

# International Code Council



## **ICC A117.1-2015 edition** **Proposals received** **On the 2009 edition of the** **ICC A117.1 standard**

**For August 27-31, 2012 Meeting**

**A117.1 Proposed Change Matrix:  
July 27, 2012**

<b>Proposal Number</b>	<b>Section Numbers Amended.</b>	<b>Proponent (See list of proponents)</b>	<b>Committee Action</b>
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1-2	101 (plus 39 other sections)	Roether/HTG	
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1-4	102	Steinfeld	
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1-8	105.2.1, 105.2.2, 106.2.4, 105.2.6, 105.2.8	Paarlberg	
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3-4	F303.3	Paarlberg	
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3-11	304.3.2	White	
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4-6	403.5, Figure 403.5, 403.5.1, Figure 403.5.1 (c) new, 403.5.2	Steinfeld	
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11-18	1110.2 new	Paarlberg	

# 1-1 – 12

## 101(NEW)

**Proponent:** Kimberly Paarlberg, International Code Council

**Add new text as follows:**

### **101 Title**

These technical criteria shall be known as Accessible and Usable Buildings and Facilities, hereinafter referred to as 'this standard'.

**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 standard lacks a title section found in most codes and standards. While that is not a significant problem by itself, title sections provide the vehicle by which the phrase 'this standard' which is used frequently in the standard will have meaning.

Committee Action:           AS                   AM                   D

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## 1-2 – 12

101, 404.2.6, 405.1, 502.1, 602.1, 602.4, 603.1, 605.1, 606.1, 607.1, 608.1, 609.1, 611.1, 702.1, 703.1, 704.1, 706.1, 707.1, 708.1, 803.1, 803.5, 804.1, 902.1, 902.5, 903.1, 904.1, 904.3.2, 905.1, 905.3, 1002.2, 1002.11.2, 1003.2, 1003.11.2, 1003.11.2.5, 1004.2, 1004.11.3.2, 1004.11.3.2.3, 1102.1, 1103.1, 1104.1

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

### Revise as follows:

**101 Purpose.** The technical criteria in Chapters 3 through 9, Sections 1002, 1003 and 1006 and Chapter 11 of this standard make sites, facilities, buildings and elements **accessible** to and usable by people with such physical disabilities as the inability to walk, difficulty walking, reliance on walking aids, blindness and visual impairment, deafness and hearing impairment, in coordination, reaching and manipulation disabilities, lack of stamina, difficulty interpreting and reacting to sensory information, and extremes of physical size. The intent of these sections is to allow a person with a physical disability to independently get to, enter, and use a site, facility, building, or element.

Section 1004 of this standard provides criteria for Type B units. These criteria are intended to be consistent with the intent of the criteria of the U.S. Department of Housing and Urban Development (HUD) Fair Housing **Accessibility** Guidelines. The Type B units are intended to supplement, not replace, **Accessible** units or Type A units as specified in this standard.

Section 1005 of this standard provides criteria for minimal **accessibility** features for one and two family dwelling units and townhouses which are not covered by the U.S. Department of Housing and Urban Development (HUD) Fair Housing **Accessibility** Guidelines.

This standard is intended for adoption by government agencies and by organizations setting model codes to achieve uniformity in the technical design criteria in building codes and other regulations.

**101.1 Applicability.** Sites, facilities, buildings, and elements required to be **accessible** shall comply with the applicable provisions of Chapters 3 through 9 and Chapter 11. Dwelling units and sleeping units shall comply with the applicable provisions of Chapter 10.

### 103 Compliance Alternatives

Nothing in this standard is intended to prevent the use of designs, products, or technologies as alternatives to those prescribed by this standard, provided they result in equivalent or greater **accessibility** and such equivalency is approved by the administrative authority adopting this standard.

### 106.5 Defined Terms.

**accessible:** Describes a site, building, facility, or portion thereof that complies with this standard.

### 201 General

This standard provides technical criteria for making sites, facilities, buildings, and elements **accessible**. The administrative authority shall provide scoping provisions to specify the extent to which these technical criteria apply. These scoping provisions shall address the application of this standard to: each building and occupancy type; new construction, alterations, temporary facilities, and existing buildings; specific site and building elements; and to multiple elements or spaces provided within a site or building.

### 202 Dwelling and Sleeping Units

Chapter 10 of this standard contains dwelling unit and sleeping unit criteria for **Accessible** units, Type A units, Type B units, Type C (Visitable) dwelling units and units with **accessible** communication features. The administrative authority shall specify, in separate scoping provisions, the extent to which these

technical criteria apply. These scoping provisions shall address the types and numbers of units required to comply with each set of unit criteria.

**305.6 Approach.** One full, unobstructed side of the clear floor space shall adjoin or overlap an accessible route or adjoin another clear floor space.

**307.5 Required Clear Width.** Protruding objects shall not reduce the clear width required for accessible routes.

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

**401.1 Scope.** Accessible routes required by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 4.

**402.1 General.** Accessible routes shall comply with Section 402.

**402.2 Components.** Accessible routes shall consist of one or more of the following components: Walking surfaces with a slope not steeper than 1:20, doors and doorways, ramps, curb ramps excluding the flared sides, elevators, and platform lifts. All components of an accessible route shall comply with the applicable portions of this standard.

**402.3 Revolving Doors, Revolving Gates, and Turnstiles.** Revolving doors, revolving gates, and turnstiles shall not be part of an accessible route.

**403.1 General.** Walking surfaces that are a part of an accessible route shall comply with Section 403.

**403.5 Clear Width.** The clear width of an accessible route shall be 36 inches (915 mm) minimum.

**EXCEPTION:** The clear width shall be permitted to be reduced to 32 inches (815 mm) minimum for a length of 24 inches (610 mm) maximum provided the reduced width segments are separated by segments that are 48 inches (1220 mm) minimum in length and 36 inches (915 mm) minimum in width.

