and vertical change.** Changes in level not more than ½ inch (13 mm) maximum in height shall be permitted to be done by a combination of a beveled change complying with Section 303.3 and vertical change complying with Section 303.2. The vertical change may occur at any location within the ½ inch maximum height that is allowed by Section 303.3.

I don't believe a change in text is needed and would probably prefer that the committee did not take this option.

303.3(FIGURE)-PAARLBERG.doc

Committee Action

Disapproved

Committee Reason: The Committee concluded that the proposed figure doesn't reflect the intent of the section. The provisions should not be interpreted to reach this conclusion. Such a figure would encourage misunderstanding of the standard.

BALLOT COMMENTS

3-4.1

Commenter: Kimberly Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: As the standard currently is worded, I do not believe there is anything which prohibits the 1/4 inch vertical rise from occurring at the top portion of the 1/2 inch level change. However, given the committee's reason statement it appears as if they believe otherwise. If the committee truly believes the addition of a figure or the proposed alternate text does not reflect the intent of the section, then they should make an effort to clarify the requirement. It would provide better guidance to manufacturers so they are aware of the committee's opinion on this issue and can eliminate many of the existing products currently on the market and available for use at level changes on an accessible route.

The various sections and photos shown are a quick example of the types of thresholds which comply with the standard's current 1/2 inch maximum level change (Section 303.3) as well as the requirement that the maximum vertical change is 1/4 inch (Section 303.2).

To help further illustrate the need for the clarification the proposed alternate text can provide, the committee should reread Sections 303.2 and 303.3 as the separate sections they are. Sometimes trying to read the standard in a literal fashion or trying to see how it can be read incorrectly will help to identify problems. Taken separately and in a literal way, the current Figure 303.3(a) which shows a condition similar to the use of a bull-nose tile should be eliminated from the standard since it does not show a beveled level change and is allowing the use of Sections 303.2 and 303.3 to a single level change. If Section 303.3 is to be "properly" or literally applied it would require the entire level change to be beveled when the total height of the level change is greater than 1/4 inch and less than 1/2 inch. Therefore the committee should create additional language such as the proposed Section 303.3.1 to indicate that 303.2 either can or cannot be combined with Section 303.3 and in which order they are to be applied.

3-4.2

Commenter: Michael Tierney, Representing BHMA
Ballot: Negative with comment:

Comment: I am voting in opposition to the committee disapproval and reasoning. The wording in the current paragraph 303.3 allows for the configuration proposed by Kimberly Paarlberg. As a result, hundreds of thousands of thresholds meeting that profile have been produced for over 30 years, are offered by virtually every manufacturer, and have not been reported to hinder accessibility.
There are several functions for the configuration:

- windstorm protection by sealing against wind and water
- energy conservation by reducing air infiltration
- providing latching points to secure the door

If the Committee action were allowed to stand, business owners who have complied in good faith with A117 would be required to replace existing thresholds. Further, Kim's proposed wording for 303.3.1 would eliminate the ambiguity, and "reduce the unnecessary confusion and debate". There does not appear to be any justifiable reason to reject this proposal, and a host of reasons for acceptance.

Proponent Comment

3-4.3

Commenter: Kimberly Paarlberg, Representing ICC

Replace the proposal with the following:

303 Changes in Level

303.1 General. Changes in level in floor surfaces shall comply with Section 303.

303.2 Vertical. Changes in level of 1 /4 inch (6.4 mm) maximum in height shall be permitted to be vertical.

303.3 Beveled. Changes in level greater than 1/4 inch (6.4 mm) in height and not more than 1/2 inch (13 mm) maximum in height shall comply with one of the following:

1. The change in level shall be beveled with a slope not steeper than 1:2.
2. The change in level shall be a combination of vertical change in level of ¼ inch (6.4 mm) maximum and a bevel with a slope not steeper than 1:2.

303.4 Ramps. Changes in level greater than 1/2 inch (13 mm) in height shall be ramped and shall comply with Section 405 or 406.

Reason: The current graphics allow for a vertical and beveled combination (Figure 303.3(a)). The text should specifically state this allowance. The comment submitted with the ballot explains why how this change is accomplished should not make any difference. If the text is accepted, there should be an additional figure to allow for the bevel first and the change in elevation 2nd.

3-5 – 12

304.2, 305.2, 404.2.3.1, 404.2.4, 405.4, 405.7.1, 502.5, 503.4, 504.4, 802.2,

Proposed Change as Submitted

Proponent: Ed Roether, representing the ADA/A117 Harmonization Task Group

Revise as follows:

304 Turning Space

304.2 Floor Surface. Floor surfaces of a turning space shall have a slope not steeper than 1:48 and shall comply with Section 302. Changes in level exceeding that permitted by Section 303.3 are not permitted within the turning space.

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

305 Clear Floor or Ground Space

305.2 Floor Surfaces. Floor surfaces of a clear floor space shall have a slope not steeper than 1:48 and shall comply with Section 302. Changes in level exceeding that permitted by Section 303.3 are not permitted within the clear floor space.

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

403 Walking Surfaces

403.4 Changes in Level. Changes in level shall comply with 303.

404.2 Manual doors

404.2.3.1 Floor Surface. Floor surface within the maneuvering clearances shall have a slope not steeper than 1:48 and shall comply with Section 302. Changes in level exceeding that permitted by Section 303.3 are not permitted within the maneuvering clearances.

404.2.4 Thresholds. If provided, thresholds at doorways shall be 1/2 inch (13 mm) maximum in height. Raised thresholds and changes in level at doorways shall comply with Sections 302 ~~and 303~~.

EXCEPTION: An existing or altered threshold shall be permitted to be 3/4 inch (19 mm) maximum in height provided that the threshold has a beveled edge on each side with a maximum slope of 1:2 for the height exceeding 1/4 inch (6.4 mm).

404.3 Automatic doors

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

405 Ramps

405.4 Floor Surfaces. Floor surfaces of ramp runs shall comply with Section 302. Changes in level exceeding that permitted by Section 303.3 other than the running slope and cross slope are not permitted on ramp runs.

405.7.1 Slope. Landings shall have a slope not steeper than 1:48 and shall comply with Section 302. Changes in level exceeding that permitted by Section 303.3 are not permitted within the landings.

407.4 Elevator Cars

407.4.2 Floor Surfaces. Floor surfaces in elevator cars shall comply with Section 302.

408.4 LULA cars

408.4.2 Floor Surfaces. Floor surfaces in elevator cars shall comply with Section 302.

409.4 Private residence elevator cars

409.4.2 Floor Surfaces. Floor surfaces in elevator cars shall comply with Section 302.

410.2 Platform lifts

410.3 Floor Surfaces. Floor surfaces of platform lifts shall comply with Section 302.

502 Parking spaces

502.5 Floor Surfaces. Parking spaces and access aisles shall comply with Section 302 and have surface slopes not steeper than 1:48. Access aisles shall be at the same level as the parking spaces they serve. Changes in level exceeding that permitted by Section 303.3 are not permitted within the parking spaces and access aisles.

503 Passenger loading zones

503.4 Floor Surfaces. Vehicle pull–up spaces and access aisles serving them shall comply with Section 302 and shall have slopes not steeper than 1:48. Access aisles shall be at the same level as the vehicle pull–up space they serve. Changes in level exceeding that permitted by Section 303.3 are not permitted within the vehicle pull-up spaces and access aisles.

504 Stairways

504.4 Tread Surface. Stair treads shall comply with Section 302 and shall have a slope not steeper than 1:48. Changes in level exceeding that permitted by Section 303.3 are not permitted within the stair tread.

802 Wheelchair spaces

802.2 Floor Surfaces. The floor surface of wheelchair space locations shall have a slope not steeper than 1:48 and shall comply with Section 302. Changes in level exceeding that permitted by Section 303.3 are not permitted within the floor surface of wheelchair space locations.

1103 Recreational Boat Launches

1103.2.1 Boat Slips. An accessible route shall serve boat slips.

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

Reason: The ADA/A117 Harmonization Task Group (HTG) was created as a task group of the A117.1 Committee to compare the 2010 ADA with the 2009 A117.1 Standard. The HTG has recommend a series of changes through a set of change proposals. The HTG is recommending changes, for the most part, address where the ADA was viewed as more stringent than the A117. Where the A117 contained provisions not addressed in the ADA, these were not considered a conflict needing action to amend the A117. In addition there are a number of places where the ADA and A117.1 are different as a result of specific actions, by the A117.1 Committee during the development of the 2009 edition, to remain or create a difference where, in the judgment of the committee the ADA was deficient.

Reason statement for change of level: The preceding sections are where the phrase "changes in level are not permitted" is used, or there is a specific reference to 303. The idea is to try and allow surfaces such as tile and deck boards, but not a threshold or other ¼" to ½" change in vertical surface that will be a 'hitch' in access. I included titles to help put the sections into context. There is also the issue of consistently using the 1:48 within the requirement or as an exception. Suggested revisions in legislative text are based on emails, consistency throughout for A117.1 and the Access Board advisory.

ADA Advisory 304.2 Floor or Ground Surface Exception. As used in this section, the phrase "changes in level" refers to surfaces with slopes and to surfaces with abrupt rise exceeding that permitted in Section 303.3. Such changes in level are prohibited in required clear floor and ground spaces, turning spaces, and in similar spaces where people using wheelchairs and other mobility devices must park their mobility aids such as in wheelchair spaces, or maneuver to use elements such as at doors, fixtures, and telephones. The exception permits slopes not steeper than 1:48.

304.1 Roether .docx

Committee Action

Approval as Modified

Modification

All portions of the original proposal were approved with the exception of the proposed revision to Section 405.4

Ramps.

405.4 Floor Surfaces. Floor surfaces of ramp runs shall comply with Section 302. ~~Changes in level exceeding that permitted by Section 303.3 other than the running slope and cross slope are not permitted on ramp runs.~~

Committee Reason: The proposal addresses in multiple locations the change in level language and provides consistency between the Standard and the ADA advisory regarding the text also used in the ADA 2010. The proposal affecting the ramp provisions were of concern to the Committee in that it might allow materials which would be difficult to negotiate travel across.

BALLOT COMMENTS

3-5.1

Commenter: Kimberly Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: I object only to the modification. The provisions for ramps should be consistent with all other 'level' surfaces such as parking spaces, passenger loading zones, stairways treads, floor surfaces at wheelchair spaces, etc.

3-5.2

Commenter: Gina Hilberry, Representing UCP
Ballot: Negative with comment:

Comment: This proposal inserts the phrase "Changes in level exceeding that permitted by Section 303.3 are not permitted within…." for a series of locations including turning spaces, all required clear floor spaces (305.2), door maneuvering spaces, landings, parking spaces and access aisles, treads of stairs, etc. This means that changes in level (1/4" vertical, ½" beveled will be clearly permitted at all of these locations. I do not agree that changes in level of this sort should be (or seem to be) permitted at locations such as maneuvering spaces, turning spaces, landings (e.g. at ramps) or treads of stairs.

3-6 – 12

304.3.1

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

304.3.1 Circular Space. The turning space shall be a circular space with a ~~60~~ 67 inch (~~1525~~ 1700 mm) minimum diameter. The turning space shall be permitted to include knee and toe clearance complying with Section 306.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

This increase is as recommended by the IDEA Final Report and is expected to increase the percentage of manual and power wheelchair users accommodated from 80 to 95 % and almost double the percentage of scooters served.

Discussion:

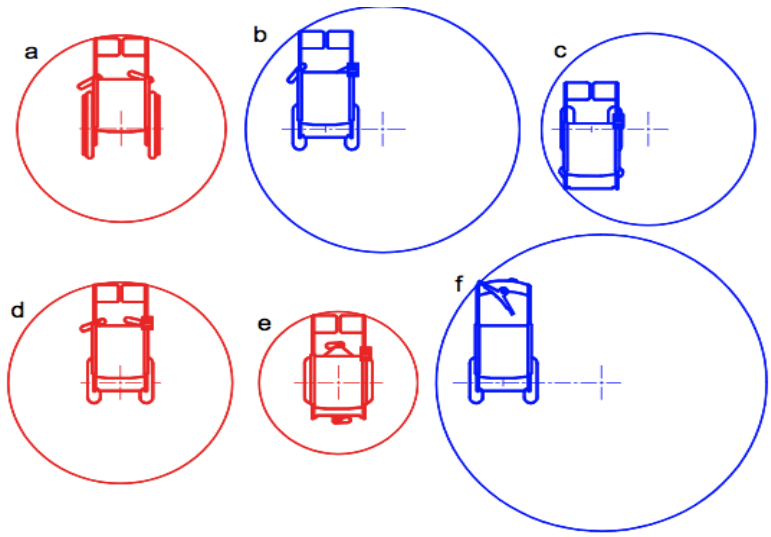
The IDEA team provided very helpful diagrams illustrating the 5 different 180 turns used by the subjects in the IDEA report. The Spot and Pivot turning techniques appear to need a width just a few inches greater than the diagonal of the user's wmd. The Shuffle turn

uses whatever space is available though repeated short back and forth shuffles while turning around incrementally. The Three Point turn is a T turn with upraised arms. It was the Full U turn where both wheels move forward but the outside wheel moves faster that required the most width. The Pivot and Three Point turns use a 'corner'. The subjects were allowed to choose their preferred method for turning, but the IDEA report does not identify who used which technique, so a question exists as to who needs the extra space to successfully turn or to avoid excessive energy expenditure and who could function with less space than they used.

Further, we were informed that the best shape for an 180 turning space is a lozengen. The IDEA team recommended that the long dimension be 88 inches and the short dimension be 68 inches. Because the shape only works if a user enters the space through one of the short ends, a turning space that could be entered from either the long or short sides would have to be 88 inches along both sides.

In examining what design features were driving the space to be so large it became apparent that lack of differential steering in scooters and some power chairs was a major factor. Differential steering, as found in manual wheelchairs and center wheel power wheelchairs, is the ability to drive one drive wheel forward while the other goes backward. Where both wheels are driven by a common motor or direct drive transmission both wheels must go in the same direction, hence the turning radia are much larger.

From The Working Area of Wheelchairs by Johann Ziegler
This observation raises the question – should the built environment be changed to accommodate poorly designed wmds or ought those choosing poorly designed wmds be informed that their vehicle may not be well accommodated? The analogy is the parking lot at the grocery store. If you choose to drive a stretch limo, RV, bus, or other vehicle that is bigger than a typical parking space you are welcome to shop, but don't expect a parking space near the entry. Ultimately this is a political and not a technical question.



Key:
a manual wheelchair
b electrically powered wheelchair with rear wheel drive and direct steering
c electrically powered wheelchair with front wheel drive and direct steering
d electrically powered wheelchair with rear wheel drive and full differential steering
e electrically powered wheelchair with mid wheel drive and full differential steering
f electrically powered wheelchair with scooter design and direct steering

Figure 4 - Turning diameter (examples for various wheelchair types)

304.3.1-HILBERRY.doc

Committee Action

Approved

Committee Reason: The WMTG was able to bring forth 2 key proposals as a result of its review of the studies of persons using wheeled mobility devices. This is one of the proposals; the other found in 3-13-12 addresses the clear floor space. Many Committee members were unsure of approving either change without knowing the implications in the balance of the Standard. The WMTG a working decision on this proposal and 3-13-12 before considering the balance of the Standard and where additional correlating changes would be needed. Those changes developed between the August and January meetings are reflected in proposals 3-6A-12 through 3-6F-12 and 3-13A-12 through 3-13K-12.

A significant discussion was made regarding the impact a 67 inch turning circle would have on the design of dwelling units. The potential to develop exceptions for dwelling units either in this section or Chapter 10 were considered. No action as accepted by the Committee to amend 3-6-12 for dwelling units. It was pointed out in the discussion that the Type B standards do not include a turning space requirement.

The Committee discussed the growing use of powered chairs and scooters which are larger in size and have differing maneuvering capabilities. The Committee debated whether the Standard should be changed to accommodate changes in the technologies or wheeled mobility or whether the manufacturers of the devices needed to be designed equipment to work within the standard. Of concern is not just the current mix of equipment being used, but trying to anticipate what will be of use through the life of buildings being designed and built today.

The Committee recognized that increasing the base dimensions of the circular turning space and the clear floor space have space and therefore cost implications throughout a building design and the design of site features, Specifically mentioned during the debate were dwelling units, kitchens and single occupant toilet/bathrooms.

BALLOT COMMENTS

3-6.1

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: This will have major impacts in typical small areas such as concession stands and arcade areas. In the responses I received from NATO, one individual who responded uses a wheelchair and stated that the 60" dimension is adequate for his use and it is not necessary to increase the turning space.

3-6.2

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Negative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to a 25% increase in the area required for the circular turning space. The evidence presented only addresses the wide variety of mobility devices in service today. It does not address whether the problem is in the manufacture of these mobility devices that do not conform to the current 60" diameter requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger diameter and cannot be designed and manufactured in such a way as to fit within the current 60" diameter space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-6.3

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: The existing turning space standards have been in existence for over 50 years. Reportedly, the AHLA has never had a complaint regarding complaint turning spaces.

The new proposed 67" turning space by IDEA will increase turning area approximately 25%.
This increase as recommended by the IDEA Final Report is expected to increase the percentage of manual and power wheelchair users accommodated from 80 to 95% and almost double the percentage of scooter served. Of the existing 2.8 million wheelchair and scooter users this calculates to an approximate increase of 220,000 occupants.

Today's technology can accommodate all non-institutional wheelchair and scooter users.
Our current standards for the built environment now accommodate 99.998% of the US population. Ideally it would be wonderful to accommodate 100% of all people with mobility disabilities however; the proposed turning diameter area and construction cost increase would be prohibitive.

3-6.4

Commenter: Dominic Marinelli, Representing USA
Ballot: Negative with comment:

Comment: Landing size at ramp's change of direction should be increased to 67" by 67" to be consistent with other changes/increases.

3-6.5

Commenter: Ronald G. Nickson, Representing NMHC
Ballot: Negative with comment:

Comment: The committee is holding proponents of proposed changes to two different levels. For items they do not agree with (changing handrail requirements) the committee disapproves changes because the study has not had a peer review. In contrast, the committee is proposing major changes to the basic buildings blocks for clear floor space based on a single study that has had no peer review. In addition, the information and data from the single study does not address the entire population and the ability and options people have in making decisions on what type of mobility devices are available. It was clearly evident during the A117.1 meeting that mobility devices with great mobility are available. I understand the dilemma, in that the less expensive mobility devices, because of design, do not have some of the mobility features of the more expensive equipment. However, the basis of the A117.1 standard should not be based on people making the incorrect decision as to what they really need for mobility in their daily needs.

Increasing the building block dimensions for wheel chair clear floor space, turning circles and other accessibility features will have a dramatic impact on the design and construction of accessibility features and may have a negative impact on the entire disabled population because of the increased costs that in turn impact the ability of the design and construction industry to provide cost effective buildings. This is most evident in affordable housing. The changes approve by the committee will increase the cost of affordable housing and impact the design and livability of each individual dwelling unit. The increased area needed for kitchen, bathrooms, hallways and other features of the dwelling unit will have to come from other rooms in the dwelling unit resulting in smaller living rooms, dining rooms and bedrooms. One alternative is to make the dwelling unit larger which means fewer dwelling units in a given size building. The other is to increase the overall size of the building. In either case the cost per unit increases resulting in higher rents or increased subsidies. Net effect, fewer units available for the people that really need and depend on affordable housing.

3-6.6

Commenter: Steve Orlowski, Representing NAHB
Ballot: Negative with comment:

Comment: We do not agree with the committee actions to increase the building block and clear floor space as proposed in several proposed changes to the standard based upon the use of WhMD that are currently available on the market primarily designed for outside use. It is unclear as to which kind of scooters were represented in the 2010 Anthropometry Report along with manual and motorized chairs. Were they 'travel,' 'full-sized,' 'heavy duty,' or 'luxury' scooters? These are terms used by the manufacturers when selling their scooters, but since scooters can be any size—restricted only by market influences—they are important. Heavy duty and luxury scooters are marketed as primarily outdoor scooters, and their greater size and maneuverability requirements could skew the results of the Anthropometry Report significantly. NAHB disagrees with the argument that dwelling units need to accommodate mobility devices which are not designed for indoor use.

Secondly, the report does not tell us whether or not scooter owners used them inside buildings or their dwellings. If scooter use is limited to outdoors and not intended for use in public buildings, then this would suggest that dwellings should have dimensions that differ from other areas within the scope of the standard, being based on smaller WhMDs. These dimensions would include turning radius, clear floor spaces, reach ranges, etc. Making changes to the standard based on a percentage of all WhMDs tested in the report without regard as to how they are being used would be neither constructive nor responsible.

Furthermore, we are in danger of setting up a spiral of increasing dimensions.-At this time we do not know whether manufacturers of WhMDs are taking the current A117.1 Standard into consideration when designing devices for indoor use. As we stated during the committee meeting, manufactures of these devices need to work within the current dimensional criteria established by the standard and not be the driver for increasing the dimensions for these poorly designed devices.

Similar to the last code cycle, the stair manufacturers brought studies trying to validate their proposed changes and were disapproved because their studies did not go out for peer review. Shouldn't this report be given the same scrutiny? These changes will significantly impact new and existing buildings that the codes require to be compliant with the referenced A117.1 standard, yet there has been no effort to correlate the findings of this report to determine how many people in the general public will be positively or negatively impacted by these increased dimensions. In addition, fair housing references the 1986 ANSI A117.1 standards as the baseline which would set up the argument that if the older reference standard is deemed a safe harbor, there will be no reason to continue maintaining this document or to reference any newer version in the building code.