**403.5.1 Clear Width at 180 Degree Turn.** Where an accessible route makes a 180 degree turn around an object that is less than 48 inches (1220 mm) in width, clear widths shall be 42 inches (1065 mm) minimum approaching the turn, 48 inches (1220 mm) minimum during the turn, and 42 inches (1065 mm) minimum leaving the turn.

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

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

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

**404.2.6 Door Hardware.** Handles, pulls, latches, locks, and other operable parts on accessible doors shall have a shape that is easy to grasp with one hand and does not require tight grasping, pinching, or twisting of the wrist to operate. Operable parts of such hardware shall be 34 inches (865 mm) minimum and 48 inches (1220 mm) maximum above the floor. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides.

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

**405.1 General.** Ramps along **accessible** routes shall comply with Section 405.

**EXCEPTION:** In assembly areas, aisle ramps adjacent to seating and not serving elements required to be on an **accessible** route shall not be required to comply with Section 405.

## **406 Curb Ramps**

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

**406.11 Islands.** Raised islands in crossings shall be a cut-through level with the street or have curb ramps at both sides. Each curb ramp shall have a level area 48 inches (1220 mm) minimum in length and 36 inches (915 mm) minimum in width at the top of the curb ramp in the part of the island intersected by the crossings. Each 48-inch (1220 mm) by 36-inch (915 mm) area shall be oriented so the 48-inch (1220 mm) length is in the direction of the running slope of the curb ramp it serves. The 48-inch (1220 mm) by 36-inch (915 mm) areas and the **accessible** route shall be permitted to overlap.

**407.2.1.7 Destination-oriented Elevator Signals.** Destination-oriented elevators shall be provided with a visible signal and audible tones and verbal announcements to indicate which car is responding to a call. The audible tone and verbal announcement shall be activated by pressing a function button. The function button shall be identified by the International Symbol for **Accessibility** and a raised indication. The International Symbol for **Accessibility**, complying with Section 703.6.3.1, shall be  $\frac{5}{8}$  inch (16 mm) in height and be a visual character complying with Section 703.2. The indication shall be three raised dots, spaced  $\frac{1}{4}$  inch (6.4 mm) at base diameter, in the form of an equilateral triangle. The function button shall be located immediately below the keypad arrangement or floor buttons.

**501.1 Scope.** General site and building elements required to be **accessible** by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 5.

**502.1 General.** **Accessible** car and van parking spaces shall comply with Section 502.

**502.4.1 Location.** Access aisles shall adjoin an **accessible** route. Two parking spaces shall be permitted to share a common access aisle. Access aisles shall not overlap with the vehicular way. Parking spaces shall be permitted to have access aisles placed on either side of the car or van parking space. Van parking spaces that are angled shall have access aisles located on the passenger side of the parking space.

**502.7 Identification.** Where **accessible** parking spaces are required to be identified by signs, the signs shall include the International Symbol of **Accessibility** complying with Section 703.6.3.1. Signs identifying van parking spaces shall contain the designation "van **accessible**." Such signs shall be 60 inches (1525 mm) minimum above the floor of the parking space, measured to the bottom of the sign.

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

**503.1 General.** **Accessible** passenger loading zones shall comply with Section 503.

**503.3.1 Location.** Access aisles shall adjoin an **accessible** route. Access aisles shall not overlap the vehicular way.

**504.1 General.** **Accessible** stairs shall comply with Section 504.

**506.1 General.** **Accessible** windows shall have operable parts complying with Section 309.

**601.1 Scope.** Plumbing elements and facilities required to be accessible by scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 6.

**602.1 General.** Accessible drinking fountains shall comply with Sections 602 and 307.

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

**603.1 General.** Accessible toilet and bathing rooms shall comply with Section 603.

**603.3 Mirrors.** Where mirrors are located above lavatories, a mirror shall be located over the accessible lavatory and shall be mounted with the bottom edge of the reflecting surface 40 inches (1015 mm) maximum above the floor. Where mirrors are located above counters that do not contain lavatories, the mirror shall be mounted with the bottom edge of the reflecting surface 40 inches (1015 mm) maximum above the floor.

**EXCEPTION:** Other than within Accessible dwelling or sleeping units, mirrors are not required over the lavatories or counters if a mirror is located within the same toilet or bathing room and mounted with the bottom edge of the reflecting surface 35 inches (890 mm) maximum above the floor.

**603.6 Operable Parts.** Operable parts on towel dispensers and hand dryers serving accessible lavatories shall comply with Table 603.6.

**604.1 General.** Accessible water closets and toilet compartments shall comply with Section 604. Compartments containing more than one plumbing fixture shall comply with Section 603. Wheelchair accessible compartments shall comply with Section 604.9. Ambulatory accessible compartments shall comply with Section 604.10.

**EXCEPTION:** Water closets and toilet compartments primarily for children's use shall be permitted to comply with Section 604.11 as applicable.

**604.2 Location.** The water closet shall be located with a wall or partition to the rear and to one side. The centerline of the water closet shall be 16 inches (405 mm) minimum and 18 inches (455 mm) maximum from the side wall or partition. Water closets located in ambulatory accessible compartments specified in Section 604.10 shall have the centerline of the water closet 17 inches (430 mm) minimum and 19 inches (485 mm) maximum from the side wall or partition.

**604.3.3 Clearance Overlap.** The required clearance around the water closet shall be permitted to overlap the water closet, associated grab bars, paper dispensers, sanitary napkin receptacles, coat hooks, shelves, accessible routes, clear floor space at other fixtures and the turning space. No other fixtures or obstructions shall be within the required water closet clearance.