Finally, the proposed increase for clear turning would dramatically decrease the usable floor space in a dwelling since you now have to increase the bathroom and kitchen spaces at the cost of other living areas. Based on the 2010 Census data more than 50% of the 2.1 million disabled persons in America are living in dwelling units that are less than 700 square feet, these increased dimensions will have a negative impact by reducing the usable space of the areas within the dwelling to accommodate for those areas that must meet the building block increases.

3-6.7

Commenter: Kimberly Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: The size increase in the building blocks and accessible routes proposed by the series of changes from the Wheeled Mobility Task Group will have significant impacts on the design of buildings and facilities as well as the cost of construction. There has not been adequate study of the impact of these changes. Proto-type designs should be prepared to determine the impact of these standards. The Appendix B of the ADA, which did a series of bathrooms to show the impact of new requirements, is a wonderful example of what

the Committee really needs to see in order to understand the impact of these requirements on tight spaces like bathrooms, kitchens, dressing rooms, locker rooms, configurations with 36" wide corridors or aisles, doorways in alcoves, etc. What is the impact on an residential, such as apartments, dormitories, assisted living facilities – Accessible/Type A vs. Type B units?

The proposals are further incomplete because the impact on reach ranges, especially reaching over obstructions has not been fully explored. There were conversations that aimed at eliminating allowance for use of knee and toe clearances as part of these features. If such were to happen, what again is the impact on building design?

The standards eliminate the ability to have the intersection of 36 inch wide corridors without widening one corridor or 'chamfering' the corner. The 36" wide corridor and aisle is the minimum width established by the building codes in small business occupancies, within apartments, in restaurant and theater layouts, etc. The committee has not discussed the ramifications for aisles. In addition, what are the impacts on theaters and stadiums with the change in wheelchair space size on top of the line of site requirements?

The ICC A117.1 is a minimum standard for accessibility – not a best practice or universal design standard. We question whether these new dimensions still reflect the minimum needed for accessibility. We acknowledge that certain wheeled mobility devices have larger footprints and more limited turning capability, but are we comfortable that we know the true size of the population using such devices? What is the increase of population served? Perhaps a solution would be to move these scooter and reclining/powered chair dimension into an appendix to the standard (something along the line of 'best practices') which could be selected by building designers, but not mandatory for all new buildings until this is fully understood. This might allow the industry to evaluate the impact before the requirements become mandatory. Or to allow for the options in scoping – an example being to ask for the larger spaces in the family use/assisted use bathrooms.

While there is nothing to say that the A117.1 can't require greater access than the ADA, what are the ramifications of having the base building blocks significantly different? Would it not be better for compliance with accessibility standards for the two predominant standards in the country to be in sync for the next few years?

Finally, the ramifications of these new base standards on the remodeling of existing buildings needs to be fully considered. Are we really wanting to say buildings built under the 2012 IBC and the 2009 A117.1 standard are no longer accessible? The committee already understands the impact of just the change in reach range from 48" to 54" (Section 308.3.1 Exception). How much greater the ramification to corridors, bathrooms, etc.?

3-6.8

Commenter: Ron Burton, representing BOMA
Ballot: Negative with comment:

The committee has proposed major changes to the basic buildings blocks for clear floor space based on a single study that, as far as we can tell, has had no peer review. The samples in the study were also not correlated to the general population. We don't believe it is prudent to use data from a single study, especially one the major shortcomings mentioned above, to propose such far-reaching changes that will have extremely significant impacts throughout the construction and real estate industries. During the A117.1 meetings, we were provided information that mobility devices with less impact to building design are in fact available. The A117.1 standard should not be based on a limited field of products on the market but we should look at the characteristics of all products and how that information might influence changes to the standard. In addition, it is unclear if the 2010 Anthropometry Report was based at least in part upon wheeled mobility devices that are intended only for outdoor use. If so, the greater size and maneuverability requirements of such products could skew the results of significantly. We do not believe that all interior spaces, and especially dwelling units, need to accommodate devices which are not designed for indoor use.

Increasing the building block dimensions for wheel chair clear floor space, turning radii, turning circles and other features clearly has a dramatic impact on the design and construction of accessibility elements. We do not believe the true costs of the proposed changes have been determined, but it is fair to say that it will have significant negative impact on building design and construction, and even on those with disabilities because of the impacts on affordable housing and accessible buildings.

3-6A – 12

405.7.4

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

405.7.4 Change in Direction. Ramps that change direction at ramp landings shall be ~~sized to provide a turning space complying with Section 304.3~~ 67 inches (1700 mm) minimum in width and 67 inches (1700 mm) minimum in length.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base

building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-6A: Addresses concern that encroachments on a minimum square turning space will obstruct turning.
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Committee Action

Disapproved

***Committee Reason**:* The Committee preferred the action taken through the approval of Proposal 4-40-12

BALLOT COMMENTS

3-6A.1

Commenter: Kimberly Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: See comment for 3-6-12.

Ramps are part of existing accessible routes. This change would require all existing ramps to be rebuilt as part of the accessible route improvements.

3-6A.2

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Negative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to a 25% increase in the area required for the circular turning space. The evidence presented only addresses the wide variety of mobility devices in service today. It does not address whether the problem is in the manufacture of these mobility devices that do not conform to the current 60" diameter requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger diameter and cannot be designed and manufactured in such a way as to fit within the current 60" diameter space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-6B – 12
Table 407.4.1

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

Table 407.4.1—Minimum Dimensions of Elevator Cars

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 of Door
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 5/8 inch (16 mm) is permitted.

[2]Other car configurations that provide a 36-inch (915mm) door clear opening width and a 60 inch (1525 mm) turning space ~~complying with Section 304~~ with the door closed are permitted.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-6B: An elevator car that can provide a 60 inch diameter turning space with the doors closed is larger than the cars permitted by Table 407.4.1 and should still be permitted. Increasing the size to a 67 inch diameter would in all probability increase the elevator car capacity and thus increase the cost of the elevator system and related structural support of the building. There is no evidence that cars providing a 60 inch diameter are unusable to persons using larger wheeled mobility devices.

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Committee Action

Approved as Modified

[2]Other car configurations that provide a 36-inch (915mm) door clear opening width and a 60 inch (1525 mm) ~~turning~~ diameter space with the door closed are permitted.

Committee Reason: The intent is to clarify that the space within the elevator car is not specifically a turning space, but provides space to reach the controls.

BALLOT COMMENTS

3-6B.1

Commenter: Brian Black, Representing NEII
Ballot: Affirmative with comment:

Comment: The committee modification improved the proposed change as submitted.

It should be noted that the turning diameter allowance in footnote 2 is often used for non-rectangular observations elevators (see example), often installed in atria. Requiring a larger car to accommodate a 67 inch (1700 mm) turning diameter would have made these types of elevators either extremely expensive or impractical to install.

3-6B.2

Commenter: Kimberly Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Why is the committee assuming the change in size to 67" will adversely affect elevator sizes? This should be an example the full ramifications should be investigated.

3-6B.3

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: The existing turning space standards have been in existence for over 50 years. Reportedly, the AHLA has never had a complaint regarding complaint turning spaces.

The new proposed 67" turning space by IDEA will increase turning areas approximately 25%.
This increase as recommended by the IDEA Final Report is expected to increase the percentage of manual and power wheelchair users accommodated from 80 to 95% and almost double the percentage of scooter served. Of the existing 2.8 million wheelchair and scooter users this calculates to an approximate increase of 220,000 occupants.

Today's technology can accommodate all non-institutional wheelchair and scooter users.
Our current standards for the built environment now accommodate 99.998% of the US population. Ideally it would be wonderful to accommodate 100% of all people with mobility disabilities however; the proposed turning diameter area and construction cost increase would be prohibitive.

3-6C – 12

502.4.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

502.4.2 Width. Access aisles serving car and van parking spaces shall be ~~60~~ 67 inches (xxx mm) minimum in width.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-6C: This reflects our previous action changing the changing the size of a turning circle (Section 304) to 67 inches.

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Committee Action

Approved

Committee Reason: The increased size of a turning circle needs to be included in the access aisle for parking spaces. Turning around in such spaces is commonplace.

BALLOT COMMENTS

3-6C.1

Commenter: Rick Lupton, Representing WABO
Ballot: Affirmative with comment:

Comment: The exception to Section 502.2 for van stalls should be changed to reflect an access aisle width of 103 inches (96" + the additional 7" diameter of the turning space).

3-6C.2

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: If the purpose of this is to address the 67 inch turning space, it is also important to note that the width of the accessible parking space and the width of the vehicles are not the same. The standard vehicle is generally quite a bit less than the required 96 inch parking space. There is no reason to increase the overall width of the access aisle when the adjoining space will not be obstructed to its full extent. The 67-inch dimension should still be available between vehicles without the need to increase the striping.

3-6C.3

Commenter: Ron Burton, Representing BOMA
Ballot: Negative with comment:

Comment: See reason on 3-6-12

3-6C.4

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Negative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to an increase in the area required. The evidence presented only addresses the wide variety of mobility devices in service today. It does not address whether the problem is in the manufacture of these mobility devices that do not conform to the current requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger space and cannot be designed and manufactured in such a way as to fit within the current space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-6C.5

Commenter: Ronald G. Nickson, Representing NMHC
Ballot: Negative with comment:

Comment: See comment for Item 3-6-12.

3-6C.6

Commenter: Steve Orlowski, Representing NAHB
Ballot: Negative with comment:

Comment: See comment for Item 3-6-12.

3-6C.7

Commenter: Kimberly Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: See comment 3-6.

3-6D – 12
503.3.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

503.3.2 Width. Access aisles serving vehicle pull-up spaces shall be ~~60~~ 67 inches (~~1525~~ 1700 mm) minimum in width.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-6D: Accommodate 67 inch (1700) turning diameter.

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Committee Action

Approved

Committee Reason: Consistent with the action to approve proposal 3-6C-12.

BALLOT COMMENTS

3-6D.1
Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: Like the access aisle for parking, the passenger loading zone access aisle are defined by the location of the vehicle. Given the desired turning space, for consistency, this increase is not warranted. If it is necessary to increase this dimension, it should be based on another reason such as the loading platform extension from the vehicle.

3-6D.2
Commenter: Ron Burton, Representing BOMA
Ballot: Negative with comment:

Comment: See reason on 3-6-12

3-6D.3

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Negative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to an increase in the area required. The evidence presented only addresses the wide variety of mobility devices in service today. It does not address whether the problem is in the manufacture of these mobility devices that do not conform to the current requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger space and cannot be designed and manufactured in such a way as to fit within the current space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-6D.4

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: The existing turning space standards have been in existence for over 50 years. Reportedly, the AHLA has never had a complaint regarding complaint turning spaces.

The new proposed 67" turning space by IDEA will increase turning areas approximately 25%.
This increase as recommended by the IDEA Final Report is expected to increase the percentage of manual and power wheelchair users accommodated from 80 to 95% and almost double the percentage of scooter served. Of the existing 2.8 million wheelchair and scooter users this calculates to an approximate increase of 220,000 occupants.

Today's technology can accommodate all non-institutional wheelchair and scooter users.
Our current standards for the built environment now accommodate 99.998% of the US population. Ideally it would be wonderful to accommodate 100% of all people with mobility disabilities however; the proposed turning diameter area and construction cost increase would be prohibitive.

3-6D.5

Commenter: Steve Orlowski, Representing NAHB
Ballot: Negative with comment:

Comment: See comment for 3-6-12.

3-6D.6

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12

3-6D.7

Commenter: Ron Nickson, Representing NMHC
Ballot: Negative with comment:

Comment: See reason for proposal 3-6-12.

3-6E – 12

804.2.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

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~~ 67 inches (~~1525~~ 1700 mm) minimum.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-6E: Accommodate 67 inch (1700) turning diameter.

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Committee Action

Approved

Committee Reason: The provision applies many to kitchens other than those within a dwelling unit. There was concern over the space demands that this dimension would impose.

BALLOT COMMENTS

3-6E.1

Commenter: Rick Lupton, Representing WABO
Ballot: Affirmative with comment:

Comment: I would support a modification of the language to: Where a kitchen is enclosed on three contiguous sides, clearance between opposing base cabinets, counter tops, appliances, or walls within kitchen work areas shall be 40 inches minimum. A turning space complying with Section 304.3.1 shall be provided at the enclosed end. The modified language would result in the same configuration for square-shaped kitchens but would be comparable to pass-through kitchens for rectangular-shaped kitchens, allowing more flexibility. This also addresses the committee's concern over the space demands of the 67-inch clearance between opposing sides. This would be similar to proposal 8-8-12 (disapproved by the committee) but includes a turning space.

3-6E.2

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Negative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to an increase in the area required. The evidence presented only addresses the wide variety of mobility devices in service today. It does not address whether the problem is in the manufacture of these mobility devices that do not conform to the current requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger space and cannot be designed and manufactured in such a way as to fit within the current space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-6E.3

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: Although this does not affect the NATO design needs, consistent with my vote on 3-6, if I am hearing from people who use wheelchairs that the dimension is adequate, then there is no reason to change.

3-6E.4

Commenter: Ron Burton, Representing BOMA
Ballot: Negative with comment:

Comment: See reason on 3-6-12

3-6E.5

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: The existing turning space standards have been in existence for over 50 years. Reportedly, the AHLA has never had a complaint regarding complaint turning spaces.

The new proposed 67" turning space by IDEA will increase turning areas approximately 25%.
This increase as recommended by the IDEA Final Report is expected to increase the percentage of manual and power wheelchair users accommodated from 80 to 95% and almost double the percentage of scooter served. Of the existing 2.8 million wheelchair and scooter users this calculates to an approximate increase of 220,000 occupants.

Today's technology can accommodate all non-institutional wheelchair and scooter users.
Our current standards for the built environment now accommodate 99.998% of the US population. Ideally it would be wonderful to accommodate 100% of all people with mobility disabilities however; the proposed turning diameter area and construction cost increase would be prohibitive.

3-6E.6

Commenter: Ronald G. Nickson, Representing NMHC
Ballot: Negative with comment:

Comment: See comment for 3-6-12.

3-6E.7

Commenter: Steve Orlowski, Representing NAHB
Ballot: Negative with comment:

Comment: See comment for 3-6-12

3-6E.8

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12.

The turning space in a kitchen (U-shaped or galley) is under the sink or work surface. The 60" in the kitchen is based on the alcove provisions, which the committee decides not to change. This also goes against standard kitchen design of 15 step work triangle for all persons using the kitchen that are not in wheelchairs.

3-6E.9

Commenter: Edward Steinfeld, Representing RESNA
Ballot: Negative with comment:

Comment: There is no evidence presented that a circular turning space is needed in any U-shaped kitchen, whether residential or non-residential. A T-shaped turning space could be an acceptable alternative.

3-6F – 12
1003.12.1.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

1003.12.1.2 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~~ 67 inches (~~1525~~ 1700 mm) minimum.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-6F: Accommodate 67 inch (1700) turning diameter.
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Committee Action

Disapproved

Committee Reason: The Committee was not convinced that a full 67 inch turning circle needed to be accommodated in kitchens of Type A dwellings.

BALLOT COMMENTS

3-6F.1
Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Same comment as 3-6-12.

The turning space in a kitchen (U-shaped or galley) is under the sink or work surface. The 60" in the kitchen is based on the alcove provisions, which the committee decides not to change. This also goes against standard kitchen design of 15 step work triangle for all persons using the kitchen that are not in wheelchairs.

3-6F.2
Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: Although this does not affect the NATO design needs, consistent with my vote on 3-6, if I am hearing from people who use wheelchairs that the dimension is adequate, then there is no reason to change.

3-6F.3

Commenter: Dominic Marinelli, Representing USA
Ballot: Negative with comment:

Comment: Dimension should be increased in U-Shaped Kitchen to be consistent with other changes/increases.

3-6F.4

Commenter: Edward Steinfeld, Representing RESNA
Ballot: Negative with comment:

Comment: There is no evidence presented that a full circular turning space is needed in any U-shaped kitchen, whether residential or non-residential. A T-shaped turning space could be an acceptable alternative.

3-7 – 12

304.3.1, Figure 304.3(a)

Proposed Change as Submitted

Proponent: Edward Steinfeld, IDEA Center, School of Architecture and Planning, University at Buffalo, State University of New York

Revise as follows:

304.3.1 Circular Space. The turning space shall be a circular space with a ~~60-inch~~ 67-inch (~~1525~~ 1700 mm) minimum diameter. The turning space shall be permitted to include ~~knee and~~ toe clearance complying with Section 306.3.

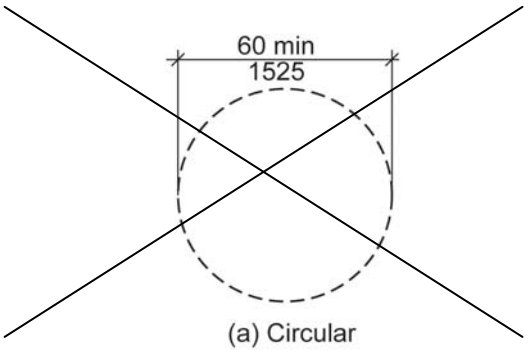


Figure 304.3(a)
SIZE OF TURNING SPACE

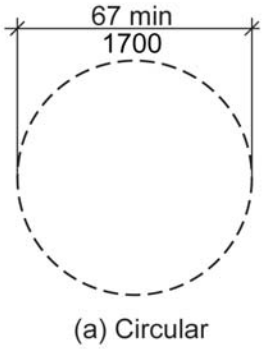


Figure 304.3(a)
SIZE OF TURNING SPACE

Reason: Many of the technical requirements of the ICC/ANSI A117.1 (2009) Accessible and Usable Buildings and Facilities (ICC/ANSI) designed to accommodate wheeled mobility users are based on research completed from 1974 to 1978 using a research sample that included about 60 individuals who used manual wheelchairs (Steinfeld et al., 1979).

The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users (Steinfeld, et al., 2010). Measurements of body and device size were captured in three dimensions. The functional anthropometric measurements required measuring reaching ability, grip strength and the minimum space needed for turning. It is the most extensive anthropometric study of wheeled mobility device users in the United States. Additional information about the study can be found at http://www.udeworld.com/ansi-standards-review. The proposed revisions are based on new anthropometric information that was generated from the database of anthropometric measurements developed as part of the study.

Analysis

The results of our analysis suggest that the existing standard on clear floor space (60” diameter) does not accommodate the occupied lengths and widths of the wheeled mobility user population and excludes powered wheeled mobility device users disproportionately as

compared to manual device users. A diameter of 60" accommodates only 75% of manual and power wheelchair users when performing a 180-degree turn. **A 180-degree turn diameter of 67 inches would accommodate 95% of manual and power wheelchair users.**

The analysis was summarized in the Final Project Report to the U.S. Access Board and in a memorandum entitled "Evaluation of Clear Floor Space Requirements," that was submitted to the ICC/ANSI A117 Task Force on Anthropometry of Wheeled Mobility Subcommittee on Clear Floor Space Clearances.

References (See http://www.udeworld.com/ansi-standards-review)

Steinfeld, E., Paquet, V., D'Souza, C., Joseph, C, and Maisel, J. (2010). *Final Report: Anthropometry of Wheeled Mobility Project*. Washington, DC: U.S. Access Board.

Steinfeld, E. Schroeder, S. and Bishop, M. (1979). *Accessible buildings for people with walking and reaching limitations.* Washington, DC: U.S. Department of Housing and Urban Development.

304.3.1-STEINFELD.doc

Committee Action

Disapproved

Committee Reason: The Committee's action to approve 3-6-12 is not affected by the action on this proposal. This proposal made additional changes to the turning circle which the Committee did not accept. The Committee concluded that the flexibility of allowing knee and toe clearances to be included in the measurement of the circle was essential, especially in light of changing the dimension from 60 to 67 inches.

BALLOT COMMENTS

3-7.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Same comment as 3-6-12

Revise as follows:

3-7.2

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: 60" works & added dimension add to building square footage.

3-8 – 12

304.3.1

Proposed Change as Submitted

Proponent: Kimberly Paarlberg, International Code Council

Revise as follows:

304.3.1 Circular Space. The turning space shall be a circular space with a 60-inch (1525 mm) minimum diameter. The turning space shall be permitted to include knee and toe clearance complying with Section 306 only on one side of the circle and not encompass more than 90 degrees of the arc of the circle.

Reason: The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and publishes a Commentary on the standard and writing the commentary illuminates issues of the text and figures; and 3. ICC provides an interpretation service for the standard which results in the observation of provisions the users find most confusing.

The T-turn limits you to one arm, so it seems appropriate to not allow for using knee and lot clearance on more than one side of the circle. The double underline is a choice if the committee would also like to limit the extent of 'one side.'

304.3.1-PAARLBERG.doc

Committee Action

Disapproved

Committee Reason: While the intent of the proposal found favor among Committee members, the language of the proposal was found wanting. Questions were raised about whether the 90 degree limit worked, or how one had one side of a circle.

BALLOT COMMENTS

3-8.1

Commenter: Rick Lupton, Representing WABO
Ballot: Affirmative with comment:

Comment: This would also be difficult to evaluate on plans submitted for permit.

3-8.2

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: See comment 3-7.