**604.6 Flush Controls.** Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 309. Flush controls shall be located on the open side of the water closet.

**EXCEPTION:** In ambulatory accessible compartments complying with Section 604.10, flush controls shall be permitted to be located on either side of the water closet.

**604.9 Wheelchair Accessible Compartments.**

**604.9.1 General.** Wheelchair accessible compartments shall comply with Section 604.9.

**604.9.2.1 Minimum area.** The minimum area of a wheelchair accessible compartment shall be 60 inches (1525 mm) minimum in width measured perpendicular to the side wall, and 56 inches (1420 mm)

minimum in depth for wall hung water closets, and 59 inches (1500 mm) minimum in depth for floor mounted water closets measured perpendicular to the rear wall.

**604.9.2.2 Compartment for children's use.** The minimum area of a wheelchair **accessible** compartment primarily for children's use shall be 60 inches (1525 mm) minimum in width measured perpendicular to the side wall, and 59 inches (1500 mm) minimum in depth for wall hung and floor mounted water closets measured perpendicular to the rear wall.

**604.9.4 Approach.** Wheelchair **accessible** compartments shall be arranged for left-hand or right-hand approach to the water closet.

**604.9.5 Toe Clearance.** Toe clearance for compartments primarily for children's use shall comply with Section 604.9.5.2. Toe clearance for other wheelchair **accessible** compartments shall comply with Section 604.9.5.1.

#### **604.10 Ambulatory Accessible Compartments**

**604.10.1 General.** Ambulatory **accessible** compartments shall comply with Section 604.10.

**604.10.2 Size.** The minimum area of an ambulatory **accessible** compartment shall be 60 inches (1525 mm) minimum in depth and 36 inches (915 mm) in width.

**604.11.1 General.** **Accessible** water closets and toilet compartments primarily for children's use shall comply with Section 604.11.

**604.11.2 Location.** The water closet primarily for children's use shall be located with a wall or partition to the rear and to one side. The centerline of the water closet shall be 12 inches (305 mm) minimum and 18 inches (455 mm) maximum from the side wall or partition. Water closets located in ambulatory **accessible** toilet compartments specified in Section 604.10 shall be located as specified in Section 604.2.

**604.11.6 Flush Controls.** Flush controls primarily for children's use shall be hand operated or automatic. Hand operated flush controls shall comply with Sections 309.2 and 309.4 and shall be installed 36 inches (915 mm) maximum above the floor. Flush controls shall be located on the open side of the water closet.

**EXCEPTION:** In ambulatory **accessible** compartments complying with Section 604.10, flush controls shall be permitted to be located on either side of the water closet.

**605.1 General.** **Accessible** urinals shall comply with Section 605.

**606.1 General.** **Accessible** lavatories and sinks shall comply with Section 606.

**607.1 General.** **Accessible** bathtubs shall comply with Section 607.

**608.1 General.** **Accessible** shower compartments shall comply with Section 608.

**608.5 Hand Showers.** A hand shower with a hose 59 inches (1500 mm) minimum in length, that can be used both as a fixed shower head and as a hand shower, shall be provided. The hand shower shall have a control with a nonpositive shut-off feature. Where provided, an adjustable-height hand shower mounted on a vertical bar shall be installed so as to not obstruct the use of grab bars.

**EXCEPTION:** In other than **Accessible** units and Type A units, a fixed shower head located 48 inches (1220 mm) maximum above the shower floor shall be permitted in lieu of a hand shower.

**609.1 General.** Grab bars in **accessible** toilet or bathing facilities shall comply with Section 609.

**610.1 General.** Seats in **accessible** bathtubs and shower compartments shall comply with Section 610.

**611.1 General.** Accessible washing machines and clothes dryers shall comply with Section 611.

**701.1 Scope.** Communications elements and features required to be accessible by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 7.

**702.1 General.** Accessible audible and visible alarms and notification appliances shall be installed in accordance with NFPA 72 listed in Section 105.2.2, be powered by a commercial light and power source, be permanently connected to the wiring of the premises electric system, and be permanently installed.

**703.1 General.** Accessible signs shall comply with Section 703. Tactile signs shall contain both raised characters and braille. Where signs with both visual and raised characters are required, either one sign with both visual and raised characters, or two separate signs, one with visual, and one with raised characters, shall be provided.

**703.1.3 Pictograms.** Where pictograms are provided as designations of permanent interior rooms and spaces, the pictograms shall comply with Section 703.5 and shall have text descriptors located directly below the pictogram field and complying with Sections 703.2 and 703.3.

**EXCEPTION:** Pictograms that provide information about a room or space, such as “No Smoking”, occupant logos, and the International Symbol of Accessibility, are not required to have text descriptors.

**703.6.1 General.** Symbols of accessibility shall comply with Section 703.6.

**703.6.2 Finish and Contrast.** Symbols of accessibility and their backgrounds shall have a non-glare finish. Symbols of accessibility shall contrast with their backgrounds, with either a light symbol on a dark background or a dark symbol on a light background.

**703.6.3.1 International Symbol of Accessibility.** The International Symbol of Accessibility shall comply with Figure 703.6.3.1.

**703.9 Pedestrian Signals.** Accessible pedestrian signals shall comply with Section 4E.06-Accessible Pedestrian Signals, and Section 4E.09-Accessible Pedestrian Signal Detectors, of the Manual on Uniform Traffic Control Devices listed in Section 105.2.1.