3-8.3

Commenter: Marsha K. Mazz, Representing Access Board
Ballot: Negative with comment:

Comment: The committee disapproved this proposal because it was concerned that the proposed language was unclear and because they were not convinced that the turning circle would be usable with this change. Because we believe that the proponent was correct to want to limit the amount of space that elements can intrude into a turning space, even those with knee and toe space beneath, we propose two options for amending this proposal. Option #1 would allow on obstruction approximately 8.8" deep (30 - (30 / 1.4142) = 8.8) or, for a circle with a 67" diameter 9.9". Because a 90˚ arc will for an equilateral triangle, we divide the radius by the square root of 2, we get a segment of a 30" or 33 ½" long radius. That sum subtracted from the radius is the depth of the circle between the chord and the perimeter of the circle. Option #2 would simply not allow intrusions into the turning space.

Option #1:
Revise as follows:

304.3.1 Circular Space. The turning space shall be a circular space with a 60-inch (1525 mm) minimum diameter. The turning space shall be permitted to include knee and toe clearance complying with Section 306 <u>overlapping the portion of the circle located outside a chord connecting the endpoints of a 90 degree arc of the circle</u>.

Option #2:
Revise as follows:

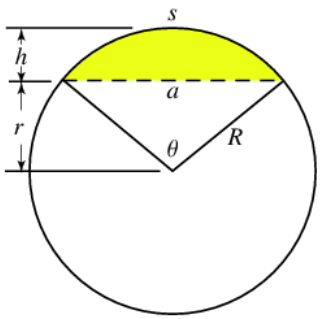
304.3.1 Circular Space. The turning space shall be ~~a~~ <u>an unobstructed</u> circular space with a 60-inch (1525 mm) minimum diameter. ~~The turning space shall be permitted to include knee and toe clearance complying with Section 306.~~

3-8.4

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: The ICC A117.1 committee have spoken about disallowing any use of knee and toe clearance under counters and lavatories. The current language would allow a donut, so there should be a limit on the reliance with knee and toe clearance. However,

even when a person cannot go totally under a counter, there is a portion that fits in the knee clearance. This proposal should be revised based on further discussion of allowances for what knee clearances can be used.



Assuming a 60" diameter circle (Section 304.3.1), and a maximum knee and toe clearance of 25" (Section 306.3.2 and (*h*)). The diameter is 188.5 inches. The cord (*a*) is 59" and the angle is 156 degrees.

The formula for the chord is $2\sqrt{(R^2-r^2)} = 2\sqrt{(30^{2-}5^2)} = 2\sqrt{(900-25)} = 59$"

The formula for the angle is sin angle/2= *a*/2R; angle is 156 degrees

Given an angle of 90 degrees, the chord would be 2x30 sin(90/2) = 42.6" and the sagittal (*h*) is only 8.9"

The shaded area is called a circular segment.

Proponent Comment

3-8.5

Commenter: Kim Paarlberg, Representing ICC

Replace the proposal with the following:

304.3.1 Circular Space. The turning space shall be a circular space with a 60-inch (1525 mm) minimum diameter. The turning space shall be permitted to include knee and toe clearance complying with Section 306. Where a sink, lavatory, drinking fountain, counter, work surface or similar obstruction overlaps the turning space, the circular segment of the overlap shall not form a cord more than 59 inches and the sagittal shall not exceed the depth of the knee and toe clearance.

Reason: See the graphic in the ballot statement. The current circle language would allow a 'doughnut' effect. This language would allow for the current 25" maximum knee and toe clearance under a straight counter along a turning space. If the committee desires less of an overlap, the length of the cord and the depth of the sagittal could be revised accordingly.

3-9 – 12

304.3.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

304.3.2 T–Shaped Space. The turning space shall be a T–shaped space within a 60 inch (1525 mm) minimum in depth by 68 inch (1730 mm) minimum in width space, with arms 40 inches (1015 mm) minimum in width and base 36 inches (915 mm) minimum in width. The space shall be entered and exited throught the base. Each arm of the T shall be clear of obstructions ~~12~~ 16 inches (~~305~~ 405 mm) minimum in each direction, and the base shall be clear of obstructions 24 inches (610 mm) minimum. The turning space shall be permitted to include knee and toe clearance complying with Section 306 only at the end of either the base or one arm.

EXCEPTION: Where the interior corners of the intersection where the base and arms meet are chamfered for 8 inches (205 mm) minimum along both walls; both legs of the arms shall be 36 inches (915 mm) minimum in width.

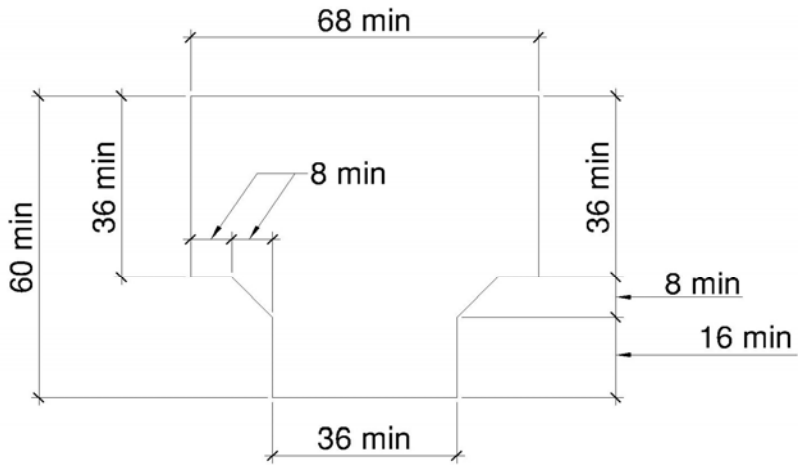
Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access

(IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

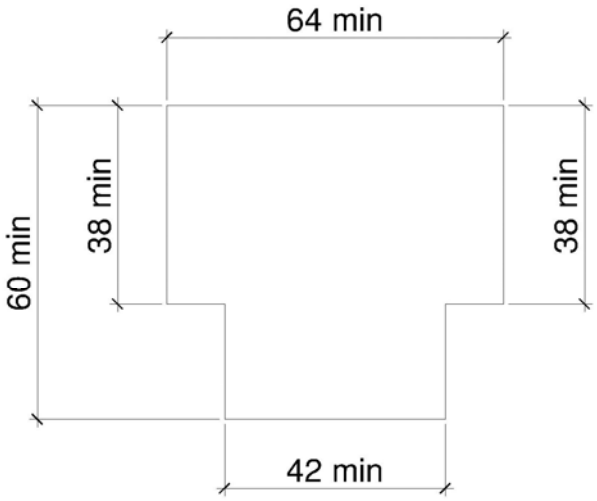
Committee Action

Approval as Modified

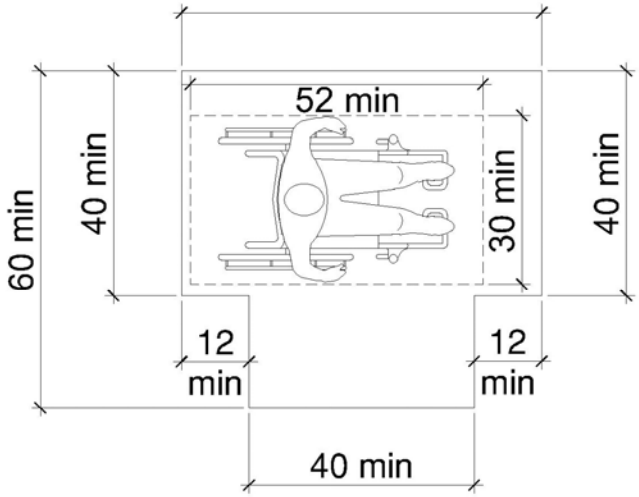
Modification Text not prepared. Need the text to reflect the 3 diagrams



Proposal 3-9 Excpt. 1



Proposal 3-9 Excpt. 2



Proposal 3-9

Committee Reason: The Committee explored the various options and limitations for regarding making the T-shaped turn. While the dimensions shown in the figure labeled Proposal 3-9 were the base of the discussions, the Committee concluded that the 3 designs should be shown in the text (perhaps in a table) as 3 equal options for design the space. The Committee approved the figures; asked staff to develop text.

BALLOT COMMENTS

3-9.1

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Affirmative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to an increase in the area required. The evidence presented only addresses the wide variety of mobility devices in service today. It does not

address whether the problem is in the manufacture of these mobility devices that do not conform to the current requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger space and cannot be designed and manufactured in such a way as to fit within the current space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-9.2

Commenter: Rick Lupton, Representing WABO
Ballot: Affirmative with comment:

Comment: The "base" entry should be shown in the diagrams as the intended entry point is not clear from the code language (nor can I think of a clearer way of stating the requirement!)

3-9.3

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: According to the Committee reason, text must be prepared. Although the illustration is provided, without text, it is not possible for me to vote in favor of something I have not reviewed.

3-9.4

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: The existing turning space standards have been in existence for over 50 years. Reportedly, the AHLA has never had a complaint regarding complaint turning spaces.

The new proposed 67" turning space by IDEA will increase turning areas approximately 25%.
This increase as recommended by the IDEA Final Report is expected to increase the percentage of manual and power wheelchair users accommodated from 80 to 95% and almost double the percentage of scooter served. Of the existing 2.8 million wheelchair and scooter users this calculates to an approximate increase of 220,000 occupants.

Today's technology can accommodate all non-institutional wheelchair and scooter users.
Our current standards for the built environment now accommodate 99.998% of the US population. Ideally it would be wonderful to accommodate 100% of all people with mobility disabilities however; the proposed turning diameter area and construction cost increase would be prohibitive.

3-9.5

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12

3-9.6

Commenter: Edward Steinfeld, Representing RESNA
Ballot: Negative with comment:

Comment: We studied the impact of the required entry at the base on a series of apartment plans. We find that the requirement of entering at the base will add up to 12" to the depth of a typical apartment, but, if we allow entry from any arm it has little impact. Logically, there should be no difference where the entry to the T shaped area should be. I propose a modification of the original proposal to strike the language regarding entering and exiting though the base. Further, the entry and exit through the base restriction would be practically impossible, as there are many circumstances that would have multiple entry points, such as at a T-intersection of two hallways.

3-10 – 12
304.3.2, 1003.3.2

Proposed Change as Submitted

Proponent: Todd Andersen, representing the CFS in motion subcommittee

Revise as follows:

304.3.2 T-Shaped Space. 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. ~~The turning space shall be permitted to include knee and toe clearance complying with Section 306 only at the end of either the base or one arm~~.

1003.3.2 Turning Space. All rooms served by an accessible route shall provide a turning space complying with Section 304.

EXCEPTIONS:

1. A turning space is not required in toilet rooms and bathrooms that are not required to comply with Section 1003.11.2.
2. A turning space is not required within closets or pantries that are 48 inches (1220 mm) maximum in depth.
3. The turning space shall be permitted to include knee and toe clearance complying with Section 306 only at the end of either the base or one arm.

Reason: Dropping permission to let part of a T turn slip under obstructions serves two groups – some power wheelchair users and scooter users. The geometry of scooters does not allow them to take advantage of floor areas that are under fixed objects (eg the front tiller and the seat back are in the way). Figure 3-6 of of the IDEA report shows that approximately 20 percent of power chair users sit too high to make use of space beneath obstructions 27 inches aff (ie the lowest a knee space permitted). Where the space beneath the obstruction is 29 inches aff. Approximately 95 percent of them would fit under. Thus requiring the T turn space to extend to 80 inches aff will serve approximately 20 percent of power chair users. The exemption for Type A dwellings is based on the idea that users of scooters have greater control over the use of alternative mobility devices and the arrangement of furnishings in their homes than they do in public.

304.3.2 ANDERSEN.doc

Committee Action

Disapproved

Committee Reason: The Committee felt the proposal was too restrictive and would result in expansions of floor space devoted to such turning spaces. It would affect dwelling units as well as non-residential buildings. The impact needs to be narrowed.

BALLOT COMMENTS

3-10.1
Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Same comment as 3-6-12

3-10.2

Commenter: Dominic Marinelli, Representing USA
Ballot: Negative with comment:

Comment: Eliminating language that allows the turning space to include knee and toe clearance simplifies this requirement and is consistent with other increases the committee has approved.

3-11 – 12

304.3.2

Proposed Change as Submitted

Proponent: Jonathan White, representing himself

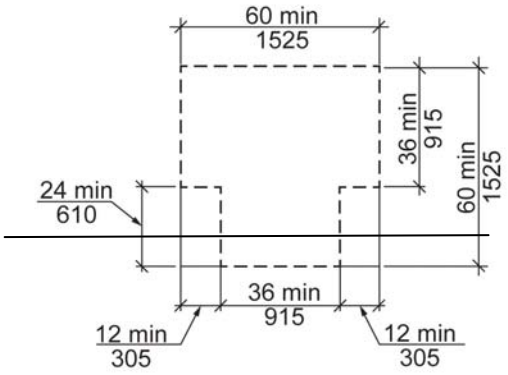
Revise as follows:

304.3.2 T-Shaped Space. The turning space shall be a T-shaped space within a ~~60 inch~~ 68-inch (~~1525~~ 1725 mm) minimum square, with arms and base ~~36~~ 40 inches (~~915~~ 1015 mm) minimum in width. Each arm of the T shall be clear of obstructions ~~12~~ 14 inches (~~305~~ 355 mm) minimum in each direction, and the base shall be clear of obstructions ~~24~~ 28 inches (~~610~~ 710 mm) minimum. The turning space shall be permitted to include knee and toe clearance complying with Section 306 only at the end of either the base or one arm.

EXCEPTIONS:

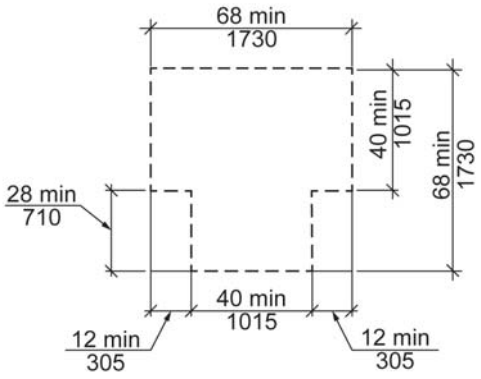
1. Where the arms of the T-shaped space are 42 inches (1065 mm) minimum in width, the base of the T shall be permitted to be 38 inches (965 mm) minimum in width, with the arms of the T clear of obstructions 15 inches (380 mm) minimum in each direction.

2. Where the arms of the T-shaped space are 44 inches (1115 mm) minimum in width, the base of the T shall be permitted to be 36 inches (915 mm) minimum in width, with the arms of the T clear of obstructions 16 inches (405 mm) minimum in each direction.



(b) T-shaped

FIG. 304.3
SIZE OF TURNING SPACE



(b) T-shaped

FIG. 304.3
SIZE OF TURNING SPACE

Reason: Many of the technical requirements of the ICC/ANSI A117.1 (2009) Accessible and Usable Buildings and Facilities (ICC/ANSI) designed to accommodate wheeled mobility users are based on research completed from 1974 to 1978 using a research sample that included about 60 individuals who used manual wheelchairs (Steinfeld et al., 1979).

The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users (Steinfeld, et al., 2010). Measurements of body and device size were captured in three dimensions. The functional anthropometric measurements required measuring reaching ability, grip strength and the minimum space needed for turning. It is the most extensive anthropometric study of wheeled mobility device users in the United States. Additional information about the study can be found at http://www.udeworld.com/ansi-standards-review. The proposed revisions are based on new anthropometric information that was generated from the database of anthropometric measurements developed as part of the study.

Analysis

The results of our analysis suggest that the existing standard on a T-turn does not accommodate the occupied lengths and widths of the wheeled mobility user population and excludes powered wheeled mobility device users disproportionately as compared to manual device users. This is based on the IDEA center's 90-degree turn data in *Final Report: Anthropometry of Wheeled Mobility Project.* Fewer than 75% of manual and power wheelchair users could negotiate a L-turn that was 36 inches width (pg. 154). **A width of 40 inches would accommodate 94% of manual wheelchair users, 99% of power wheelchair users, and 92% of scooter users.**

The exceptions are the results of estimated percentages by the IDEA center in a memorandum by Edward Steinfeld, to the ANSI subcommittee on Turning. The estimated percentages for Option B, C and D are the actual percentages for the narrower 90 degree turns. In other words, we tested a 90 degree turn of 38 x 38 without a chamfer. We are using that data to estimate the minimum percentage accommodated by the chamfered version. Thus, this is a conservative estimate because widening one side and adding the chamfer would clearly increase the percentage accommodated.

The table in the memorandum is below:

Proportion of the sample accommodated in each of the four alternatives for a L-turn

% Accommodated	Data Source	Manual (n=208)	Power (n=150)	Scooter (n=23)
Option A (40"x40")	Measured data for 40" x 40"	94%	99%	92%
Option B (42"x38")	Estimate based on data for 38"x38"	Min. 85%	Min. 87%	Min. 67%
Option C (44"x36")	Estimate based on data for 36"x36"	Min. 71%	Min. 71%	Min. 46%
Option D (36"x36" w/chamfer)	Estimate based on data for 36"x36"	Min. 71%	Min. 71%	Min. 46%

The analysis was summarized in the Final Project Report to the U.S. Access Board and in a memorandum entitled "Evaluation of Clear Floor Space Requirements," that was submitted to the ICC/ANSI A117 Task Force on Anthropometry of Wheeled Mobility Subcommittee on Clear Floor Space Clearances.

References (See http://www.udeworld.com/ansi-standards-review)

Steinfeld, E. (2012). *Summary of Turning Discussion and Responses and Recommended Dimensions for Turning Spaces.* A memorandum submitted to the ICC/ANSI A117 Task Force on Anthropometry of Wheeled Mobility Subcommittee on Turning Spaces.

Steinfeld, E., Paquet, V., D'Souza, C., Joseph, C, and Maisel, J. (2010). *Final Report: Anthropometry of Wheeled Mobility Project*. Washington, DC: U.S. Access Board.

Steinfeld, E. Schroeder, S. and Bishop, M. (1979). *Accessible buildings for people with walking and reaching limitations.* Washington, DC: U.S. Department of Housing and Urban Development.

Committee Action

Disapproved

Committee Reason: The Committee preferred the maneuvering space dimensions approved in proposal 3-9-12.

BALLOT COMMENTS

3-11.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Same comment as 3-6-12

3-11.2

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: Confusing

3-11.3

Commenter: Edward Steinfeld, Representing RESNA
Ballot: Negative with comment:

Comment: The maneuvering space dimensions in this proposal reflect the research findings better than 3-9-12.

Proponent Comment

3-11.4

Commenter: Jonathan White

Replace the proposal as follows:

304.3.2 T–Shaped Space. The turning space shall be a T–shaped space within a 60 inch (1525 mm) minimum in depth by 68 inch (1730 mm) minimum in width space, with arms 40 inches (1015 mm) minimum in width and base 36 inches (915 mm) minimum in width. ~~The space shall be entered and exited throught the base.~~ Each arm of the T shall be clear of obstructions ~~12~~ 16 inches (~~305~~ 405 mm) minimum in each direction, and the base shall be clear of obstructions 24 inches (610 mm) minimum. The turning space shall be permitted to include knee and toe clearance complying with Section 306 only at the end of either the base or one arm.

Reason: The 3-11-12 proposal for T space turning area had an important difference from 3-9-12 that was overlooked at the meeting because we did not have enough information to understand the implications. In the 3-11-12 proposal, the direction of entry could be through any arm. But in 3-9-12 as approved, there is a requirement that the T turn area be entered from the "base." We did an analysis to apply the T turn to several apartment designs. This demonstrated that requiring entry from the base increases the size of bathrooms significantly, which also has an impact on the overall size of apartments using both Type A and B requirements. In contrast, if any arm can be used as entry, then there is only minor impact on the size of bathrooms, compared to the 2009 standard. In our opinion, there is no impact on accessibility if entry from any arm is allowed and this is a needless restriction.

3-12 – 12
304.4

Proposed Change as Submitted

Proponent: Kim Paarlberg, International Code Council

Delete without substitution as follows:

~~**304.4 Door Swing.** Unless otherwise specified, doors shall be permitted to swing into turning spaces.~~

Reason: The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and publishes a Commentary on the standard and writing the commentary illuminates issues of the text and figures; and 3. ICC provides an interpretation service for the standard which results in the observation of provisions the users find most confusing.

Since the general overlap statement was moved to 301.2, it seems logical that this section also be deleted since it is already addressed.

304.4-PAARLBERG.doc

Committee Action

Disapproved

Committee Reason: The Committee was concerned that even if this language is redundant, that clarity in the use of the Standard could be lost without this section.

BALLOT COMMENTS

3-12.1
Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: See 3-7.

3-13 – 12
305.3, 305.7.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

305.3 Size. The clear floor space shall be ~~48 inches (1220 mm)~~ 52 inches (1320 mm) minimum in length and 30 inches (760 mm) minimum in width.

305.7.2 Forward Approach. Where the clear floor space is positioned for a forward approach, the alcove shall be 36 inches (915 mm) minimum in width where the depth exceeds ~~24~~ ~~20~~ inches (~~610~~ 508 mm).