**EXCEPTION:** Pedestrian signals are not required to comply with the requirement for choosing audible tones.

**704.1 General.** Accessible public telephones shall comply with Section 704.

**704.2 Wheelchair Accessible Telephones.** Wheelchair accessible public telephones shall comply with Section 704.2.

**EXCEPTION:** Drive up only public telephones are not required to comply with Section 704.2.

**706.1 General.** Accessible assistive listening systems in assembly areas shall comply with Section 706.

**707.1 General.** Accessible automatic teller machines and fare machines shall comply with Section 707.

**707.8 Speech Output.** Machines shall be speech enabled. Operating instructions and orientation, visible transaction prompts, user input verification, error messages, and all displayed information for full use shall be accessible to and independently usable by individuals with vision impairments. Speech shall be delivered through a mechanism that is readily available to all users including, but not limited to, an

industry standard connector or a telephone handset. Speech shall be recorded or digitized human, or synthesized.

**EXCEPTIONS:**

1. Audible tones shall be permitted in lieu of speech for visible output that is not displayed for security purposes, including but not limited to, asterisks representing personal identification numbers.
2. Advertisements and other similar information shall not be required to be audible unless they convey information that can be used in the transaction being conducted.
3. Where speech synthesis cannot be supported, dynamic alphabetic output shall not be required to be audible.

**708.1 General.** Accessible two-way communication systems shall comply with Section 708.

**801.1 Scope.** Special rooms and spaces required to be accessible by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 8.

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

**802.8.2 Identification.** Each designated aisle seat shall be identified by the International Symbol of Accessibility.

**803.1 General.** Accessible dressing, fitting, and locker rooms shall comply with Section 803.

**803.5 Coat Hooks and Shelves.** Accessible coat hooks provided within the room shall accommodate a forward reach or side reach complying with Section 308. Where provided, a shelf shall be 40 inches (1015 mm) minimum and 48 inches (1220 mm) maximum above the floor.

**804.1 General.** Accessible kitchens and kitchenettes shall comply with Section 804.

**804.3 Work Surface.** At least one work surface shall be provided in accordance with Section 902.

**EXCEPTION:** Spaces that do not provide a cooktop or conventional range shall not be required to provide an accessible work surface.

**805.2.4 Connection.** Bus stop boarding and alighting areas shall be connected to streets, sidewalks, or pedestrian paths by an accessible route complying with Section 402.

**805.3 Bus Shelters.** Bus shelters shall provide a minimum clear floor space complying with Section 305 entirely within the shelter. Bus shelters shall be connected by an accessible route complying with Section 402 to a boarding and alighting area complying with Section 805.2.

**807.2 Turning Space.** Where provided, each area that is raised or depressed shall provide a turning space complying with Section 304.

**EXCEPTION:** Levels of jury boxes not required to be accessible are not required to comply with Section 807.2.

**901.1 Scope.** Built-in furnishings and equipment required to be accessible by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 9.

**902.1 General.** Accessible dining surfaces and work surfaces shall comply with Section 902.

**EXCEPTION:** Dining surfaces and work surfaces primarily for children's use shall be permitted to comply with Section 902.5.

**902.5 Dining Surfaces and Work Surfaces for Children's Use.** Accessible dining surfaces and work surfaces primarily for children's use shall comply with Section 902.5.

**EXCEPTION:** Dining surfaces and work surfaces used primarily by children ages 5 and younger shall not be required to comply with Section 902.5 where a clear floor space complying with Section 305 is provided and is positioned for a parallel approach.

**903.1 General.** Accessible benches shall comply with Section 903.

**904.1 General.** Accessible sales and service counters and windows shall comply with Section 904 as applicable.

**EXCEPTION:** Drive up only sales or service counters and windows are not required to comply with Section 904.

**904.2 Approach.** All portions of counters required to be accessible shall be located adjacent to a walking surface complying with Section 403.

**904.3 Sales and Service Counters.** Sales and service counters shall comply with Section 904.3.1 or 904.3.2. The accessible portion of the countertop shall extend the same depth as the sales and service countertop.

**904.3.2 Forward Approach.** A portion of the counter surface 30 inches (760 mm) minimum in length and 36 inches (915 mm) maximum in height above the floor shall be provided. A clear floor space complying with Section 305, positioned for a forward approach to the accessible counter, shall be provided. Knee and toe clearance complying with Section 306 shall be provided under the accessible counter.

**905.1 General.** Accessible storage facilities shall comply with Section 905.

**905.3 Height.** Accessible storage elements shall comply with at least one of the reach ranges specified in Section 308.

**1001.1 Scoping.** Dwelling units and sleeping units required to be Accessible units, Type A units, Type B units, Type C (Visitable) units or units with accessible communication features by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 10.

**1002.1 General.** Accessible units shall comply with Section 1002.

**1002.2 Primary Entrance.** The accessible primary entrance shall be on an accessible route from public and common areas. The primary entrance shall not be to a bedroom unless it is the only entrance.

**1002.3 Accessible Route.** Accessible routes within Accessible units shall comply with Section 1002.3.

**1002.3.1 Location.** At least one accessible route shall connect all spaces and elements that are a part of the unit. Accessible routes shall coincide with or be located in the same area as a general circulation path.

**EXCEPTION:** An accessible route is not required to unfinished attics and unfinished basements that are part of the unit.

**1002.3.2 Turning Space.** All rooms served by an accessible route shall provide a turning space complying with Section 304.



## EXCEPTIONS:

1. A turning space shall not be required in toilet rooms and bathrooms that are not required to comply with Section 1002.11.2.
2. A turning space is not required within closets or pantries that are 48 inches (1220 mm) maximum in depth.

**1002.3.3 Components.** Accessible routes shall consist of one or more of the following elements: walking surfaces with a slope not steeper than 1:20, doors and doorways, ramps, elevators, and platform lifts.

**1002.4 Walking Surfaces.** Walking surfaces that are part of an accessible route shall comply with Section 403.

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

## EXCEPTIONS:

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

**1002.11.2 Accessible Toilet and Bathing Facility.** At least one toilet and bathing facility shall comply with Section 603. At least one lavatory, one water closet and either a bathtub or shower within the unit shall comply with Sections 604 through 610. The accessible toilet and bathing fixtures shall be in a single toilet/bathing area, such that travel between fixtures does not require travel through other parts of the unit.

**1002.11.2.1 Vanity Counter Top Space.** If vanity counter top space is provided in dwelling or sleeping units not required to be Accessible units within the same facility, equivalent vanity counter top space, in terms of size and proximity to the lavatory, shall also be provided in Accessible units.

**1002.11.2.2 Mirrors.** Mirrors above accessible lavatories shall have the bottom edge of the reflecting surface 40 inches (1015 mm) maximum above the floor.

**1002.12 Kitchens** and kitchenettes. Kitchens and kitchenettes shall comply with Section 804. At least one work surface, 30 inches (760 mm) minimum in length, shall comply with Section 902.

**EXCEPTION:** Spaces that do not provide a cooktop or conventional range shall not be required to provide an accessible work surface.

**1003.2 Primary Entrance.** The accessible primary entrance shall be on an accessible route from public and common areas. The primary entrance shall not be to a bedroom unless it is the only entrance.

**1003.3 Accessible Route.** Accessible routes within Type A units shall comply with Section 1003.3.

**1003.3.1 Location.** At least one **accessible** route shall connect all spaces and elements that are a part of the unit. **Accessible** routes shall coincide with or be located in the same area as a general circulation path.

**EXCEPTION:** An **accessible** route is not required to unfinished attics and unfinished basements that are part of the unit.

**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.

**1003.3.3 Components.** **Accessible** routes shall consist of one or more of the following elements: walking surfaces with a slope not steeper than 1:20, doors and doorways, ramps, elevators, and platform lifts.

**1003.4 Walking Surfaces.** Walking surfaces that are part of an **accessible** route shall comply with Section 403.

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

**EXCEPTIONS:**

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

**1003.11.1 Grab Bar and Shower Seat Reinforcement.** Reinforcement shall be provided for the future installation of grab bars complying with Section 604.5 at water closets; grab bars complying with Section 607.4 at bathtubs; and for grab bars and shower seats complying with Sections 608.3, 608.2.1.3, 608.2.2.3 and 608.2.3.2 at shower compartments.

**EXCEPTIONS:**

1. At fixtures not required to comply with Section 1003.11.2, reinforcement in accordance with Section 1004.11.1 shall be permitted.
2. Reinforcement is not required in a room containing only a lavatory and a water closet, provided the room does not contain the only lavatory or water closet on the **accessible** level of the dwelling unit.
3. Reinforcement for the water closet side wall vertical grab bar component required by Section 604.5 is not required.
4. Where the lavatory overlaps the water closet clearance in accordance with the exception to Section 1003.11.2.4.4 reinforcement at the water closet rear wall for a 24-inch (610 mm)

minimum length grab bar, centered on the water closet, shall be provided.

**1003.11.2 General.** At least one toilet and bathing facility shall comply with Section 1003.11.2. At least one lavatory, one water closet and either a bathtub or shower within the unit shall comply with Section 1003.11.2. The accessible toilet and bathing fixtures shall be in a single toilet/bathing area, such that travel between fixtures does not require travel through other parts of the unit.

**1003.11.2.3 Mirrors.** Mirrors above accessible lavatories shall have the bottom edge of the reflecting surface 40 inches (1015 mm) maximum above the floor.

**1003.11.2.4 Clearance Overlap.** The required clearance around the water closet shall be permitted to overlap the water closet, associated grab bars, paper dispensers, coat hooks, shelves, accessible routes, clear floor space required at other fixtures, and the wheelchair turning space. No other fixtures or obstructions shall be located within the required water closet clearance.

**EXCEPTION:** A lavatory measuring 24 inches (610 mm) maximum in depth and complying with Section 1003.11.2.2 shall be permitted on the rear wall 18 inches (455 mm) minimum from the centerline of the water closet to the side edge of the lavatory where the clearance at the water closet is 66 inches (1675 mm) minimum measured perpendicular from the rear wall.

**1003.11.2.5 Bathing Fixtures.** The accessible bathing fixture shall be a bathtub complying with Section 1003.11.2.5.1 or a shower compartment complying with Section 1003.11.2.5.2.

**1004.1 General.** Type B units shall comply with Section 1004.

**1004.2 Primary Entrance.** The accessible primary entrance shall be on an accessible route from public and common areas. The primary entrance shall not be to a bedroom unless it is the only entrance.

**1004.3 Accessible Route.** Accessible routes within Type B units shall comply with Section 1004.3.

**1004.3.1 Location.** At least one accessible route shall connect all spaces and elements that are a part of the unit. Accessible routes shall coincide with or be located in the same area as a general circulation path.

**EXCEPTIONS:**

1. An accessible route is not required to unfinished attics and unfinished basements that are part of the unit.
2. One of the following is not required to be on an accessible route:
  - 2.1 A raised floor area in a portion of a living, dining, or sleeping room; or
  - 2.2 A sunken floor area in a portion of a living, dining, or sleeping room; or
  - 2.3 A mezzanine that does not have plumbing fixtures or an enclosed habitable space.

**1004.3.2 Components.** Accessible routes shall consist of one or more of the following elements: walking surfaces with a slope not steeper than 1:20, doors and doorways, ramps, elevators, and platform lifts.

**1004.4 Walking Surfaces.** Walking surfaces that are part of an accessible route shall comply with Section 1004.4.

**1004.4.1 Clear Width.** Clear width of an accessible route shall comply with Section 403.5.

**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.

**EXCEPTIONS:**

1. Receptacle outlets serving a dedicated use.
2. Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with Section 309.
3. Floor receptacle outlets.
4. HVAC diffusers.
5. Controls mounted on ceiling fans.
6. Controls or switches mounted on appliances.
7. Plumbing fixture controls. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
8. 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**.
9. Within kitchens and bathrooms, lighting controls, electrical switches and 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.