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base

building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

For 305.3 While never explicitly stated in ANSI 1980, either ADAAG or our current standard, all four show the clear floor space as being wider and longer than the wmd itself. The IDEA report indicates this is not true for significant percentages of wmd users. 22% of occupied wmds are longer and 12% are wider than today's mimima. However, when unoccupied wmds are considered the percentages drop to less than 12% for length and less than 4% for width. Based on these findings we have several options. One approach is to increase the width to accommodate 90% of unoccupied wmds and add 2 inches on either side for knuckles etc. An alternative approach would be to revise the concept of clear floor space width to represent the solid wmd solely and revise the forward approach alcove trigger condition. This proposal advocates the second approach as the inclusion of power chairs and scooters distorts the potential impact on manual wheelchair users (ie the group whose knuckles are at risk). Thus, no change to cfs width is proposed. Clear floor space length is a different matter as the percentages of those not served are higher and it can be imagined that the user has less ability to significantly change his/her length. Increasing the cfs to 52 inches will accommodate more than 95% of unoccupied and 89% of occupied wmds. All the scenarios described above also were studied to see what would happen if in the future power chair and scooter uses were to double at the expense of manual wheelchairs. Occupied width accommodation drops one percent to 87% and occupied length drops to 88%.

For 305.7.2 By defining a cfs width as representing the space taken up by an occupied wmd without allowance for additional space for knuckles and elbows, it becomes necessary to consider situations where such knuckle etc space are needed to successfully enter and exit an alcove. This proposal is largely driven by consideration of situations where access to the push rims of manual wheelchairs is required. From Figure 4-3 (page 92) of the IDEA Final Report we learn that the 25 centile manual wheelchair user's torso to toe dimension is about 22 inches. The report does not describe the length of corresponding wmd, but until such time as toe space depth is modified, underlap is restricted to 19 inches. The proposed dimension of 20 inches is a compromise of these two observations.

305.3-HILBERRY.doc

Committee Action

Approved

Committee Reason: The Committee debated the need to increase the clear floor space (CFS) by discussing proposals 3-13-12 and 3-14-12 at the same time. CFS is one of the key building blocks which, if changed, will have implications in the balance of the standard. Changes to its width and its length impact different provisions throughout the balance of the Standard.

The discussion focused on the size of wheeled mobility devices including powered chairs and scooters, the percentages of the target populations which are not served by the current standard because of the size of the devices.

The consensus was that wheeled mobility devices are getting larger. To accommodate a wider range of the devices the CFS needed to be increased. The Committee was not of a consensus on the size CFS needed to be increased to. This dimension was approved.

BALLOT COMMENTS

3-13.1

Commenter: Alan Gettelman
Ballot: Affirmative with comment:

Comment: In 305.7.2 text why is does proposed dimension of 20 inches have a strikeout through it "~~20~~"?

3-13.2

Commenter: Gene Boecker, Representing NATO
Ballot: Affirmative with comment:

Comment: Although there is recognition of a potential need to increase the size, it is not clear that 52 inches is the proper dimension. When soliciting NATO for input, one of the individuals responding was a person who uses a wheelchair and who indicated that the 48 inch dimension was more than adequate for his needs.

For the companion portion of this relative to the alcove depth there is no objection. Perhaps these can be divided for future discussion.

3-13.3

Commenter: Ron Burton, Representing BOMA
Ballot: Negative with comment:

Comment: See reason on 3-6-12

3-13.4

Commenter: David S. Collins, Representing AIA
Ballot: Negative with comment:

Comment: The work of the study group isn't finalized and the research that formed the basis for this change has not been validated.

3-13.5

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Negative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to an increase in the area required. The evidence presented only addresses the wide variety of mobility devices in service today. It does not address whether the problem is in the manufacture of these mobility devices that do not conform to the current requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger space and cannot be designed and manufactured in such a way as to fit within the current space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-13.6

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: The existing turning space standards have been in existence for over 50 years. Reportedly, the AHLA has never had a complaint regarding maneuvering spaces.

The new proposed 52" length increase will increase the clear floor area approximately 8.3%.

This increase as recommended by the IDEA Final Report is expected to increase the percentage of manual and power wheelchair users accommodated from 80 to 95% and almost double the percentage of scooter served. Of the existing 2.8 million wheelchair and scooter users this calculates to an approximate increase of 220,000 occupants.

Today's technology can accommodate all non-institutional wheelchair and scooter users.

Our current standards for the built environment now accommodate 99.998% of the US population. Ideally it would be wonderful to accommodate 100% of all people with mobility disabilities however; the proposed turning diameter area and construction cost increase would be prohibitive.

3-13.7

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: 60" works.

3-13.8

Commenter: Ronald G. Nickson, Representing NMHC
Ballot: Negative with comment:

Comment: See comment for 3-6-12

3-13.9

Commenter: Steve Orlowski, Representing NAHB
Ballot: Negative with comment:

Comment: See comment for 3-6-12

3-13.10

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12

3-13A – 12

405.7.3

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

405.7.3 Length. Landings shall have a clear length of ~~60~~ 64 inches (~~1525~~ 1625 mm) minimum

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-13A: Add 4 inches (100 mm) to landing length to reflect increase in clear floor space.

-HILBERRY.doc

Committee Action

Disapproved

Committee Reason: The landing size should be tied to the wheelbase of the wheeled mobility devices. It is understood that the overall device length is longer, but there is not data provided to indicate that 60 inch landing isn't still sufficient.

BALLOT COMMENTS

3-13A.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Same comment as 3-6-12

3-13A.2

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: 60" works.

3-13A.3

Commenter: Dominic Marinelli, Representing USA
Ballot: Negative with comment:

Comment: Landing dimension should be increased to 64"to be consistent with other changes/increases.

3-13B – 12

409.4.1

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

409.4.1 Inside Dimensions. Elevator cars shall provide a clear floor area 36 inches (915 mm) minimum in width and ~~48~~ 52 inches (~~1220~~ 1322 mm) minimum in depth.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-13B: Update requirement to coordinate with proposed changes to 305.3 Size (Clear Floor Space).

-HILBERRY.doc

Committee Action

Approved

Committee Reason: Consistent with the action on Proposal 3-13-12 to increase the clear floor space.

BALLOT COMMENTS

3-13B.1

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Affirmative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to an increase in the area required. The evidence presented only addresses the wide variety of mobility devices in service today. It does not address whether the problem is in the manufacture of these mobility devices that do not conform to the current requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger space and cannot be designed and manufactured in such a way as to fit within the current space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-13B.2

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: This should only be added to the next edition if the increase in wheelchair length in 3-13 is approved. Otherwise the standard will be disjointed and inconsistent.

3-13B.3

Commenter: Ron Burton, Representing BOMA
Ballot: Negative with comment:

Comment: See reason on 3-6-12

3-13B.4

Commenter: David Collins Representing AIA
Ballot: Negative with comment:

Comment: The work of the study group isn't finalized and the research that formed the basis for this change has not been validated.

3-13B.5

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: We not accept the results of a single anthropometric study conducted by the Center for Inclusive Design and Environmental Access. It is understood that the work of the Wheelchair Mobility Task Group is ongoing and has submitted a series of proposal changes to the base building blocks of A117.1 Standard. At this time we believe that the proposed changes to the building blocks are unacceptable and should not be adopted by the Committee; therefore no additional changes are required in this portion of the standard with reference to the building block changes.

3-13B.6

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: 48" works.

3-13B.7

Commenter: Ronald G. Nickson, Representing NMHC
Ballot: Negative with comment:

Comment: See comment for 3-6-12

3-13B.8

Commenter: Steve Orlowski, Representing NAHB
Ballot: Negative with comment:
Comment: See comment for 3-6-12

3-13B.9

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12

3-13C – 12
410.5, 410.5.1

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

410.5 Clear Floor Space. Clear floor space of platform lifts in new construction shall comply with Section 410.5.

410.5.1 Lifts with Single Doors or Doors on Opposite Ends. 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 ~~48~~ 52 inches (~~1220~~ 1322 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.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-13C: Update the basic requirement to coordinate with proposed changes to 305.3 Size (Clear Floor Space). The exception was added to deal with the special circumstances involving inclined platform lifts with passenger restraining arms. Because inclined platform lifts are typically installed on existing staircases, any increase in size may result in the inability to install the lift which would actually reduce the accessibility of the building. Also, inclined platform lifts with passenger restraining arms consist of a platform with ramps that typically angle up at approximately 45 degrees and passenger restraining arms around the perimeter at a height of 38 inches. Since the area in between in open and the ramps angle out, the wheeled mobility device can overhang the platform (over the ramps) allowing a larger device to fit onto a 36 x 48 platform.

-HILBERRY.doc

Committee Action

Approved

Committee Reason: The Committee discussed briefly that the wheelbase of the device would be important, but as platform lifts with enclosing doors need to accommodate the whole device, the longer length is essential. There was a request that an exception for existing buildings be developed.

BALLOT COMMENTS

3-13C.1
Commenter: Ron Burton, Representing BOMA
Ballot: Negative with comment:

Comment: See reason on 3-6-12

3-13C.2

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Negative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to an increase in the area required. The evidence presented only addresses the wide variety of mobility devices in service today. It does not address whether the problem is in the manufacture of these mobility devices that do not conform to the current requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger space and cannot be designed and manufactured in such a way as to fit within the current space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-13C.3

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: We not accept the results of a single anthropometric study conducted by the Center for Inclusive Design and Environmental Access. It is understood that the work of the Wheelchair Mobility Task Group is ongoing and has submitted a series of proposal changes to the base building blocks of A117.1 Standard. At this time we believe that the proposed changes to the building blocks are unacceptable and should not be adopted by the Committee; therefore no additional changes are required in this portion of the standard with reference to the building block changes

3-13C.4

Commenter: Ronald G. Nickson, Representing NMHC
Ballot: Negative with comment:

Comment: See comment for 3-6-12

3-13C.5

Commenter: Steve Orlowski, Representing NAHB
Ballot: Negative with comment:

Comment: See comment for 3-6-12

3-13C.6

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12

There was no study done on if such platform lifts are available, or if the size would work with the allowed rise/run angle of stairways for inclined lifts.

3-13C.7

Commenter: Gene Boecker, representing NATO
Ballot: Negative with comment:

Comment: This should only be added to the next edition if the increase in wheelchair length is approved. Otherwise the standard will be disjointed and inconsistent.

3-13D – 12
802.5.1

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

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

Exception: The wheelchair space shall be permitted to overlap the aisle a maximum of 4 inches (100 mm).

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-6D: Accommodate 67 inch (1700) turning diameter.

-HILBERRY.doc

Committee Action

Approval as Modified

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

Exception: The depth of the wheelchair space shall be permitted to overlap the aisle a maximum of 4 inches (100 mm).

Committee Reason: The Committee had considerable discussion regarding allowing the wheelchair space to overlap the aisle. There is concern that such would cause people to view persons in wheelchairs and other mobility devices as obstructions in the operation of a theater. Without considering the overlap, site line requirements would cause substantial redesign of theaters and stadiums. The proposal was amended to clarify that it would be the length of the clear floor space allowed to overlap.

BALLOT COMMENTS

3-13D.1
Commenter: Rick Lupton, Representing WABO
Ballot: Affirmative with comment:

Comment: I realize this overlap is intended to provide some maneuvering space but a drawing would be helpful as it's not entirely clear where the overlap is permitted to occur.

3-13D.2
Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: We not accept the results of a single anthropometric study conducted by the Center for Inclusive Design and Environmental Access. It is understood that the work of the Wheelchair Mobility Task Group is ongoing and has submitted a series of proposal changes to the base building blocks of A117.1 Standard. At this time we believe that the proposed changes to the building blocks are unacceptable and should not be adopted by the Committee; therefore no additional changes are required in this portion of the standard with reference to the building block changes.

3-13D.3

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12

It is not clear if this allowance would address the changes for line of sight requirements with the new wheelchair space size.

3-13D.4

Commenter: Laurel Wright, Representing NCOSFM
Ballot: Negative with comment:

Comment: This is in direct conflict with the model building code which states (in the 2012 IBC – Section 1003.6 Means of Egress Continuity)*The path of egress travel along a means of egress shall not be interrupted by any building element other than a means of egress component as specified in this chapter. Obstructions shall not be placed in the required width of a means of egress except projections permitted by this chapter. The required capacity of a means of egress system shall not be diminished along the path of egress travel.* This language is in both the International Building and Fire Code.

The original exception complies with both the International Building and Fire Codes.

3-13E – 12

802.7.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

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 is considered to be 36 inches (915 mm) from the front or ~~12~~ 16 inches ~~(305~~ ??? mm) 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.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-13E: To accommodate longer clear floor space.

-HILBERRY.doc

Committee Action

Approved

Committee Reason: The added length accommodates that longer clear floor space and adjusts the measurement to align the shoulders of the person in the mobility device and those in the companion seat.

BALLOT COMMENTS

3-13E.1

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: This should only be added to the next edition if the increase in wheelchair length is approved. Otherwise the standard will be disjointed and inconsistent. In the proposal, the "???" metric dimension for 16 inches should be 405 mm to be consistent with its measure elsewhere in the standard.

3-13E.2

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: We not accept the results of a single anthropometric study conducted by the Center for Inclusive Design and Environmental Access. It is understood that the work of the Wheelchair Mobility Task Group is ongoing and has submitted a series of proposal changes to the base building blocks of A117.1 Standard. At this time we believe that the proposed changes to the building blocks are unacceptable and should not be adopted by the Committee; therefore no additional changes are required in this portion of the standard with reference to the building block changes.

3-13E.3

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12

It is not clear if this allowance would address the changes for line of sight requirements with the new wheelchair space size.

3-13F – 12

805.2.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

805.2.2 Dimensions. Bus stop boarding and alighting areas shall have a ~~96~~ 100-inch (~~2440~~ 2540 mm) minimum clear length, measured perpendicular to the curb or vehicle roadway edge, and a 60-inch (1525 mm) minimum clear width, measured parallel to the vehicle roadway.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-13F: Add 4 inches (100 mm) to alighting area to reflect increase in Clear floor space.

-HILBERRY.doc

Committee Action

Approved

Committee Reason: With a 4 inch longer clear floor space, the 4 inches needs to be added to the area designed to allow people to negotiate around the equipment. This isn't assuming a larger apparatus on the bus, but the need for space for larger mobility equipment.

BALLOT COMMENTS

3-13F.1

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: This should only be added to the next edition if the increase in wheelchair length is approved. Otherwise the standard will be disjointed and inconsistent.

3-13F.2

Commenter: David Collins, Representing AIA
Ballot: Negative with comment:

Comment: The work of the study group isn't finalized and the research that formed the basis for this change has not been validated.

3-13F.3

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Negative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to an increase in the area required. The evidence presented only addresses the wide variety of mobility devices in service today. It does not address whether the problem is in the manufacture of these mobility devices that do not conform to the current requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger space and cannot be designed and manufactured in such a way as to fit within the current space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-13F.4

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12

3-13G – 12
1102.4.4.1

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

1102.4.4.1 Width and Length. Wheelchair spaces shall provide a clear width of 30 inches (760 mm) minimum and a clear length of ~~48~~ 52 inches (~~1220~~ 1320 mm) minimum measured to 9 inches (230 mm) minimum above the floor.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-13G: Add 4 inches (100 mm) to alighting area to reflect increase in Clear floor space.
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-HILBERRY.doc

Committee Action

Disapproved

Committee Reason: The Committee was not convinced that the longer clear floor space in this case needed to be addressed. The question raised was the longer space needed to accommodate a longer wheelbase for the wheeled mobility devices.

BALLOT COMMENTS

3-13G.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Same comment as 3-6-12

This section is for the amusement ride provision for spaces within the equipment. No input was received from the amusement industry on effects of this change.

3-13G.2

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: This should only be added to the next edition if the increase in wheelchair length is approved. Otherwise the standard will be disjointed and inconsistent.

3-13G.3

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: 48" works.

3-13G.4

Commenter: Edward Steinfeld, Representing RESNA
Ballot: Negative with comment:

Comment: Disapproval of this proposal is incongruous with approval of 3-13. For consistency in the standard, the 30 x 52 space should be throughout.

3-13G.5

Commenter: Dominic Marinelli, representing United Spinal Association
Ballot: Negative with comment:

Comment: Landing dimension should be increase to 64" to be consistent with other changes/increases.

3-13H – 12
1107.3.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

1107.3.2 Golf Club Reach Range Area. All areas within holes where golf balls rest shall be within 36 inches (915 mm) maximum of a clear floor space 36 inches (915 mm) minimum in width and ~~48~~ 52 inches (1220 mm) minimum in length complying with Section 305 having a running slope not steeper than 1:20. The clear floor space shall be served by an accessible route.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-13H: References 52 inch (1320) long Clear floor space.
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-HILBERRY.doc

Committee Action

Approved

Committee Reason: The provision is a clear floor space requirement which, for consistency with other actions, was approved to the new 52 inch length.

BALLOT COMMENTS

3-13H.1
Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: This should only be added to the next edition if the increase in wheelchair length is approved. Otherwise the standard will be disjointed and inconsistent.

3-13H.2
Commenter: David Collins, Representing AIA
Ballot: Negative with comment:

Comment: The work of the study group isn't finalized and the research that formed the basis for this change has not been validated.

3-13H.3
Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Negative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to an increase in the area required. The evidence presented only addresses the wide variety of mobility devices in service today. It does not

address whether the problem is in the manufacture of these mobility devices that do not conform to the current requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger space and cannot be designed and manufactured in such a way as to fit within the current space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-13H.4

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: We not accept the results of a single anthropometric study conducted by the Center for Inclusive Design and Environmental Access. It is understood that the work of the Wheelchair Mobility Task Group is ongoing and has submitted a series of proposal changes to the base building blocks of A117.1 Standard. At this time we believe that the proposed changes to the building blocks are unacceptable and should not be adopted by the Committee; therefore no additional changes are required in this portion of the standard with reference to the building block changes.

3-13H.5

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12

This section is for the miniature golf provisions. No input was received from the industry on effects of this change.

3-13I – 12

Number not used.

3-13J – 12

1108.4.1.4.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

1108.4.1.4.2 Elevated. The clear width of accessible routes connecting elevated play components shall be 36 inches (915 mm) minimum.

EXCEPTIONS:

1. The clear width of accessible routes connecting elevated play components shall be permitted to be reduced to 32 inches (815 mm) minimum for a distance of 24 inches (610 mm) maximum provided that reduced width segments are separated by segments that are ~~48~~ 52 inches (~~1220~~ 1320 mm) minimum in length and 36 inches (915 mm) minimum in width.

2. *(text not changed)*

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-13J: Add 4 inches (100 mm) to alighting area to reflect increase in Clear floor space.

Committee Action

Disapproved

Committee Reason: The technical information which was the basis of increasing the clear floor space and turning circle was based on adults in wheeled mobility devices. This exception is addressing segments that are up in the play equipment. Investigation needed to address children size increases, if any.

BALLOT COMMENTS

3-13J.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Same comment as 3-6-12

This section is for the playground provision for spaces within the equipment. No input was received from the playground industry on effects of this change. None of the studies were based on child sizes.

3-13J.2

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: This should only be added to the next edition if the increase in wheelchair length is approved. Otherwise the standard will be disjointed and inconsistent.

3-13K – 12

1109.2.3

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

1109.2.3 Clear Deck Space. On the side of the seat opposite the water, a clear deck space shall be provided parallel with the seat. The space shall be 36 inches (915 mm) minimum in width and shall extend forward ~~48~~ 52 inches (~~1220~~ 1320 mm) minimum from a line located 12 inches (305 mm) behind the rear edge of the seat. The clear deck space shall have a slope not steeper than 1:48.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-13K: Add 4 inches (100 mm) to alighting area to reflect increase in Clear floor space.

Committee Action

Approved

Committee Reason: This is a clear floor space adjacent to a pool transfer. It should be large enough to accommodate all mobility devices.

BALLOT COMMENTS

3-13K.1

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: This should only be added to the next edition if the increase in wheelchair length is approved. Otherwise the standard will be disjointed and inconsistent.

3-13K.2

Commenter: David Collins, Representing AIA
Ballot: Negative with comment:

Comment: The work of the study group isn't finalized and the research that formed the basis for this change has not been validated.

3-13K.3

Commenter: M. Bradley Gaskins, Representing NACS
Ballot: Negative with comment:

Comment: There has been no evidence presented that this is a necessary change and will be a burden on the public due to an increase in the area required. The evidence presented only addresses the wide variety of mobility devices in service today. It does not address whether the problem is in the manufacture of these mobility devices that do not conform to the current requirement or whether the built-environment needs to change to accommodate mobility devices that need a larger space and cannot be designed and manufactured in such a way as to fit within the current space. We don't continue to let automobile manufacturers build wider and wider autos to go on our roads… they must be built to standards that allow them to work with our current road system.

3-13K.4

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: We not accept the results of a single anthropometric study conducted by the Center for Inclusive Design and Environmental Access. It is understood that the work of the Wheelchair Mobility Task Group is ongoing and has submitted a series of proposal changes to the base building blocks of A117.1 Standard. At this time we believe that the proposed changes to the building blocks are unacceptable and should not be adopted by the Committee; therefore no additional changes are required in this portion of the standard with reference to the building block changes.

3-13K.5

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12

This section is for the swimming pool provision for space next to the lift.

3-13L – 12
1004.3.3, 1004.9. 1004.10.1, 1004.11.2, 1004.11.2.1, 1004.11.3.1.1, 1004.12.2

Proposed Change as Submitted

Proponent: Gina Hilberry and David Collins, Co-Chairs Wheeled Mobility Task Group

Revise as follows:

1004.3.3 Clear Floor Space. For the purposes of Type B units, the clear floor space shall be 48 inches (1220mm) minimum in length and 30 inches(760 mm) minimum in width.