**1004.11 Toilet and Bathing Facilities.** Toilet and bathing fixtures shall comply with Section 1004.11.

**EXCEPTION:** Fixtures on levels not required to be **accessible**.

**1004.11.1 Grab Bar and Shower Seat Reinforcement.** Reinforcement shall be provided for the future installation of grab bars and shower seats at water closets, bathtubs, and shower compartments. Where walls are located to permit the installation of grab bars and seats complying with Section 604.5 at water closets; grab bars complying with Section 607.4 at bathtubs; and for grab bars and shower seats complying with Sections, 608.3, 608.2.1.3, 608.2.2.3 and 608.2.3.2 at shower compartments; reinforcement shall be provided for the future installation of grab bars and seats complying with those requirements.

**EXCEPTIONS:**

1. In a room containing only a lavatory and a water closet, reinforcement is not required provided the room does not contain the only lavatory or water closet on the **accessible** level of the unit.
2. At water closets reinforcement for the side wall vertical grab bar component required by Section 604.5 is not required.
3. At water closets where wall space will not permit a grab bar complying with Section 604.5.2, reinforcement for a rear wall grab bar 24 inches (610 mm) minimum in length centered on the water closet shall be provided.
4. At water closets where a side wall is not available for a 42-inch (1065 mm) grab bar complying with Section 604.5.1, reinforcement for a sidewall grab bar, 24 inches (610 mm) minimum in length, located 12 inches (305 mm) maximum from the rear wall, shall be provided.
5. At water closets where a side wall is not available for a 42-inch (1065 mm) grab bar complying with Section 604.5.1 reinforcement for a swing-up grab bar complying with Section 1004.11.1.1 shall be permitted.
6. At water closets where a side wall is not available for a 42-inch (1065 mm) grab bar complying with Section 604.5.1 reinforcement for two swing-up grab bars complying with Section 1004.11.1.1 shall be permitted to be installed in lieu of reinforcement for rear wall and side wall grab bars.
7. In shower compartments larger than 36 inches (915 mm) in width and 36 inches (915 mm) in depth reinforcement for a shower seat is not required
- 8.

**1004.11.3.1 Option A.** Each fixture provided shall comply with Section 1004.11.3.1.

**EXCEPTIONS:**

1. Where multiple lavatories are provided in a single toilet and bathing area such that travel between fixtures does not require travel through other parts of the unit, not more than one lavatory is required to comply with Section 1004.11.3.1.
2. A lavatory and a water closet in a room containing only a lavatory and water closet, provided the room does not contain the only lavatory or water closet on the **accessible** level of the unit.

**1004.11.3.2 Option B.** One of each type of fixture provided shall comply with Section 1004.11.3.2. The **accessible** fixtures shall be in a single toilet/ bathing area, such that travel between fixtures does not require travel through other parts of the unit.

**1004.11.3.2.3 Bathing Fixtures.** The **accessible** bathing fixture shall be a bathtub complying with Section 1004.11.3.2.3.1 or a shower compartment complying with Section 1004.11.3.2.3.2.

**1006.1 General.** Units required to have **accessible** communication features shall comply with Section 1006.

**1006.7 Closed-Circuit Communication Systems.** Where a closed-circuit communication system is provided, the public or common-use system interface shall comply with Section 1006.6.1, and the unit system interface in units required to have **accessible** communication features shall comply with Section 1006.6.2.

**1101.1 Scope.** Recreational facilities required to be **accessible** by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 11.

**1101.2 .1 General Exceptions.** The following shall not be required to be **accessible** or to be on an **accessible** route:

1. Raised structures used solely for refereeing, judging, or scoring a sport.
2. Water Slides.
3. Animal containment areas that are not for public use.
4. Raised boxing or wrestling rings.
5. Raised diving boards and diving platforms.
6. Bowling lanes that are not required to provide wheelchair spaces.
7. Mobile or portable amusement rides
8. Amusement rides that are controlled or operated by the rider.
9. Amusement rides designed primarily for children, where children are assisted on and off the ride by an adult.
10. Amusement rides that do not provide amusement ride seats.

**1101.2.2 Area of Sport Activity.** Areas of sport activity shall be served by an **accessible** route and shall not be required to be **accessible** except as provided in Chapter 11.

**1101.3 Protruding Objects.** Protruding objects on circulation paths shall comply with Section 307.

**EXCEPTIONS:**

1. Within areas of sport activity, protruding objects on circulation paths shall not be required to comply with Section 307.
2. Within play areas, protruding objects on circulation paths shall not be required to comply with Section 307 provided that ground level **accessible** routes provide vertical clearance complying with Section 1108.2.

**1102.1 General.** **Accessible** amusement rides shall comply with Section 1102.

**1102.2 Accessible Routes.** **Accessible** routes serving amusement rides shall comply with Chapter 4.

**EXCEPTIONS:**

1. In load or unload areas and on amusement rides, where complying with Section 405.2 is not structurally or operationally feasible, ramp slope shall be permitted to be 1:8 maximum.
2. In load or unload areas and on amusement rides, handrails provided along walking surfaces complying with Section 403 and required on ramps complying with Section 405 shall not be required to comply with Section 505 where complying is not structurally or operationally feasible.

**1102.4.6 Approach.** One side of the wheelchair space shall adjoin an **accessible** route when in the load and unload position.

**1102.5.4 Wheelchair Storage Space.** Wheelchair storage spaces complying with Section 305 shall be provided in or adjacent to unload areas for each required amusement ride seat designed for transfer and shall not overlap any required means of egress or **accessible** route.