1004.9 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 1004.3.3.

EXCEPTIONS:
(No change to the exceptions)

1004.10.1 Clear Floor Space. A clear floor space complying with Section ~~305.3~~ 1004.3.3 shall be provided. A parallel approach shall be provided for a top loading machine. A forward or parallel approach shall be provided for a front loading machine.

1004.11.2 Clear Floor Space. Clear floor spaces required by Section 1004.11.3.1 (Option A) or 1004.11.3.2 (Option B) shall comply with Sections 1004.11.2 and ~~305.3~~ 1004.3.3.

1004.11.2.1 Doors. Doors shall not swing into the clear floor space or clearance for any fixture.

EXCEPTION: Where a clear floor space complying with Section ~~305.3~~ 1004.3.3, excluding knee and toe clearances under elements, is provided within the room beyond the arc of the door swing.

1004.11.3.1.1 Lavatory. A clear floor space complying with Section ~~305.3~~ 1004.3.3, positioned for a parallel approach, shall be provided at a lavatory. The clear floor space shall be centered on the lavatory.

EXCEPTION:
A lavatory complying with Section 606 and1004.3.3 shall be permitted. Cabinetry shall be permitted under the lavatory provided the following criteria are met:

(a) The cabinetry can be removed without removal or replacement of the lavatory; and

(b) The floor finish extends under the cabinetry; and

(c) The walls behind and surrounding the cabinetry are finished.

1004.12.2 Clear Floor Space. Clear floor space at appliances shall comply with Sections 1004.12.2 and ~~305.3~~ 1004.3.3.

Reason: The Wheeled Mobility Task Group (WMTG) was created as a task group of the A117.1 Committee to analyze the results of the anthropometric study of a variety of mobility device users conducted by The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users. The study indicates that the technical provisions contained in the A117.1 standard do not address the needs of the full range of users of mobility devices. The work of the WMTG is ongoing, but it has submitted a series of proposed changes to the base building blocks of the A117.1 standard. If the changes to the building blocks are adopted by the Committee, then additional changes will need to be made in other portions of the standard.

Rationale for 3-13L: This proposal establishes a distinct clear floor space for Type B dwelling units. The larger clear floor space established under proposal 3-13-12.

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-HILBERRY.doc

Committee Action

Approved

Committee Reason: The proposal retains the existing clear floor space for Type B dwelling units. The impact of the larger CFS has yet to be fully analyzed with respect to dwelling units.

BALLOT COMMENTS

3-13L.1

Commenter: Steve Orlowski, Representing NAHB
Ballot: Affirmative with comment:

Comment: We agree with the committee that the changes proposed to the CFS increases need to be fully researched and studied before any change is approved, for type B units and all existing buildings.

3-13L.2

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: We not accept the results of a single anthropometric study conducted by the Center for Inclusive Design and Environmental Access. It is understood that the work of the Wheelchair Mobility Task Group is ongoing and has submitted a series of proposal changes to the base building blocks of A117.1 Standard. At this time we believe that the proposed changes to the building blocks are unacceptable and should not be adopted by the Committee; therefore no additional changes are required in this portion of the standard with reference to the building block changes.

3-13L.3

Commenter: Dominic Marinelli, Representing USA
Ballot: Negative with comment:

Comment: As many jurisdictions do not require Type A units from scoping additional (the new) clear floor space may be more important for Type B units.

3-13L.4

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12. While this appears to be a break for Type B units, this is another 'concession' without a complete investigation of the impacts.

3-14 – 12

305.3, Figure 305.3, 305.7.1, 305.7.2

Proposed Change as Submitted

Proponent: Edward Steinfeld, IDEA Center, School of Architecture and Planning, University at Buffalo, State University of New York

Revise as follows:

305.3 Size. The clear floor space shall be ~~48~~ 54 inches (~~1220~~ 1360 mm) minimum in length and ~~30~~ 32 inches (~~760~~ 802 mm) minimum in width.

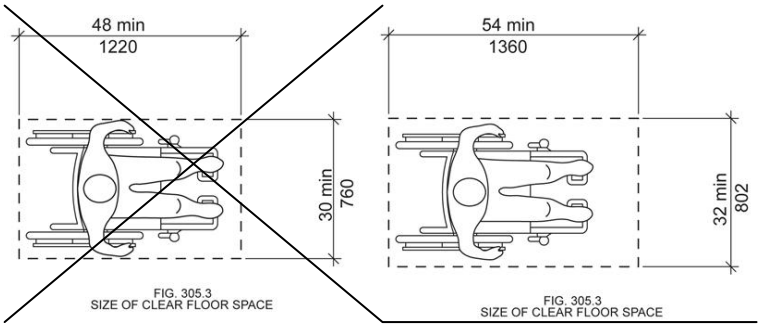


FIG. 305.3
SIZE OF CLEAR FLOOR SPACE

FIG. 305.3
SIZE OF CLEAR FLOOR SPACE

305.7.1 Parallel Approach. Where the clear floor space is positioned for a parallel approach, the alcove shall be ~~60~~ 66 inches (~~1525~~ 1676 mm) minimum in width where the depth exceeds 15 inches (380mm).

305.7.2 Forward Approach. Where the clear floor space is positioned for a forward approach, the alcove shall be ~~36~~ 38 inches (~~915~~ 965 mm) minimum in width where the depth exceeds 24 inches (610mm).

Reason: Many of the technical requirements of the ICC/ANSI A117.1 (2009) Accessible and Usable Buildings and Facilities (ICC/ANSI) designed to accommodate wheeled mobility users are based on research completed from 1974 to 1978 using a research sample that included about 60 individuals who used manual wheelchairs (Steinfeld et al., 1979).

The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users (Steinfeld, et al., 2010). Measurements of body and device size were captured in three dimensions. The functional anthropometric measurements required measuring reaching ability, grip strength and the minimum space needed for turning. It is the most extensive anthropometric study of wheeled mobility device users in the United States. Additional information about the study can be found at http://www.udeworld.com/ansi-standards-review. The proposed revisions are based on new anthropometric information that was generated from the database of anthropometric measurements developed as part of the study.

Analysis

Unlike turning spaces that are based on dynamic requirements, clear floor space represents the space required for a stationary wheeled mobility device. This area is typically depicted as a rectangular space the dimensions of which are based on measurements of occupied length and occupied breadth of wheeled mobility devices, which are defined as follows:

- Occupied length: measured as the horizontal distance between the forward-most point and the rear-most point on the wheelchair or occupant.
- Occupied width: measured as the horizontal distance between the side-most points of the wheelchair or participant on the right and left sides.

The results of our analysis suggest that the existing standard on clear floor space (48" length, 30" width) does not accommodate the occupied lengths and widths of the wheeled mobility user population and excludes powered wheeled mobility device users disproportionately as compared to manual device users. A length of 48" accommodates the occupied length of 75% of manual wheelchair users and only about 50% of powered chair and scooter users. A width of 30" accommodates the occupied width of 90% of manual wheeled mobility device users and only 75% of powered chair users.

We have taken the position that the clear floor space standards should accommodate the occupied lengths and widths of at least 90% of manual and powered wheeled mobility device users. A length of 54" accommodates the occupied lengths of 95% of manual chair users, and 90% of the powered chair users. A width of 32" accommodates the occupied widths of over 95% of manual wheeled mobility device users and 90% of the powered wheelchair users. Proposed changes to subsection 305.7.1 Parallel Approach reflect the 6-inch adjustment in basic clear floor space in order to be consistent with the current standard. The proposed changes to subsection 305.7.2 reflect the 2-inch adjustment in basic clear floor space in order to be consistent with the current standard.

These calculations are based on the three-dimensional database of wheeled mobility device user dimensions developed by the IDEA Center for the Anthropometry of Wheeled Mobility Project. The analysis was summarized in the Final Project Report to the U.S. Access Board and in a memorandum entitled "Evaluation of Clear Floor Space Requirements," that was submitted to the ICC/ANSI A117 Task Force on Anthropometry of Wheeled Mobility Subcommittee on Clear Floor Space Clearances.

References (See http://www.udeworld.com/ansi-standards-review)

Paquet, V. (2012). *Evaluation of Clear Floor Space Requirements*. A memorandum submitted to the ICC/ANSI A117 Task Force on Anthropometry of Wheeled Mobility Subcommittee on Clear Floor Space Clearances.

Steinfeld, E., Paquet, V., D'Souza, C., Joseph, C, and Maisel, J. (2010). *Final Report: Anthropometry of Wheeled Mobility Project*. Washington, DC: U.S. Access Board.

Steinfeld, E. Schroeder, S. and Bishop, M. (1979). *Accessible buildings for people with walking and reaching limitations.* Washington, DC: U.S. Department of Housing and Urban Development.

305.3-STEINFELD.doc

Committee Action

Disapproved

Committee Reason: The Committee disapproved this proposal in favor of approving Proposal 3-13-12. Clear floor space is a key building block for the rest of the Standard, after considerable debate and reconsideration, this proposal was disapproved in favor 3-13-12.

Staff Note: The history of the vote on this item and 3-13-12 will be reflected in the minutes of the Committee's meetings.

BALLOT COMMENTS

3-14.1

Commenter: Steve Orlowski, Representing NAHB
Ballot: Affirmative with comment:

Comment: The standard dimensions have long been established based on the type of WhMD available at the time that the standard was developed. As more WhMD users purchase larger WhMDs, it doesn't justify need to increase the code and if it is permitted we will see ever. Similar to the last code cycle, the stair manufacturers brought studies trying to validate their proposed changes and were disapproved because their studies did not go out for peer review. In addition, fair housing references the 1986 ANSI A117.1 standards as the baseline which would make the argument that if the older reference standard is deemed a safe harbor, then there will be no reason to continue maintaining this document or to reference any newer version in the code. Proposal 3-13-12 was approved by a slim margin and NAHB disagrees with those members of the committee that would require dwelling units to accommodate these mobility devices that are primarily designed for outdoor use.

3-14.2

Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Same comment as 3-6-12

3-14.3

Commenter: Christopher Bell, Representing ACB
Ballot: Negative with comment:

Comment: This proposal should be approved, as the Committee had done at one point. Remember that a clear floor space needs to accommodate, not only a wheelchair itself, but an occupied wheelchair. A manual wheelchair user must reach his/her hand and bent arm (not just "knuckles") around the wheels' rims in order to grasp the wheel and propel it.

If the Committee maintains 30 inches, the same specification as in the previous edition, but believes, as the research shows, that wheeled mobility devices are larger than they used to be, it means we are giving the individual less room for their body than we did before. CFS needs to be as functional in the future as it has been in the past.

The research shows that 30 inches only accommodates 75% of powered wheelchair users, and 90% of manual wheeled mobility device users. But 32 inches accommodates over 95% of manual wheeled mobility device users and 90% of powered wheelchair users.

3-14.4

Commenter: Marilyn Golden, Representing DREDF
Ballot: Negative with comment:

Comment: This proposal should be approved, as the Committee did at one point. A clear floor space needs to accommodate, not only a wheelchair itself, but the occupant as well. A manual wheelchair user must reach his/her hand and bent arm (not just "knuckles") around the wheels' rims in order to grasp the wheel and propel it.

If the Committee maintains 30 inches, the same specification as in the previous edition, but believes, as the research shows, that wheeled mobility devices are larger than they used to be, it means we are giving the individual less room for their body than we did before. CFS needs to be as functional in the future as it has been in the past.

The research shows that 30 inches only accommodates 75% of powered wheelchair users, and 90% of manual wheeled mobility device users. But 32 inches accommodates over 95% of manual wheeled mobility device users and 90% of powered wheelchair users.

3-14.5

Commenter: Gina Hilberry, Representing UCP
Ballot: Negative with comment:

Comment: My negative vote is based on the reasons originally given by the proponent. The IDeA research indicates that a 32"x 54" space is required to accommodate 90% of power chair users. This is a rapidly growing population and one that represents a large percentage of those served by UCP.

3-14.6

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: 48" works.

3-15 – 12

305.7.2, Figure 305.7(a)

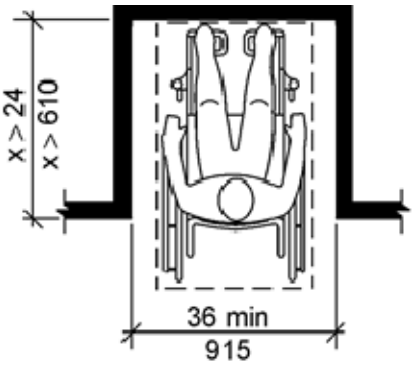
Proposed Change as Submitted

Proponent: Hank Falstad, Access Technologies Services, Inc., representing self

Revise as follows:

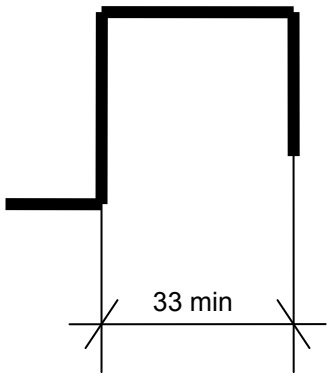
305.7.2 Forward Approach. Where the clear floor space is positioned for a forward approach, the full alcove shall be 36 inches (915 mm) minimum in width. Where the depth exceeds 24 inches; on only one side there is a partial alcove, the distance from that wall to the centerline of any element or fixture shall be 18 inches minimum.

Revise figure to change width from 36 to 30 inches.



(a) Forward Approach

Full Alcove
FIGURE 305.7(a)



(a-1) Forward Approach
Partial Alcove

Reason: This allows the hand of the wheelchair user that extra 3 inches that is required in a full alcove.

305.7.2-FALSTAD.doc

Committee Action

Disapproved

Committee Reason: The concept of a partial alcove was not clear to the Committee. Further the text and the figures of the proposal did not appear to be in agreement with each other. The proposal would not improve the Standard.

BALLOT COMMENTS

3-15.1

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: Change the proposal to read:

Revise as follows:

"Where the alcove has one side is greater than and one side less than 24 inches (610 mm) the alcove shall be 33 inches (840) in width."
The original proposal makes sense if you think of it as requiring an additional 3 inches on the side where the alcove depth is greater than 24 inches. The added width on the deeper side addresses the concern for hand/knuckle clearance.

3-16 – 12

306.2.1, Figure 306.2, 306.2.2, 306.2.4, 306.2.5, Figure 306.3, 306.3.1, 306.3.2, 306.3.3, 306.3.4, 306.3.5

Proposed Change as Submitted

Proponent: Edward Steinfeld, IDEA Center, School of Architecture and Planning, University at Buffalo, State University of New York

Revise as follows:

306.2.1 General. Space beneath an element between the floor and ~~9~~ 11 inches (~~230~~ 280 mm) above the floor shall be considered toe clearance and shall comply with Section 306.2.

306.2.2 Maximum Depth. Toe clearance shall be permitted to extend ~~25~~ 24 inches (~~635~~ 610 mm) maximum under an element.

306.2.4 Additional Clearance. Space extending greater than ~~6~~ 4 inches (~~150~~ 100 mm) beyond the available knee clearance at ~~9~~ 11 inches (~~230~~ 280 mm) above the floor is allowable but shall not be considered as part of the toe clearance.

306.2.5 Width. Toe clearance shall be ~~30~~ 32 inches (~~760~~ 810 mm) minimum in width.

306.3.1 General. Space beneath an element between ~~9~~ 11 inches (~~230~~ 280 mm) and ~~27~~ 29 inches (~~685~~ 735 mm) above the floor shall be considered knee clearance and shall comply with Section 306.3.

306.3.2 Maximum Depth. Knee clearance shall be permitted to extend ~~25~~ 24 inches (~~635~~ 610 mm) maximum under an element at ~~9~~ 11 inches (~~230~~ 280 mm) above the floor.

306.3.3 Minimum Depth. Where knee clearance is required beneath an element as part of a clear floor space complying with Section 305, the knee clearance shall be ~~11~~ 13 inches (~~280~~ 330 mm) minimum in depth at ~~9~~ 11 inches (~~230~~ 280 mm) above the floor, and ~~8~~ 11 inches (~~205~~ 280 mm) minimum in depth at ~~27~~ 29 inches (~~685~~ 735 mm) above the floor.

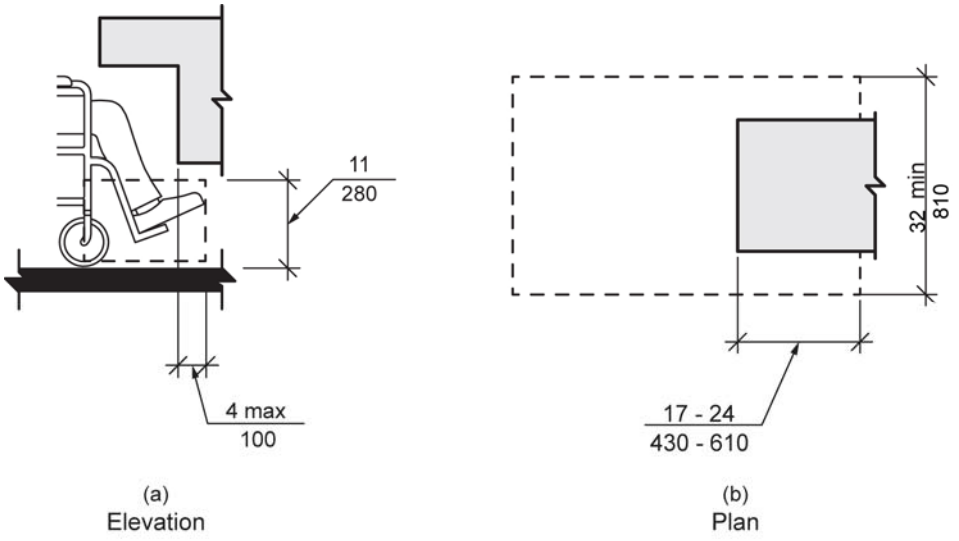


FIG. 306.2
TOE CLEARANCE

306.3.4 Clearance Reduction. Between ~~9~~ 11 inches (~~230~~ 280 mm) and ~~27~~ 29 inches (~~685~~ 735 mm) above the floor, the knee clearance shall be permitted to be reduced at a rate of 1 inch (25 mm) in depth for each ~~6~~ 9 inches (~~150~~ 230 mm) in height.

306.3.5 Width. Knee clearance shall be ~~30~~ 32 inches (~~760~~ 810 mm) minimum in width.

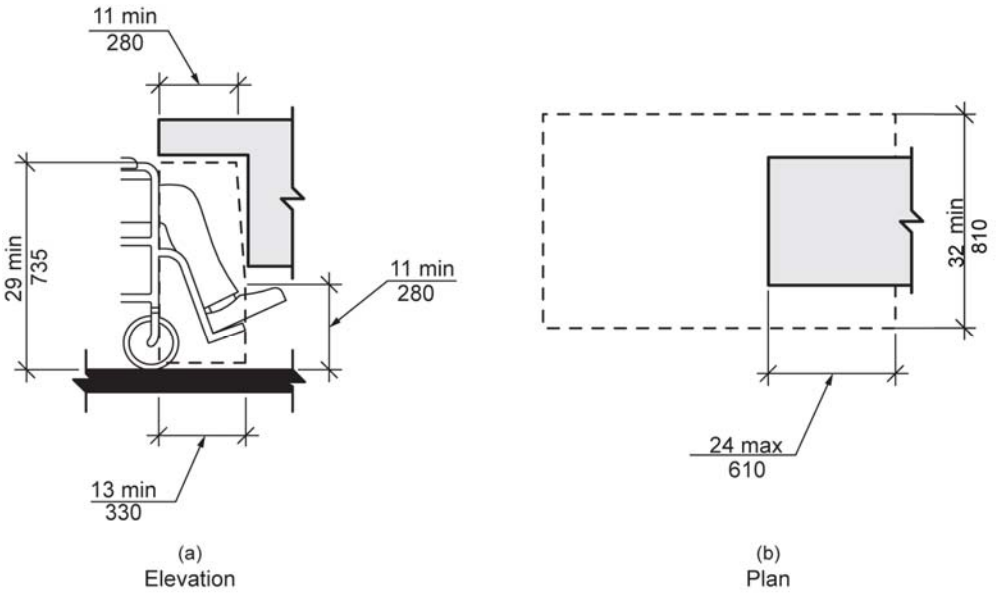


FIG. 306.3
KNEE CLEARANCE

Reason: Many of the technical requirements of the ICC/ANSI A117.1 (2009) Accessible and Usable Buildings and Facilities (ICC/ANSI) designed to accommodate wheeled mobility users are based on research completed from 1974 to 1978 using a research sample that included about 60 individuals who used manual wheelchairs (Steinfeld et al., 1979).

The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users (Steinfeld, et al., 2010). Measurements of body and device size were captured in three dimensions. The functional anthropometric measurements required measuring reaching ability, grip strength and the minimum space needed for turning. It is the most extensive anthropometric study of wheeled mobility device users in

the United States. Additional information about the study can be found at http://www.udeworld.com/ansi-standards-review. The proposed revisions are based on new anthropometric information that was generated from the database of anthropometric measurements developed as part of the study.