**1102.6.3 Wheelchair Storage Space.** Wheelchair storage spaces complying with Section 305 shall be provided in or adjacent to unload areas for each required transfer device and shall not overlap any required means of egress or **accessible** route.

**1103.1 General.** **Accessible** recreational boating facilities shall comply with Section 1103.

**1103.2 Accessible Routes.** **Accessible** routes serving recreational boating facilities, including gangways and floating piers, shall comply with Chapter 4 except as modified by the exceptions in Section 1103.2.

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

**EXCEPTIONS:**

1. Where an existing gangway or series of gangways is replaced or altered, an increase in the length of the gangway shall not be required to comply with Section 1103.2.
2. Gangways shall not be required to comply with the maximum rise specified in Section 405.6.
3. Where the total length of a gangway or series of gangways serving as part of a required **accessible** route is 80 feet (24 m) minimum, gangways shall not be required to comply with Section 405.2.
4. Where facilities contain fewer than 25 boat slips and the total length of the gangway or series of gangways serving as part of a required **accessible** route is 30 feet (9145 mm) minimum, gangways shall not be required to comply with Section 405.2.
5. Where gangways connect to transition plates, landings specified by Section 405.7 shall not be required.
6. Where gangways and transition plates connect and are required to have handrails, handrail extensions shall not be required. Where handrail extensions are provided on gangways or transition plates, the handrail extensions shall not be required to be parallel with the floor.
7. The cross slope specified in Sections 403.3 and 405.3 for gangways, transition plates, and floating piers that are part of **accessible** routes shall be measured in the static position.
8. Changes in level complying with Sections 303.3 and 303.4 shall be permitted on the surfaces of gangways and boat launch ramps.
9. Cleats and other boat securement devices shall not be required to comply with Section 309.3.

**1103.2.2 Boarding Piers at Boat Launch Ramps.** An **accessible** route shall serve boarding piers.

**EXCEPTIONS:**

1. **Accessible** routes serving floating boarding piers shall be permitted to use Exceptions 1, 2, 5, 6, 7 and 8 in Section 1103.2.1.

2. Where the total length of the gangway or series of gangways serving as part of a required **accessible** route is 30 feet (9145 mm) minimum, gangways shall not be required to comply with Section 405.2.
3. Where the **accessible** route serving a floating boarding pier or skid pier is located within a boat launch ramp, the portion of the **accessible** route located within the boat launch ramp shall not be required to comply with Section 405.

**1104.1 Clear Floor Space.** **Accessible** exercise machines and equipment shall have a clear floor space complying with Section 305 positioned for transfer or for use by an individual seated in a wheelchair. Clear floor spaces required at exercise machines and equipment shall be permitted to overlap.

**1105.1 Accessible Routes.** **Accessible** routes serving fishing piers and platforms, including gangways and floating piers, shall comply with Chapter 4.

**EXCEPTIONS:**

1. **Accessible** routes serving floating fishing piers and platforms shall be permitted to use Exceptions 1, 2, 5, 6, 7 and 8 in Section 1103.2.1.
2. Where the total length of the gangway or series of gangways serving as part of a required **accessible** route is 30 feet (9145 mm) minimum, gangways shall not be required to comply with Section 405.2.

**1106.1 General.** Golf facilities shall comply with Section 1106.

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

**EXCEPTION:** Handrails shall not be required on golf courses. Where handrails are provided on golf courses, the handrails shall not be required to comply with Section 505.

**1107.2 Accessible Routes.** **Accessible** routes serving holes on miniature golf courses shall comply with Chapter 4.

**EXCEPTION:** **Accessible** routes located on playing surfaces of miniature golf holes shall be permitted to comply with the following:

1. Playing surfaces shall not be required to comply with Section 302.2.
2. Where **accessible** routes intersect playing surfaces of holes, a curb that is 1 inch (25 mm) maximum in height and 32 inches (815 mm) minimum in width shall be permitted.
3. A slope of 1:4 maximum shall be permitted for a rise of 4 inches (100 mm) maximum.
4. Ramp landing slopes specified by Section 405.7.1 shall be permitted to be 1:20 maximum.
5. Ramp landing length specified by Section 405.7.3 shall be permitted to be 48 inches (1220 mm) minimum.
6. Ramp landing size at a change in direction specified by Section 405.7.4 shall be permitted to be 48 inches (1220 mm) minimum by 60 inches (1525 mm) minimum.
7. Handrails shall not be required on holes. Where handrails are provided on holes, the handrails shall not be required to comply with Section 505.

**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 inches (1220 mm) minimum in length having a running slope not steeper than 1:20. The clear floor space shall be served by an **accessible** route.

**1108.1 Scope.** Play areas shall comply with 1108.

**1108.2 Accessible Routes for Play Areas.** Play areas shall provide **accessible** routes in accordance with Section 1108.2. **Accessible** routes serving play areas shall comply with Chapter 4 except as modified by Section 1108.4.

**1108.2.1 Ground Level and Elevated Play Components.** At least one **accessible** route shall be provided within the play area. The **accessible** route shall connect ground level play components required to comply with Section 1108.3.2.1 and elevated play components required to comply with Section 1108.3.2.2, including entry and exit points of the play components.

**1108.2.2 Soft Contained Play Structures.** Where three or fewer entry points are provided for soft contained play structures, at least one entry point shall be on an **accessible** route. Where four or more entry points are provided for soft contained play structures, at least two entry points shall be on an **accessible** route.

**1108.3.2.1.1 Minimum Number and Types.** Where ground level play components are provided, at least one of each type shall be on an **accessible** route and shall comply with Section 1108.4.3.

**1108.3.2.2 Elevated Play Components.** Where elevated play components are provided, at least 50 percent shall be on an **accessible** route and shall comply with Section 1108.4.3.