Analysis

An analysis based on the original findings of the study in Steinfeld, et al., 2010 was completed for a memorandum entitled "Evaluation of Clear Floor Space Requirements," submitted to the ICC/ANSI A117 Task Force on Anthropometry of Wheeled Mobility Subcommittee on Clear Floor Space Clearances (posted online at website above). This analysis revealed the following:

1. The **current ANSI** knee and toe clearance dimensions **exclude 22.7% of manual** wheelchair users and **48.1% of power** wheelchair users from fitting within a 54-inch clear floor length, given a minimum counter depth. They **exclude 31.4% manual and 58.7% power** wheelchair users at the maximum counter depth. (Paquet, 2012, pg. 12)
2. The **current ANSI** standards place the shoulders of 50% of manual wheelchair users **12.46 inches away from the counter edge (17.2 inches for power wheelchair users)** when the counter is at maximum depth, greatly reducing the likelihood of being able to complete tasks over the target (writing on the surface, or reaching faucet controls). At minimum depth, the shoulder offset is **19.3 inches manual, and 22.2 inches for power** wheelchair users. This indicates that many would encounter a barrier at either the knees or toes, preventing them from moving closer to the target. (Paquet, 2012, pg. 12).

3. Raising the **toe clearance height in 306.2.1 to 11 inches (280 mm)** would decrease the percentages of manual and power wheelchair users excluded from fitting within a 54-inch clear floor length to **17% and 43.4%** respectively (with a minimum counter depth) and **26% and 56.1%** (maximum counter depth) (Paquet, 2012, pg. 21, simulations 13 and 2, respectively). This would reduce the shoulder offsets for manual and power to **11.5 inches and 16 inches** (maximum counter depth) and **18.1 inches and 21.2 inches** (minimum counter depth), respectively. (Paquet, 2012, pg. 21).
4. Raising the **toe clearance height in 306.2.1 to 11 inches (280 mm)** while simultaneously **raising the knee clearance height in 306.3.1 to 29 inches (735 mm)** would further decrease the percentages of manual and power wheelchair users excluded from fitting within a 54-inch clear floor length to **16.2% and 29.6%** respectively (with a minimum counter depth) and **18.4% and 34.4%** (maximum counter depth). This would reduce the shoulder offsets for manual and power to **10.5 inches and 11.4 inches** (maximum counter depth) and **17.8 inches and 18.2 inches** (minimum counter depth), respectively. (Paquet, 2012, pgs. 12-13).
5. The **change proposed** above will exclude only **11.9% of manual** wheelchair users and **25.9% of power** wheelchair users from fitting within a 54-inch clear floor length (with a minimum counter depth). Only **13.7% manual** and **31.2% power** wheelchair users are excluded from fitting within a 54-inch clear floor length given the proposed maximum counter depth. This would mean the shoulder offsets for manual and power would be **11.1 inches and 11.7 inches** (maximum counter depth) and **17 inches and 17.9 inches** (minimum counter depth), respectively. (Paquet, 2012, pgs. 12-13).

Thus, the analysis completed in Paquet, 2012 revealed that the proposed change will allow a greater number of wheeled mobility device users to be accommodated where a clear floor space overlaps knee and toe clearance space. While raising the toe clearance *only* does show some improvement, still this proposal in its entirety benefits a much larger population. Furthermore, the proposed change allows a greater proportion of wheeled mobility device users to get closer to their target before being stopped by a barrier at the knees or toes.

The width of the clear floor space is proposed to increase to 32 inches (810 mm) (see separate change proposal). Therefore, to maintain consistency in the standard, we have also proposed to increase the clear floor space width for the knee and toe clearances. A clear floor space of 32 inches will accommodate the occupied width of at least 95% of manual wheelchair users and at least 90% of power chair users, as opposed to the current standard which only accommodates 90% of manual wheelchair users and 75% of power wheelchair users (Paquet, 2012, pg. 2).

NOTE: This change necessitates a change to Fig. 306.2 and Fig. 306.3 to ensure consistency. Thus, the proposed revised figures have been attached, along with the existing figures for comparison purposes.

References (See http://www.udeworld.com/ansi-standards-review for full text)

Paquet, V. (2012). *Evaluation of Clear Floor Space Requirements.* Memorandum to the ICC/ANSI A117 Task Force on Anthropometry of Wheeled Mobility Subcommittee on Clear Floor Space Clearances. Buffalo, NY: University at Buffalo Center for Inclusive Design and Environmental Access.

Steinfeld, E., Paquet, V., D'Souza, C., Joseph, C, and Maisel, J. (2010). *Final Report: Anthropometry of Wheeled Mobility Project*. Washington, DC: U.S. Access Board.

Steinfeld, E. Schroeder, S. and Bishop, M. (1979). *Accessible buildings for people with walking and reaching limitations.* Washington, DC: U.S. Department of Housing and Urban Development.

306.2.1-STEINFELD.doc

Committee Action

Disapproved

Committee Reason: Changing the dimensions of these clearance has significant impacts on many features. While the heights of counters, sinks or fountains are not addressed specifically, the proposal would make fountain designs, work surfaces, sinks and similar features difficult to provide if heights are not raised.

There were many concerns that this increase in clearances would force increase height for these features; many of the Committee objected to the potential for these other elements to be affected.

BALLOT COMMENTS

3-16.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Same comment as 3-6-12

If the knee and toe clearance is raised, would accessibility be increased with the subsequent raise of the work surface to 36" in height?

3-16.2

Commenter: Edward Steinfeld, Representing RESNA
Ballot: Negative with comment:

Comment: This was not adequately discussed in the committee meetings and should be re-visited. The suggestion that this proposal would result in increases in height is purely conjecture and not supported by fact. The evidence supporting this proposal is clear and undisputed.

3-17 – 12

306.2.2, 306.3.3

Proposed Change as Submitted

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

306.2.2 Maximum Depth. Where included as part of clear floor space in accordance with Section 306.1, toe clearance shall be permitted to extend 25 inches (635 mm) maximum under an element.

306.3.2 Maximum Depth. Where included as part of clear floor space in accordance with Section 306.1, knee clearance shall be permitted to extend 25 inches (635 mm) maximum under an element at 9 inches (230 mm) above the floor.

Reason: The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and publishes a Commentary on the standard and writing the commentary illuminates issues of the text and figures; and 3. ICC provides an interpretation service for the standard which results in the observation of provisions the users find most confusing.

This proposal clarifies the application of the "maximum" depth for knee and toe clearance. The problem is not that knee and toe clearance is not permitted beyond 25 inches, but that it does not qualify for use with the clear floor space.

This is covered by the text in Section 306.1 but it seems to get overlooked. We proposed the version you see above. Below are two other options of how to word the language.

While this revision is not a necessity since the standard is technically correct if users go back and follow Section 306.1; it will help connect the requirements and assist users by clarifying (reinforcing) the connection.

Option 1

306.2.2 Maximum Depth. Where located in accordance with Section 306.1, toe clearance shall be permitted to extend 25 inches (635 mm) maximum under an element.

306.3.2 Maximum Depth. Where located in accordance with Section 306.1, knee clearance shall be permitted to extend 25 inches (635 mm) maximum under an element at 9 inches (230 mm) above the floor.

Option 2

306.2.2 Maximum Depth. Toe clearance shall be permitted to extend 25 inches (635 mm) maximum under an element where included as part of clear floor space in accordance with Section 306.1.

306.3.2 Maximum Depth. Knee clearance shall be permitted to extend 25 inches (635 mm) maximum under an element at 9 inches (230 mm) above the floor where included as part of clear floor space in accordance with Section 306.1.

306.2.2 PAARLBERG.doc

Committee Action

Disapproved

Committee Reason: The Committee felt that the revision would result in misapplication of the Standard. More problems are created than solved by the change.

BALLOT COMMENTS

3-17.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Since you cannot reach past your toes with front approach, the allowances for knee and toe clearance set the reach over the obstructions. This needs to be clarified.

These revisions pull the depth requirements into a single section and use text similar to that found in Section 306.1 to clarify what the limits are. The new 306.3.2.4 shown above is based on the existing 306.2.4 and is and modified from Section 306.1 and the proposed 306.2.2.3.

Replace proposal as follows:

306.2 Toe Clearance.

306.2.1 General. Space beneath an element between the floor and 9 inches (230 mm) above the floor shall be considered toe clearance and shall comply with Section 306.2.

306.2.2 Depth. The depth of the toe clearance shall comply with Section 306.2.2.

306.2.2.1 Maximum Depth. Toe clearance shall be permitted to extend 25 inches (635 mm) maximum under an element.

~~**306.2.3**~~ **306.2.2.2 Minimum Depth.** Where toe clearance is required at an element as part of a clear floor space complying with Section 305, the toe clearance shall extend 17 inches (430 mm) minimum beneath the element.

~~**306.2.4**~~ **306.2.2.3 Additional Clearance.** Space extending greater than 25 inches (635 mm) under an element or greater than 6 inches (150 mm) beyond the available knee clearance at 9 inches (230 mm) above the floor shall not be prohibited, but shall not be considered as part of the clear floor space or turning space toe clearance.

~~**306.2.5**~~ **306.2.3 Width.** Toe clearance shall be 30 inches (760 mm) minimum in width.

306.3 Knee Clearance.

306.3.1 General. Space beneath an element between 9 inches (230 mm) and 27 inches (685 mm) above the floor shall be considered knee clearance and shall comply with Section 306.3.

306.3.2 Depth. The depth of the knee clearance shall comply with Section 306.3.2.

306.3.2.1 Maximum Depth. Knee clearance shall be permitted to extend 25 inches (635 mm) maximum under an element at 9 inches (230 mm) above the floor.

~~**306.3.3**~~ **306.3.2.2 Minimum Depth.** Where knee clearance is required beneath an element as part of a clear floor space complying with Section 305, the knee clearance shall be 11 inches (280 mm) minimum in depth at 9 inches (230 mm) above the floor, and 8 inches (205 mm) minimum in depth at 27 inches (685 mm) above the floor.

~~**306.3.4**~~ **306.3.2.3 Clearance Reduction.** Between 9 inches (230 mm) and 27 inches (685 mm) above the floor, the knee clearance shall be permitted to be reduced at a rate of 1 inch (25 mm) in depth for each 6 inches (150 mm) in height.

306.3.2.4 Additional Clearance. Space extending greater than 25 inches (635 mm) under an element or greater than the required knee clearance shall not be prohibited, but shall not be considered as part of the required clear floor space or turning space knee clearance.

~~**306.3.5**~~ **306.3.3 Width.** Knee clearance shall be 30 inches (760 mm) minimum in width.

Proponent Comment

3-17.2

Commenter: Kim Paarlberg, Representing ICC

Replace the proposal with the following:

306.2.2 Maximum Depth. Toe clearance shall be permitted to extend 25 inches (635 mm) maximum under an element where included as part of clear floor space in accordance with Section 306.1.

306.3.2 Maximum Depth. Knee clearance shall be permitted to extend 25 inches (635 mm) maximum under an element at 9 inches (230 mm) above the floor where included as part of clear floor space in accordance with Section 306.1.

Reason: This addresses the clear floor space more as a three dimensional space.

3-18 – 12

This proposal was disapproved by the committee. No ballot or proponent comments were received. No further action is needed.

3-19 – 12

308.1, Table 308.1 (New)

Proposed Change as Submitted

Proponent: Hope Reed, New Mexico Governor's Commission on Disability (NMGCD)

Revise as follows:

308.1 General. Reach ranges shall comply with Section 308.

EXCEPTION: Where children are the primary user, reach ranges shall be as permitted in Table 308.1 for the chosen age group.

Table 308.1 – Children's Reach Ranges

Forward or Side Reach	Ages 3 and 4	Ages 5 through 8	Ages 9 through 12
High (maximum)	36 in (915 mm)	40 in (1015 mm)	44 in (1120 mm)
Low (minimum)	20 in (510)	18 in (455 mm)	16 in (405 mm)

Reason: This new exception and Table provide guidance for providing hooks, cubby holes, and operable parts that will be usable by each age group. This will provide usable reach ranges for children as shown in 2010 ADA Advisory 308.1.

See companion change for 102 Anthropometric Provisions.

308.1-REED.doc

Committee Action

Disapproved

Committee Reason: The Committee concluded that provisions are best left outside the Standard. The ADA has left these as advisory. Adopting them as required and installing such in a building, freezes a building to a specific age group. It makes multiple use difficult, for example these could not be installed in a community center although use by children might dominate. As the ranges are already within the ranges allowed by the Standard, these should remain advisory.

BALLOT COMMENTS

3-19.1

Commenter: Gene Boecker, Representing NATO
Ballot: Affirmative with comment:

Comment: Include the dimensional information in the Commentary so that this anthropomorphic data is not lost but available to those who wish to use it.

3-19.2

Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: If we develop an appendix for best practices, this table for children's reach could be added.

3-19.3

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: Agree with committee.

3-20 – 12

308.2.1, Figure 308.2.1

Proposed Change as Submitted

Proponent: Edward Steinfeld, IDEA Center, School of Architecture and Planning, University at Buffalo, State University of New York

Revise as follows:

308.2.1 Unobstructed. Where a forward reach is unobstructed, the high forward reach shall be 48 inches (1220 mm) maximum and the low forward reach shall be ~~15~~ 23 inches (~~380~~ 585 mm) minimum above the floor.

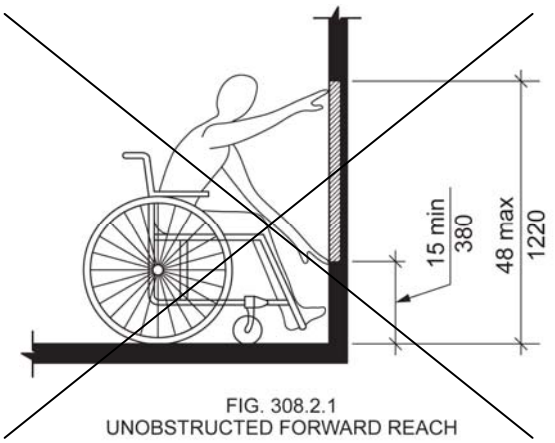


FIG. 308.2.1
UNOBSTRUCTED FORWARD REACH

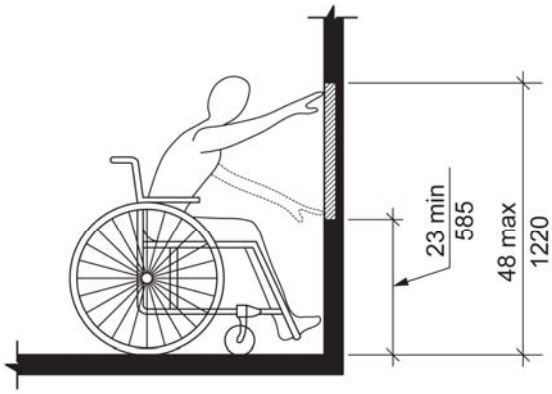


FIG. 308.2.1
UNOBSTRUCTED FORWARD REACH

Reason: Many of the technical requirements of the ICC/ANSI A117.1 (2009) Accessible and Usable Buildings and Facilities (ICC/ANSI) designed to accommodate wheeled mobility users are based on research completed from 1974 to 1978 using a research sample that included about 60 individuals who used manual wheelchairs (Steinfeld et al., 1979).

The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users (Steinfeld, et al., 2010). Measurements of body and device size were captured in three dimensions. The functional anthropometric measurements required measuring reaching ability, grip strength and the minimum space needed for turning. It is the most extensive anthropometric study of wheeled mobility device users in the United States. Additional information about the study can be found at http://www.udeworld.com/ansi-standards-review. The proposed revisions are based on new anthropometric information that was generated from the database of anthropometric measurements developed as part of the study.

Analysis

In order to compare our measurements of maximum forward reach to the reach ranges in the ICC/ANSI A117.1 Standard, we analyzed our data on maximum forward reach using the forward-most point on the occupied wheeled mobility device as the reference point. This provides us an estimate of the percentage of wheeled mobility users that would be able to reach to or beyond the forward-most point, simulating an unobstructed forward reach. The analysis found that:

1) A substantial number of wheeled mobility users (about 15% of manual chair users and 42% of power chair users) did not possess any functional reach capability (defined as reaching and placing an empty canister above shoulder height), and
2) Of the remaining wheeled mobility users in our study that could perform the reach tests a large percentage could not reach beyond the most forward point of their device or foot. These percentages vary at different heights from the floor, and are also different for manual and power chair users. Figure 3-15 (pg. 68) in the Anthropometry of Wheeled Mobility (AWM) report (Steinfeld et al., 2010) summarizes these findings.

One finding of major concern is that in a functional reach task that involved object (canister) placement, none of the wheeled mobility users in our study that had reach capability could safely reach to the lower reach limit of 15" prescribed in the ICC/ANSI A117.1 Standard. To get a better understanding of reach capability at low reaches, we re-analyzed this data at 1-inch increments from the floor (in contrast to the 4 inch increments used in the AWM report). A sub-set of the data at lower reach heights is provided in Table 1 and forms the basis of our recommendation for identifying an alternate lower reach limit. The upper reach limit accommodated most wheeled mobility users that have reach capability, and thus did not require any change.

Table 1: Percentage of manual and power chair users capable of reaching to the forward-most point on the occupied device between the heights of 11"-28" from the floor

Height from the floor	% capable of forward unobstructed reach	
	Manual (n=236)	Power (n=110)
27" - 28"	74	52
26" - 27"	68	47
25" - 26"	68	46
24" - 25"	67	45
23" - 24"	51	36
22" - 23"	28	15
21" - 22"	28	14
20" - 21"	26	13
19" - 20"	15	3
18"- 19"	1	0
17" - 18"	1	0
16" - 17"	0	0
15" - 16"	0	0
14" - 15"	0	0
13" - 14"	0	0
12" - 13"	0	0
11" - 12"	0	0

The proportion of manual chair users able to reach to the forward-most point increases dramatically at heights above 23 inches (highlighted in yellow). Power chair users show a smaller but noticeable increase at this height. Hence, **we recommend raising the lower limit for the forward reach range from 15 inches to 23 inches**. Reaching to heights lower than the recommended are less accommodating and potentially unsafe to wheeled mobility users many of whom have poor postural and trunk control.

The proposed change would help accommodate a substantial number of manual chair users (51%) and a sub-set of power chair users (36%) that possess reach capability to accomplish a forward unobstructed reach at lower heights. Raising the lower reach limit would undoubtedly also benefit standing individuals and more so individuals that have trouble bending or kneeling (e.g. the elderly). Further, there are no constraints or requirements in building construction that require operable parts (e.g. electrical outlets) to be placed as low as 15 inches but not at 23 inches.

NOTE 1: This proposed change is also consistent with our recommendation for raising the lower reach limit for unobstructed side reach included in a separate proposal.

NOTE 2: This change necessitates a revision to Fig. 308.2.1 to ensure consistency. A revised figure is attached.

References (See http://www.udeworld.com/ansi-standards-review)

Steinfeld, E., Paquet, V., D'Souza, C., Joseph, C, and Maisel, J. (2010). *Final Report: Anthropometry of Wheeled Mobility Project*. Washington, DC: U.S. Access Board.

Steinfeld, E. Schroeder, S. and Bishop, M. (1979). *Accessible buildings for people with walking and reaching limitations.*Washington, DC: U.S. Department of Housing and Urban Development.

308.2.1-STEINFELD.doc

Committee Action

Approved

Committee Reason: In contrast to the side reach proposal which the Committee did not accept, change to forward reach was accepted at the Committee meeting. The case made by the proponent and others is that the forward reach is very restricted, especially when considering the range of mobility devices used. Some members remained concerned that this change would significantly reduce access to electrical outlets, shelving, other equipment and would force redesign of rooms and spaces to accommodate a parallel approach.

BALLOT COMMENTS

3-20.1

Commenter: Ron Burton, Representing BOMA
Ballot: Negative with comment:

Comment: Raising the lower reach range dimension would eliminate many common elements in the building such as kitchen drawers, casement window hardware, bathtub handles, storage units, mailbox locations, kitchen cabinets and other items that are located below the approved 23". It's clear that the current reach range creates issues for some as determined in the 2010 Anthropometry Report. However, as discussed in our comments to 3-6-12, this study has major flaws and the Committee should not base such a far-reaching change on this study alone.

3-20.2

Commenter: David Collins, Representing AIA
Ballot: Negative with comment:

Comment: The work of the study group isn't finalized and the research that formed the basis for this change has not been validated.

3-20.3

Commenter: Gerald Gross, Representing AHLA
Ballot: Negative with comment:

Comment: We not accept the results of a single anthropometric study conducted by the Center for Inclusive Design and Environmental Access. It is understood that the work of the Wheelchair Mobility Task Group is ongoing and has submitted a series of proposal changes to the base building blocks of A117.1 Standard. At this time we believe that the proposed changes to the building blocks are unacceptable and should not be adopted by the Committee; therefore no additional changes are required in this portion of the standard with reference to the building block changes.

3-20.4

Commenter: Ronald G. Nickson, Representing NMHC
Ballot: Negative with comment:

Comment: Raising the lower reach range creates a situation in which a lot of common elements in the building are no longer allowed. I agree that the current reach range creates issues for some as determined in the study. However, we need to take into consideration the needs of others also, and expect people to address and be responsible for individual activities and limitations. This change would have a major impact on storage units, mailbox locations, kitchen cabinets and other items that are normally located below the approved 23".

3-20.5

Commenter: Steve Orlowski, Representing NAHB
Ballot: Negative with comment:

Comment: There are several features within dwelling unit (kitchen drawers, casement window hardware, bath tub handles and hardware) that would be eliminated should the forward reach range be altered. Most electricians do not mount outlets more than 18 inches above the finished floor. Not to mention storage space and work stations in business areas, retail and mercantile. Again these changes, which are based on a single study, should be researched further before such changes occur in the standard.

3-20.6

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: Same comment as 3-6-12.

This has a large implication on anything with a low reach – especially outlets and below window HVAC units.

3-21 – 12
308.2.1, 308.2.2

Proposed Change as Submitted

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

308.2.1 Unobstructed. Where a forward reach is unobstructed, the high forward reach shall be 48 inches (1220 mm) maximum and the low forward reach shall be 15 inches (380 mm) minimum above the floor. For the purpose of this section an unobstructed high reach is permitted over an obstruction where all of the following conditions are met:

1. The clear floor space complying with Section 305 shall extend beneath the element for a distance not less than the required reach depth over the obstruction, and
2. The reach depth over the obstruction is 20 inches (510mm) maximum.

Where the reach depth exceeds 20 inches (510 mm), the high forward reach shall be considered as obstructed and shall comply with Section 308.2.2.

308.2.2 Obstructed High Reach. Where a high forward reach is over an obstruction, the clear floor space complying with Section 305 shall extend beneath the element for a distance not less than the required reach depth over the obstruction. ~~The high forward reach shall be 48 inches (1220 mm) maximum above the floor where the reach depth is 20 inches (510mm) maximum.~~ Where the reach depth over the obstruction exceeds 20 inches (510 mm), the high forward reach shall be 44 inches (1120 mm) maximum above the floor, and the reach depth shall be 25 inches (635 mm) maximum.

Reason: The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and publishes a Commentary on the standard and writing the commentary illuminates issues of the text and figures; and 3. ICC provides an interpretation service for the standard which results in the observation of provisions the users find most confusing.

The resultant text from this proposal will be as follows:

> 308.2 Forward Reach.
> 308.2.1 Unobstructed. Where a forward reach is unobstructed, the high forward reach shall be 48 inches (1220 mm) maximum and the low forward reach shall be 15 inches (380 mm) minimum above the floor. For the purpose of this section an unobstructed high reach is permitted over an obstruction where all of the following conditions are met:
> 1. The clear floor space complying with Section 305 shall extend beneath the element for a distance not less than the required reach depth over the obstruction, and
> 2. The reach depth over the obstruction is 20 inches (510mm) maximum.
>
> Where the reach depth exceeds 20 inches (510 mm), the high forward reach shall be considered as obstructed and shall comply with Section 308.2.2.
> 308.2.2 Obstructed High Reach. Where a high forward reach is over an obstruction, the clear floor space complying with Section 305 shall extend beneath the element for a distance not less than the required reach depth over the obstruction. Where the reach depth over the obstruction exceeds 20 inches (510 mm), the high forward reach shall be 44 inches (1120 mm) maximum above the floor, and the reach depth shall be 25 inches (635 mm) maximum.

The intent of this proposal is to provide a clear distinction for when the forward reach is allowed a 48 inch reach height and when the reach height must be lowered to 44 inches. Format wise this also correlates with the side reach provisions of Section 308.3 by addressing an unobstructed reach over a limited depth obstruction and an obstructed reach when the depth of the obstruction exceeds that depth.

One portion of the proposal that the committee or an editorial task group may want to look at is the wording in the second sentence of the proposed Section 308.2.1. That sentence is currently proposed as being “For the purpose of this section an unobstructed high reach is permitted over an obstruction where all of the following conditions are met:”. It may be that the word “obstruction” should be revised to “element” so the sentence would read as “For the purpose of this section an unobstructed high reach is permitted over an element where all of the following conditions are met:”.

If the committee is uncertain of this revised format, another option would be to revise the text to create three separate sections that would address Unobstructed (the normal 15 to 48 inch height) Limited Obstruction (the 20 inch reach depth and its requirements) and then the Obstructed High Reach (with the 44 inch height and the 20 to 25 inch depth for the obstruction). I would be happy to provide that alternate if the committee indicates they are interested in reviewing that option during this development cycle.

308.2.2-Paarlberg.doc

Committee Action

Disapproved

Committee Reason: The Committee was not convinced that the revised text provided clarity over the existing provisions. It was unclear regarding obstructions below a counter.

BALLOT COMMENTS

3-21.1

Commenter: Gene Boecker, Representing NATO
Ballot: Affirmative with comment:

Comment: While the text of the proposal was not clear, this issue needs to be addressed with better clarity. The text and figures shows an unobstructed and obstructed reaches over an object, nothing is mentioned about reaches below. It is not clear how one should design for access to electrical outlets on the wall below a shelf/counter. If the projection is an inch it will likely have no effect on the lower reach range. Similarly, for a 24 inch counter, it can be assumed that access below is not possible. It is unclear where the break point is and whether various combinations are possible. It may be possible to investigate and solve this from the available anthropometric data but it is not included in that standard.

3-21.2

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: Confusing.

3-21.3

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: There is an overlap in the current text for obstructed and unobstructed reach range.
A modification will be developed for this proposal.

3-21.4

Commenter: Hope Reed, Representing NMGCD
Ballot: Negative with comment:

Comment: Reach ranges are provided as a minimum in ANSI. The NMGCD hears of frequent concerns about reach ranges. This section needs further details to improve understanding and enforcement.

Proponent Comment

3-21.5

Commenter: Kim Paarlberg, Representing ICC

Replace the proposal with the following:

308.2.1 Unobstructed. Where a forward reach is unobstructed, the high forward reach shall be 48 inches (1220 mm) maximum and the low forward reach shall be 15 inches (380 mm) minimum above the floor.

308.2.2 Obstructed High Reach. Where a high forward reach is over an obstruction, the clear floor space complying with Section 305 and knee and toe clearance complying with Section 306 shall extend beneath the element for a distance not less than the ~~required~~ reach depth over the obstruction. The high forward reach shall be 48 inches (1220 mm) maximum above the floor where the reach depth over the obstruction is 20 inches (510mm) maximum. Where the reach depth over the obstruction is more than ~~exceeds~~ 20 inches (510 mm) and 25 inches (635 mm) or less, the high forward reach shall be 44 inches (1120 mm) maximum above the floor, ~~and the reach depth shall be 25 inches (635 mm) maximum~~.

Reason: The intent is two fold. To talk about this as a three dimensional shape rather than a two dimensional floor space and a wall height. The language also clarifies that you do not reach past your toes, both unobstructed or obstructed reach.

3-22 – 12
308.3.1, Figure 308.3.1

Proposed Change as Submitted

Proponent: Edward Steinfeld, IDEA Center, School of Architecture and Planning, University at Buffalo, State University of New York

Revise as follows:

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~~ 23 inches (~~380~~ 585 mm) minimum above the floor.

EXCEPTION: Existing elements that are not altered shall be permitted at 54 inches (1370 mm) maximum above the floor.

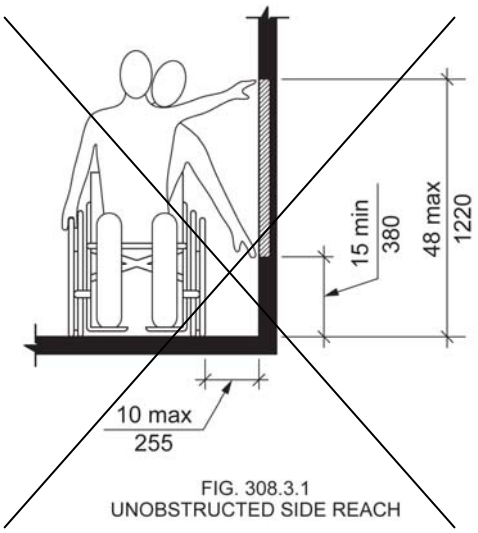


FIG. 308.3.1
UNOBSTRUCTED SIDE REACH

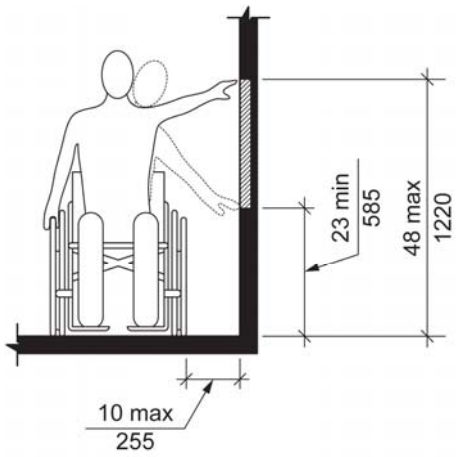


FIG. 308.3.1
UNOBSTRUCTED SIDE REACH

Reason: Many of the technical requirements of the ICC/ANSI A117.1 (2009) Accessible and Usable Buildings and Facilities (ICC/ANSI) designed to accommodate wheeled mobility users are based on research completed from 1974 to 1978 using a research sample that included about 60 individuals who used manual wheelchairs (Steinfeld et al., 1979).

The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users (Steinfeld, et al., 2010). Measurements of body and device size were captured in three dimensions. The functional anthropometric measurements required measuring reaching ability, grip strength and the minimum space needed for turning. It is the most extensive anthropometric study of wheeled mobility device users in the United States. Additional information about the study can be found at http://www.udeworld.com/ansi-standards-review. The proposed revisions are based on new anthropometric information that was generated from the database of anthropometric measurements developed as part of the study.

Analysis

In order to compare our measurements of maximum side reach to the reach ranges in the ICC/ANSI A117.1 Standard, we analyzed our data on maximum side reach using the lateral-most point on the occupied wheeled mobility device as the reference point. This provides us an estimate of the percentage of wheeled mobility users that would be able to reach to or beyond the lateral-most aspect of the occupied device, simulating an unobstructed side reach. The analysis found that:

1) A substantial number of wheeled mobility users (about 15% of manual chair users and 42% of power chair users) did not possess any functional reach capability (defined as reaching and placing an empty canister above shoulder height), and
2) Side reach access is far more preferable to forward reach access, which is quite restricted among the wheelchair user population. This was also evidenced by the percentages of wheeled mobility users reaching to different heights in a side reach being greater than that for a forward reach. These percentages vary at different heights from the floor, and are also different for manual and power chair users. Figure 3-16 (pg. 69) in the Anthropometry of Wheeled Mobility (AWM) report (Steinfeld, et al., 2010) summarizes these findings.

One finding of concern is that in a functional reach task that involved object (canister) placement none of the wheeled mobility users in our study that had reach capability could safely reach to the lower reach limit of 15" prescribed in the ICC/ANSI A117.1 Standard. To get a better understanding of reach capability at low reaches, we re-analyzed the data on side reach at 1 inch increments from the floor (in contrast to the 4 inch increments used in the AWM report). A sub-set of the results for lower reach heights is provided in Table 1 and forms the basis of our recommendation for identifying an alternate lower reach limit. The upper reach limit accommodated most wheeled mobility users that have reach capability, and thus did not require any change.

Table 1: Percentage of manual and power chair users capable of reaching to or beyond the lateral-most point on the occupied device between the heights of 11"-28" from the floor

Height from the floor	***% capable of side unobstructed reach***	
	Manual (n=236)	***Power (n=110)***
27" - 28"	96	86
26" - 27"	86	71
25" - 26"	85	71
24" - 25"	85	70
23" - 24"	68	56
22" - 23"	34	21
21" - 22"	34	19
20" - 21"	34	18
19" - 20"	20	8
18"- 19"	1	0

17" - 18"	1	0
16" - 17"	1	0
15" - 16"	0	0
14" - 15"	0	0
13" - 14"	0	0
12" - 13"	0	0
11" - 12"	0	0

The proportion of manual and power chair users able to reach to or beyond the lateral-most point increases dramatically at heights above 23 inches (highlighted in yellow). Hence, **we recommend raising the lower limit for the forward reach range from 15 inches to 23 inches**. Reaching to heights lower than the recommended are less accommodating and potentially unsafe to wheeled mobility users many of whom have poor postural and trunk control.

The proposed change would help accommodate a substantial number of manual chair users (68%) and power chair users (56%) that possess reach capability to accomplish a forward unobstructed reach at lower heights. Raising the lower reach limit would undoubtedly also benefit standing individuals and more so individuals that have trouble bending or kneeling (e.g. the elderly). Further, there are no constraints or requirements in building construction that require operable parts (e.g. electrical outlets) to be placed as low as 15 inches but not at 23 inches.

NOTE 1 - This proposed change is also consistent with our recommendation for raising the lower reach limit for unobstructed forward reach included in a separate proposal.

NOTE 2: This change necessitates a revision to Fig. 308.3.1 to ensure consistency. A revised figure is attached.

References (See http://www.udeworld.com/ansi-standards-review)

Steinfeld, E., Paquet, V., D'Souza, C., Joseph, C, and Maisel, J. (2010). *Final Report: Anthropometry of Wheeled Mobility Project*. Washington, DC: U.S. Access Board.

Steinfeld, E. Schroeder, S. and Bishop, M. (1979). *Accessible buildings for people with walking and reaching limitations.* Washington, DC: U.S. Department of Housing and Urban Development.

308.3.1-STEINFELD.doc

Committee Action

Disapproved

Committee Reason: Impact of raising the lower side reach would be significant. The information provided was not clear why the existing reach range have been adequate. Why transfer heights in this range have been working.

BALLOT COMMENTS

3-22.1

Commenter: Gina Hilberry, Representing UCP
Ballot: Affirmative with comment:

Comment: I am convinced that 15" unobstructed side reach is too low for a number of wheeled mobility users. However, I am not clear what that number of users is and how that relates to the position of the object relative to the occupied clear floor space. In other words, while I agree that this section probably needs to be changed, I am not sure that 23" is the right number.

3-22.2

Commenter: Rick Lupton, Representing WABO
Ballot: Affirmative with comment:

Comment: I am disturbed by the study showing that 0% are able to reach the current, 15-inch, unobstructed lower reach range –from the side or front. Either the study or the standard is flawed.

3-22.3

Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: Same comment as 3-6-12

3-22.4

Commenter: Dominic Marinelli, Representing USA
Ballot: Negative with comment:

Comment: The committee approved 3-20-12 to change reach ranges for forward approach and I think we should be consistent and accept Ed's research on reach ranges for parallel approach as well.

3-22.5

Commenter: Marsha K. Mazz, Representing Access Board
Ballot: Negative with comment:

Comment: The committee approved 3-20-12 for an unobstructed forward approach. The committee reason for disapproving this item is inconsistent with that action given that the substantiation for the change is the same research that was deemed to be adequate to approve 3-20-12.

3-22.6

Commenter: Edward Steinfeld, Representing RESNA
Ballot: Negative with comment:

Comment: This is inconsistent with the approved change to forward reach so it will add complexity to the standard.

3-22.7

Commenter: Hale Zukas, Representing WID
Ballot: Negative with comment:

Comment: Two thirds of the Committee reason is so poorly worded that it does not even make sense. Our best *guess* as to what staff Intended to say In the second sentence is," The information provided does not make it clear that the existing reach range is not adequate. " On the contrary! Rarely has so *much* data been presented in support of changing an existing standard.

As for the third sentence, we are at a loss as to its meaning/relevance.

3-23 – 12

308.3.1

Proposed Change as Submitted

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

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 an existing curbs shall be permitted at 54 inches (1370 mm) maximum above the floor.

Reason: The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and publishes a Commentary on the standard and writing the commentary illuminates issues of the text and figures; and 3. ICC provides an interpretation service for the standard which results in the observation of provisions the users find most confusing.

The proposal is consistent with allowances for gas pumps on existing curbs found in ADA. The amount of work to take out the curb and connections is extensive.

308.3.1 #1(REVISED)-PAARLBERG.doc

Committee Action

Approved

Committee Reason: Provides consistency with the ADA 2010.

BALLOT COMMENTS

3-23.1

Commenter: Gerald Gross , Representing AHLA
Ballot: Negative with comment:

Comment: The AHLA does not accept the singular results of the anthropometric study conducted by the Center for Inclusive Design and Environmental Access. It is understood that the work of the Wheelchair Mobility Task Group is ongoing and has submitted a series of proposal changes to the base building blocks of A117.1 Standard. At this time we believe that the proposed changes to the building blocks are unacceptable and should not be adopted by the Committee; therefore no additional changes are required in this portion of the standard with reference to the building block changes.

3-24 – 12

308.3.1

Proposed Change as Submitted

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

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. Mailboxes serving Type B dwelling units shall be permitted at 54 inches (1370 mm) maximum above the floor.

Reason: The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and

publishes a Commentary on the standard and writing the commentary illuminates issues of the text and figures; and 3. ICC provides an interpretation service for the standard which results in the observation of provisions the users find most confusing.

There is a code change to the IBC that is adding specific criteria for mailbox scoping. The current proposal is for 50% of the mailboxes required accessible, plus an addition 5% accessible. There has been concern from the post office about providing mailboxes below 29 inches so that the mailmen don't have to bend over too far. Therefore, in facilities with a large number of mailboxes, the additional reach on the high side is needed.

308.3#2(REVISED)-PAARLBERG.doc

Committee Action

Disapproved

Committee Reason: The Committee was concerned that if this exception is included, it could be abused. It could result in few if any Type B dwelling unit mailboxes being accessible to people who are challenged by reach over 48 inches. The Committee was not convinced that the 'flexibility' resulting from allowing certain mailboxes to be up to 54 is needed.

BALLOT COMMENTS

3-24.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: HUD and the U.S. Post Office continue to debate over the percentage of mailboxes that must be within reach range. The limited reach range (which is less than permitted by HUD) has significant impact on large mailrooms in highrise apartment buildings and dormitories. This is magnified by the post office not wanted boxes below 26 inches for their mail delivery persons.

Proponent Comment

3-24.2

Commenter: Kim Paarlberg, Representing ICC

Requests the proposal be Approved as Submitted:

Reason: The Post office and HUD are still arguing about the scoping for mailboxes. Currently HUD is saying 100%. FHA allows for a maximum reach of 54". In large facilities, the additional 6" in height can be a significant. This could allow 2 additional rows of mailboxes. This proposed language would coordinate with FHA and not reduce the amount of mailboxes that currently are within the reach range for Accessible and Type A units. A significant number of mailboxes serving Type B units would still be within the lower reach.

3-25 – 12

308.3.1

Proposed Change as Submitted

Proponent: Robert D. Feibleman, HAND Construction Company

Revise as follows:

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. Where an unobstructed side reach is available, thermostats in Type B dwelling and sleeping units shall be permitted at 54 inches.

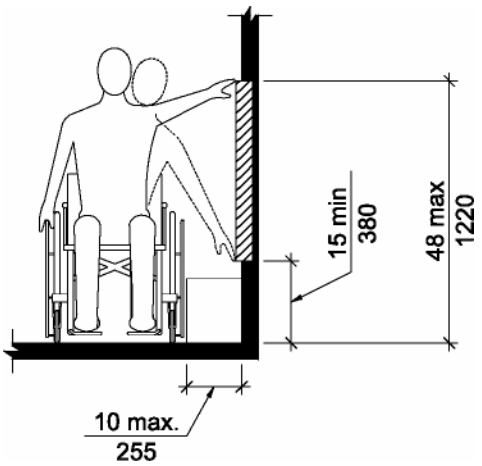


Fig. 308.3.1
Unobstructed Side Reach

Reason: Forty eight inches is too low for people not in wheel chairs. This would match UFAS 4.2.6.

308.3.1-FEIBLEMAN.doc

Committee Action

Disapproved

Committee Reason: The text does not say that it would be a maximum. The revision would conflict with the Fair Housing Act provisions. The Committee is reluctant to carve out exceptions to the 48 inch reach range maximum.

BALLOT COMMENTS

3-25.1

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: Needs clarification.

3-26 – 12

308.3.2, 611.3

Proposed Change as Submitted

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

308.3.2 Obstructed High Reach. Where a clear floor space complying with Section 305 allows a parallel approach to an element and the high side reach is over an obstruction, the height of the obstruction shall be 34 inches (865 mm) maximum above the floor and the depth of the obstruction shall be 24 inches (610 mm) maximum. The high side reach shall be 48 inches (1220 mm) maximum above the floor for a reach depth of 10 inches (255 mm) maximum. Where the reach depth exceeds 10 inches (255 mm), the high side reach shall be 46 inches (1170 mm) maximum above the floor for a reach depth of 24 inches (610 mm) maximum.

~~**EXCEPTION:** At washing machines and clothes dryers, the height of the obstruction shall be permitted to be 36 inches (915 mm) maximum above the floor.~~

611.3 Operable Parts. Operable parts, including doors, lint screens, detergent and bleach compartments, shall comply with Section 309.

EXCEPTION: The height of the obstruction can be 36 inches (915 mm) maximum above the floor.

Reason: The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and

publishes a Commentary on the standard and writing the commentary illuminates issues of the text and figures; and 3. ICC provides an interpretation service for the standard which results in the observation of provisions the users find most confusing.

Why send the user to Section 309, than 308.3.2 to tell them that the height of the washer and dryer can be 36 inches? Just put it in the provisions for washers and dryers.

308.3.2(replacement7-20)-PAARLBERG.doc

Committee Action

Disapproved

Committee Reason: Because obstruction is 'defined' in Section 308 and not in Section 611.3, moving this text would result in a disconnect between the exception and its charging provision.

BALLOT COMMENTS

3-26.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: The requirements for the washing machines and dryers should be together, not two section references away. See also 6-69. A modification will be developed for this 3-26 and 6-69.

Proponent Comment

3-26.2

Commenter: Kim Paarlberg, Representing ICC

Replace the proposal with the following:

308.3.2 Obstructed High Reach. Where a clear floor space complying with Section 305 allows a parallel approach to an element and the high side reach is over an obstruction, the height of the obstruction shall be 34 inches (865 mm) maximum above the floor and the depth of the obstruction shall be 24 inches (610 mm) maximum. The high side reach shall be 48 inches (1220 mm) maximum above the floor for a reach depth of 10 inches (255 mm) maximum. Where the reach depth exceeds 10 inches (255 mm), the high side reach shall be 46 inches (1170 mm) maximum above the floor for a reach depth of 24 inches (610 mm) maximum.

~~**EXCEPTION:** At washing machines and clothes dryers, the height of the obstruction shall be permitted to be 36 inches (915 mm) maximum above the floor.~~

611.3 Operable Parts. Operable parts, including doors, lint screens, detergent and bleach compartments, shall comply with Sections 308 and 309.

EXCEPTION: The height of the obstruction in Section 308.3.2 shall be permitted to be 36 inches (915 mm) maximum above the floor.

Reason: The allowance for washing machines and clothes dryers in Section 308.3.2 is too remote from the base requirements and the not directly associated with the Section 309 reference (which does reference Section 308). This would not be a technical change, but would be clearer.

3-27 – 12

309.1, 309.4, 309.5 (New), 309.5.1 (New), 309.5.2 (New), 309.5.3 (New), 309.5.4 (New)

Proposed Change as Submitted

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

309.1 General. Operable parts required to be accessible shall comply with Section 309.

EXCEPTIONS:

1. Receptacle outlets serving a dedicated use.
2. In kitchens, kitchenettes, toilet and bathing facilities, receptacle outlets and switches shall comply with Section 309.5.
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. Gas pump nozzles shall not be required to provide operable parts that have an activating force of 5.0 pounds (22.2 N) maximum in accordance with Section 309.4.
9. Equipment for emergency responders.

309.4 Operation. Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5.0 pounds (22.2 N) maximum.

~~**EXCEPTION:** Gas pump nozzles shall not be required to provide operable parts that have an activating force of 5.0 pounds (22.2 N) maximum.~~

309.5 Receptacle **outlets and switches in kitchens, kitchenettes and toilet and bathing facilities.** Receptacle outlets and switches in toilet and bathing facilities complying with Section 603 and kitchens shall be provided as specified in Sections 309.5.1 through 309.5.4. Outlets and switches in toilet and bathing facilities no complying with Section 603 and kitchenettes shall be provided as specified in Sections 309.5.3 and 309.5.4.

309.5.1 Receptacle outlets required in kitchens. In kitchens, receptacle outlets must be provided at the following locations:

1. A receptacle outlet must be provided over the accessible work surface and comply with Section 308.2.2 (forward obstructed reach range).
2. A receptacle outlet must be provided on one side of the accessible sink less than 12 inches horizontally from the inside face of the sink bowl and 44 inches maximum above the floor level. Receptacle outlets are permitted to be located over adjacent counters or cabinets that are 36 inches (915 mm) maximum.

309.5.2 Receptacle outlets required in toilet and bathing facilities. In toilet and bathing facilities complying with Section 603, an outlet shall be provided on one side of the accessible lavatory less than 12 inches horizontally from the inside face of the lavatory bowl.

309.5.3 Other receptacle outlets. In kitchens, kitchenettes and toilet and bathing facilities, receptacle outlets shall be provided in accordance with the electrical code. Where outlets are provided over counter tops 18 inches or greater in length, at least one outlet per counter length shall be located a minimum of 12 inches horizontally from a cabinet return, perpendicular wall or refrigerator. Receptacle outlets are permitted to be located over cabinets with counter tops 36 inches (915 mm) maximum in height and 25 $^{1}/_{2}$ inches (650 mm) maximum in depth.

> **Exception:** Receptacle outlets within 36 inches horizontally from an inside corner at intersecting counter top runs are not required to comply with this section.

309.5.4 Switches. In kitchens, kitchenettes, and bathing and toilet facilities switches shall comply with the following as applicable:

1. Light switches are permitted to be located over cabinets or counter tops 36 inches (915 mm) maximum in height where the reach depth is 10 inches or less.
2. Switches for lights and for control of garbage disposals are permitted to be located in the same area as the receptacle outlets in Section 309.5.1 Item 2.
3. Redundant controls for range hoods shall be provided over the accessible work surface adjacent to the range, or adjacent to cooktops provide with front approach at a location where access to controls does not require reaching across burners.

Reason: The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and publishes a Commentary on the standard and writing the commentary illuminates issues of the text and figures; and 3. ICC provides an interpretation service for the standard which results in the observation of provisions the users find most confusing.

The intent of this proposal is to pick up on the same idea for outlets and switches in public kitchens and bathrooms as what is found in the dwelling unit. Literally these areas are sent back to the general operable parts provisions in Section 309.

There is also the idea of providing the same logical exceptions for general spaces as found in dwelling units. The circuit breaker box is not included since this is currently located in areas accessed only be service personnel (which is exempted). There is an added exception for emergency equipment such as call and Knox boxes, fire hoses, hood extinguishers, etc.

Regarding the outlets and switches:

Kitchens, 804.5.2 and 1003.12.4.1 deals with appliance controls, but not the outlets or wall switches. The decision was rather than to go through an extensive exception list, the better approach would be where do we want outlets so they can be reached. There are four plans attached with examples.

The intent is to work with the electrical code, and at the same time place outlets where they would be the most accessible.

In Accessible and Type A kitchens, an outlet would be required at the work surface and immediately adjacent to the sink. The immediately adjacent is so that the electrical cord would not fall into the water and cause a safety hazard. Switches for lights over the sink and the garbage disposal are permitted in the same area.

In Accessible and Type A bathrooms, an outlet would be required adjacent to the accessible lavatory.

For all kitchens, kitchenettes and bathrooms (Accessible, Type A and Type B), an outlet would be located so that they would fall in the best reach area. In order to allow this, you do not ask for compliance with outlets over less than 18" lengths of counter or in dead corners. See the attached graphics for application.

For Accessible and Type A units, switches are permitted

1) on the side wall over a standard counter if the reach was less than 10 inches
2) next to the sink
3) over the accessible work surface

In Type B units, the switch can be over a standard counter. Since switches tend to be next to doors or the sink where it might be confined, it was decided not to ask for distance from obstructions.

Is there an interest in allowing for outlets or switches to be provided under the upper cabinets? This would typically be 54 inches high and 15-18 inches deep.

309.1 (NEW)-PAARLBERG.doc

Committee Action

Disapproved

Committee Reason: Consistent with the action to disapproved proposal 10-7-12

BALLOT COMMENTS

3-27.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Negative with comment:

Comment: There are two reasons this proposal needs to be revisited.

The exceptions for operable parts listed in dwelling units are just as relevant in other locations, so they should be located in Section 309.

Reach range for outlets over counters needs to be addressed. Current language does not allow for outlets over any standard kitchen counter heights. The height of standard appliances and cabinets force many parts of the counter to be at 36" heights unless custom and expensive options are chosen. The electrical codes set where outlets are required.

Replace the proposal as follows:

309.1 General. Operable parts required to be accessible shall comply with Section 309.

EXCEPTIONS:

1. Receptacle outlets serving a dedicated use.
2. Receptacle outlets located over counters in kitchens, other than those required by Section 309.5.
3. Receptacle outlets located over counters in kitchenettes, toilet and bathing facilities.
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 be accessible.
8. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.

309.5 Receptacle outlets in kitchens. At least one receptacle outlet shall be provided over the accessible work surface and the receptacle outlet shall comply with Section 308.2.2 (forward obstructed reach range).

Proponent Comment

3-27.2

Commenter: Kim Paarlberg, Representing ICC

Revise the proposal as follows:

Change 1 -

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 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.

Change 2 -

309.1 General. Operable parts required to be accessible shall comply with Section 309.

EXCEPTIONS:

1. Receptacle outlets serving a dedicated use.
2. Receptacle outlets located over counters in kitchens and kitchenettes, other than those required by Section 309.5.
3. Receptacle outlets located over counters in toilet and bathing facilities.
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 be accessible.
8. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.

309.5 Receptacle outlets in kitchens. At least one receptacle outlet shall be provided over the accessible work surface and the receptacle outlet shall comply with Section 309.

Change 3 –

309.1 General. Operable parts required to be accessible shall comply with Section 309.

EXCEPTION: Operable parts on equipment for emergency responders is not required to comply with Section 309.

Reason: There are three reasons this proposal needs to be revisited.

Change 1 - The exceptions for operable parts listed in dwelling units are just as relevant in other locations, so they should be located in Section 309.

Change 2 – Difference is dealing with outlets. Reach range for outlets over counters needs to be addressed. Current language does not allow for outlets over any standard kitchen counter heights. The height of standard appliances and cabinets force many parts of the counter to be at 36" heights unless custom and expensive options are chosen. The electrical codes set where outlets are required.

Change 3 – If Change 1 or 2 are accepted, this item would be an added exception. This can be stand alone. Emergency responders are not employees, so the exception in the IBC would not address this issue. Items such as knox boxes, connections on stand pipes, equipment within the fire command stations, should not have to comply with clear floor space, reach range and force. The exception located here would not exempt the provisions from the protruding object requirements in Section 307.

3-28 – 12
309.2

Proposed Change as Submitted

Proponent: Edward Steinfeld, IDEA Center, School of Architecture and Planning, University at Buffalo, State University of New York

Revise as follows:

309.2 Clear Floor Space. A clear floor space complying with Section 305, positioned for a parallel approach, shall be provided at a minimum, unless otherwise specified.

Reason: Many of the technical requirements of the ICC/ANSI A117.1 (2009) Accessible and Usable Buildings and Facilities (ICC/ANSI) designed to accommodate wheeled mobility users are based on research completed from 1974 to 1978 using a research sample that included about 60 individuals who used manual wheelchairs (Steinfeld et al., 1979).

The Center for Inclusive Design and Environmental Access (IDeA) at the University at Buffalo, SUNY recently completed an anthropometric study of 500 wheeled manual and powered mobility device users (Steinfeld, et al., 2010). Measurements of body and device size were captured in three dimensions. The functional anthropometric measurements required measuring reaching ability, grip strength and the minimum space needed for turning. It is the most extensive anthropometric study of wheeled mobility device users in the United States. Additional information about the study can be found at http://www.udeworld.com/ansi-standards-review. The proposed revisions are based on new anthropometric information that was generated from the database of anthropometric measurements developed as part of the study.

Analysis

Unlike turning spaces that are based on dynamic requirements, clear floor space represents the space required for a stationary wheeled mobility device. This area is typically depicted as a rectangular space the dimensions of which are based on measurements of occupied length and occupied breadth of wheeled mobility devices, which are defined as follows:

- Occupied length: measured as the horizontal distance between the forward-most point and the rear-most point on the wheelchair or occupant.
- Occupied width: measured as the horizontal distance between the side-most points of the wheelchair or participant on the right and left sides.

Furthermore, clear floor space dimensions for reaching are different from seating because they require a specific orientation to the target. This type of clear floor space should be used for tasks that involve reaching or grasping to adjacent design elements such as sink faucets, door handles, wall outlets, and other wall-mounted elements. Further, they can be applied to the operation of automated teller machines, information kiosks, where there is a need for allowing flexibility in use by people that are right or left hand dominant, as well as taking into account how an individual will be oriented when reaching and seek to optimize the range of reach i.e., forward vs. sideways reach. **Our data suggest that only 50% of wheeled mobility device users can reach beyond the forward most boundary of their wheeled mobility device or foot, and therefore providing accommodations for lateral reach is critical for tasks involving operable parts.**

The ICC/ANSI A117.1 (2009) Accessible and Usable Buildings and Facilities (ICC/ANSI) prescribes minimum dimensions for a 'generic' clear floor area space to accommodate wheeled mobility users, but does not take into account task demands (e.g., reaching, grasping) or any variation in how users may accomplish the task. The minimum required clear floor area prescribed is 30 inches wide by 48 inches long.

We have taken the position that the clear floor space standards should accommodate the occupied lengths and widths of at least 90% of manual and powered wheeled mobility device users. A length of 54" accommodates the occupied lengths of 95% of manual chair users, and 90th%tile values of length and width for the power chair and scooter users. A width of 32" accommodates the occupied widths of over 95% of manual wheeled mobility device users and 90% of the powered wheeled mobility device users. **We propose that tasks involving operable parts require a minimum clear floor space that is 54" wide by 32" deep. We propose clearances that**

allow for a side (parallel) approach to all operable parts at a minimum, and recommend additionally providing a forward approach for use by those who are capable of operating parts with such an approach. Such a recommendation would therefore result in a "T" shape clearance having the recommended dimensions that we propose for section 305 of the standard. We added, "unless otherwise specified," to account for the few circumstances, such as water fountains and lavatories, where a forward approach is more accommodating.

These calculations provided are based on the three-dimensional database of wheeled mobility device user dimensions developed by the IDEA Center for the Anthropometry of Wheeled Mobility Project. The analysis was summarized in the Final Project Report to the U.S. Access Board and in a memorandum entitled "Evaluation of Clear Floor Space Requirements," that was submitted to the ICC/ANSI A117 Task Force on Anthropometry of Wheeled Mobility Subcommittee on Clear Floor Space Clearances.

References (See http://www.udeworld.com/ansi-standards-review)

Paquet, V. (2012). *Evaluation of Clear Floor Space Requirements*. A memorandum submitted to the ICC/ANSI A117 Task Force on Anthropometry of Wheeled Mobility Subcommittee on Clear Floor Space Clearances.

Steinfeld, E., Paquet, V., D'Souza, C., Joseph, C, and Maisel, J. (2010). *Final Report: Anthropometry of Wheeled Mobility Project*. Washington, DC: U.S. Access Board.

Steinfeld, E. Schroeder, S. and Bishop, M. (1979). *Accessible buildings for people with walking and reaching limitations.* Washington, DC: U.S. Department of Housing and Urban Development.

309.2-STEINFELD.doc

Committee Action

Disapproved

Committee Reason: The proposal would set up a preference in the Standard for a parallel approach to any operable part. The Committee found that this would be a bad format for the Standard, requiring a review of operable parts throughout the Standard and require revision or restatement. Two examples raised is doors and elevators. The text may directly conflict with Section 305.

BALLOT COMMENTS

3-28.1

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: Conflicts with Section 305.

3-28.2

Commenter: Edward Steinfeld, Representing RESNA
Ballot: Negative with comment:

Comment: This issue was not given enough consideration during committee deliberations. The research shows that a forward reach is not feasible for a large number of wheelchair users without knee clearance. So, we should give considerable thought to how forward reach is used throughout the standard. Arguing that it is too difficult or too complicated to make the revisions is not an acceptable reason for ignoring this issue.

Proponent Comment

3-28.3

Commenter: Edward Steinfeld, Representing RESNA

Alternative Proposal

309.2 Clear Floor Space. A clear floor space complying with Section 305, positioned for a parallel approach or forward approach shall be provided. If a forward approach is the only possible approach, a toe kick space of 4 in. min. shall be provided under the target.

Reason: The reason for disapproval was not based on the merit of the proposal from a technical perspective. Rather it was based on the difficulty of tracking the changes throughout the document and potential conflicts with other criteria. Therefore, I propose an

alternative proposal that would eliminate the need for changing the format of the standard. The IDeA Center research results shows that 90% of manual wheelchair users can complete a functional reach at 48 in. with a toe kick of 4 in. But, without the toe kick, only 70% could complete that same reach task. With regard to doors, handles project out from the surface of the door and usually it is possible to at least have an angled approach. The minimum dimensions for elevators allow a side reach to the standard panel locations on the front wall or side wall.

3-29 – 12
309.3, 309.4 (New)

Proposed Change as Submitted

Proponent: Hale Zukas, representing World Institute on Disability

Revise as follows:

309.3 Height. Operable parts shall be placed within one ~~or more~~ of the reach ranges specified in Section 308

309.4 Horizontal Placement. Operable parts shall be placed 24 inches (610 mm) minimum from adjacent inside corners.

EXCEPTIONS:

1. Elevator control panels shall not be required to comply with Section 309.4.
2. In alcoves whose width is less than 48 inches, operable parts shall be located on the centerline of the alcove width.

~~**309.4**~~ **309.5 Operation**. (No change in text.)

Reason: 1. One recommendation in the IDeA study is that "Standards developers should consider requiring either side reach access to all targets within the scope of standards or limiting front reach to locations where knee clearance is provided beyond the plane on which the target is located." The purpose of this proposal is o implement this recommendation by a) requiring a side approach to almost all operable parts, and b) requiring that operable parts be located on the centerline of the associated clear floor space in order to accommodate the varying reaching abilities of as many wmd users as possible
2. The words "or more" in existing Section 309.3 are superfluous.

309.3-ZUKAS.doc

Committee Action

Disapproved

Committee Reason: The Committee found the proposal unclear. Was it intended to just apply to alcoves at doorways, or any alcove? The term 'inside corner' is unclear. The impact on toilet rooms and water closet compartments could be significant.

BALLOT COMMENTS

3-29.1

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: Limiting.

3-29.2

Commenter: Edward Steinfeld, Representing RESNA
Ballot: Negative with comment:

Comment: This issue was not given enough consideration during committee deliberations. While the proposal was probably not well crafted, the issue is a real one. The research shows that access to controls in a corner location is very problematic. We need to revisit this proposal and develop a workable solution.

3-30 – 12

309.4

Proposed Change as Submitted

Proponent: Gene Boecker, Code Consultants, Inc

Revise as follows:

309.4 Operation. Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5.0 pounds (22.2 N) maximum.

EXCEPTIONS:

1. Gas pump nozzles shall not be required to provide operable parts that have an activating force of 5.0 pounds (22.2 N) maximum.
2. Fire rated opening protectives shall have the minimum opening force allowed by the appropriate administrative authority. These forces do not apply to the force required to retract bolts or disengage other devices that hold the door or chute in a closed position.

Reason: Laundry chutes, trash chutes, and other rated openings may require a force greater than 5.0 pounds (22.2 N) maximum to remain in a closed position, especially in high rise buildings. The exception uses the same language of door opening force for fire doors in Section 404.2.8. However, because these access openings are not passage doors, they do not fall into the overview of Section 404 and require attention in another section of the standard. This Section is the appropriate location.

The last sentence is open for discussion. While access to these elements is important, it remains to be seen if the hardware is capable of the desired operation and also meet the required safety features. For example, it may be not possible to design the hardware on the trash chute to operate at 5 pounds force maximum due to the need for a tight fit when the chute is closed. If the provision is included here that requires the bolt retraction/disengagement to be subject to this force can it be achieved by the time the standard would be adopted and enforced?

309.4-BOECKER.doc

Committee Action

Disapproved

Committee Reason: The Committee found that text too broad in its application. The reason statement implies a much more limited proposal.

BALLOT COMMENTS

3-30.1

Commenter: Kim Paarlberg, Representing ICC
Ballot: Affirmative with comment:

Comment: It is not clear if this is to address level handles on doors or items other than doors. Since doors are in Chapter 4, that should be clarified for this to be revisited.

3-30.2

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: Substitute the text from 4-23 - 13 as follows for exception #2:

"2. Hardware operation by a rotational motion: 28 inch-pounds (315 N·cm) maximum."

This will set a standard for operable elements which require turning.

3-31 – 12
309.4.1 (New)

Proposed Change as Submitted

Proponent: Hope Reed, New Mexico Governor's Commission on Disability (NMGCD)

Add new text as follows:

309.4.1 Card Key Operation. Card keys shall slide horizontally.

Reason: Add new section to make hotel card keys easier to use. Accessible card keys need to slide horizontally to allow gravity to work with them and allow the card key to fall into your open hand or on your lap. The vertical card keys are far more difficult to pinch and at the same time pull up, then rotate to place it in your other hand or on your lap before you lose your grip.

309.4.1 (New)-REED.doc

Committee Action

Disapproved

Committee Reason: The proposal controls the action of the card key versus stating that the card key reader shall accommodate a horizontal slide of the card keys. The Committee also expressed concern that many readers are becoming proximity readers and requiring a specific motion may be outdated. No evidence was provided justifying that the horizontal motion is appropriate for the range of disabilities.

BALLOT COMMENTS

3-31.1

Commenter: Gene Boecker, Representing NATO
Ballot: Negative with comment:

Comment: To address the committee's concerns and the proponent's intent, consider changing the text to read:

Revise as follows:

309.4.1 Card Key Reader. Card key readers which require a card to be swiped shall be mounted such that the reader will accommodate a horizontal swipe.

3-31.2

Commenter: Barbara Huelat, Representing ASID
Ballot: Negative with comment:

Comment: Too limiting.

3-31.3

Commenter: Marsha K. Mazz, Representing Access Board
Ballot: Negative with comment:

Comment: The committee reason for disapproval reflects a belief that card readers are trending towards proximity cards. If this is the case, the committee should consider requiring these types of readers instead of card readers that require the user to insert and swipe the card. Modify and Approve the proposal as shown below. An exception for cards used in financial transactions is included because I don't believe that proximity cards are typical for ATM, fare machines, or similar self-service machines.

Revise as follows:

309.4.1 Card Key Operation. Card keys readers shall not require the user to swipe the card in any direction.

EXCEPTION: Card key readers used to conduct financial transactions shall not be required to comply with 309.4.1.