**1108.4 Accessible Routes Within Play areas.** Play areas shall comply with Section 1108.4.

**1108.4.1 Accessible Routes.** **Accessible** routes serving play areas shall comply with Chapter 4 and Section 1108.4.1 and shall be permitted to use the exceptions in Sections 1108.4.1.1 through 1108.4.1.3. Where **accessible** routes serve ground level play components, the vertical clearance shall be 80 inches (2030 mm) minimum in height.

**1108.4.1.1 Ground Level and Elevated Play Components.** **Accessible** routes serving ground level play components and elevated play components shall be permitted to use the exceptions in Section 1108.4.1.1.

**EXCEPTIONS:**

1. Transfer systems complying with Section 1108.4.2 shall be permitted to connect elevated play components except where 20 or more elevated play components are provided no more than 25 percent of the elevated play components shall be permitted to be connected by transfer systems.
2. Where transfer systems are provided, an elevated play component shall be permitted to connect to another elevated play component as part of an **accessible** route.

**1108.4.1.2 Soft Contained Play Structures.** **Accessible** routes serving soft contained play structures shall be permitted to use the exception in Section 1108.4.1.2.

**EXCEPTION:** Transfer systems complying with Section 1108.4.2 shall be permitted to be used as part of an **accessible** route.

**1108.4.1.3 Water Play Components.** **Accessible** routes serving water play components shall be permitted to use the exceptions in Section 1108.4.1.3.

**EXCEPTIONS:**

1. Where the surface of the **accessible** route, clear floor spaces, or turning spaces serving water play components is submerged, complying with Sections 302, 403.3, 405.2, 405.3, and 1108.4.1.6 shall not be required.



2. Transfer systems complying with Section 1108.4.2 shall be permitted to connect elevated play components in water.

**1108.4.1.4 Clear Width.** Accessible routes connecting play components shall provide a clear width complying with Section 1108.4.1.4.

**1108.4.1.4.1 Ground Level.** At ground level, the clear width of accessible routes shall be 60 inches (1525 mm) minimum.

**EXCEPTIONS:**

1. In play areas less than 1000 square feet (93 m<sup>2</sup>), the clear width of accessible routes shall be permitted to be 44 inches (1120 mm) minimum, if at least one turning space complying with Section 304.3 is provided where the restricted accessible route exceeds 30 feet (9145 mm) in length.
2. The clear width of accessible routes shall be permitted to be 36 inches (915 mm) minimum for a distance of 60 inches (1525 mm) maximum provided that multiple reduced width segments are separated by segments that are 60 inches (1525 mm) minimum in width and 60 inches (1525 mm) minimum in length.

**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 inches (1220 mm) minimum in length and 36 inches (915 mm) minimum in width.
2. The clear width of transfer systems connecting elevated play components shall be permitted to be 24 inches (610 mm) minimum.

Table 1108.3.2.1.2 Number and Types of Ground Level Play Components Required to be on Accessible Routes

**1108.4.1.6 Ground Surfaces.** Ground surfaces on accessible routes, clear floor spaces, and turning spaces shall comply with Section 1108.4.1.6.

**1108.4.2.2 Transfer Steps.** Transfer steps shall be provided where movement is intended from transfer platforms to levels with elevated play components required to be on accessible routes. Transfer steps shall comply with Section 1108.4.2.2.

**1108.4.3 Play Components.** Ground level play components on accessible routes and elevated play components connected by ramps shall comply with Section 1108.4.3.

**1109.1 General.** Swimming pools, wading pools, hot tubs and spas shall comply with Section 1109.

**1109.1.1 Swimming pools.** At least two accessible means of entry shall be provided for swimming pools. Accessible means of entry shall be swimming pool lifts complying with Section 1109.2; sloped entries complying with Section 1109.3; transfer walls complying with Section 1109.4, transfer systems complying with Section 1109.5; and pool stairs complying with Section 1109.6. At least one accessible means of entry provided shall comply with Section 1109.2 or 1109.3.

**EXCEPTIONS:**

1. Where a swimming pool has less than 300 linear feet (91 m) of swimming pool wall, no more than one **accessible** means of entry shall be required.
2. Wave action pools, leisure rivers, sand bottom pools, and other pools where user access is limited to one area shall not be required to provide more than one **accessible** means of entry provided that the **accessible** means of entry is a swimming pool lift complying with Section 1109.2, a sloped entry complying with Section 1109.3, or a transfer system complying with Section 1109.5.
3. Catch pools shall not be required to provide an **accessible** means of entry provided that the catch pool edge is on an **accessible** route.

**1109.1.3 Hot tubs and Spas.** At least one **accessible** means of entry shall be provided for hot tubs and spas. **Accessible** means of entry shall comply with swimming pool lifts complying with Section 1109.2; transfer walls complying with Section 1109.4; or transfer systems complying with Section 1109.5.

**EXCEPTION:** Where hot tubs or spas are provided in a cluster, no more than 5 percent, but not less than one hot tub or spa in each cluster shall be required to comply with Section 1109.1.3.

**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 text listed includes everywhere accessible is used in the A117.1.

If the intent is to be consistent in the use of 'accessible', there does not seem to be any way around using

- Accessible route
- Accessible parking spaces
- Accessible means of entry (pools)
- Accessible unit
- Using 'accessible' when tying a requirement to a specific item – such as putting the accessible mirror over the accessible lavatory

We would be relying on the text at the beginning of each chapter for the requirements to be just for the 'accessible elements' rather than all elements. Example:

**401 General**

**401.1 Scope.** **Accessible** routes required by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 4.

If we are agreeing that this idea would be totally understood, then the exception in 405.1 is not needed. This is just one example of how not using 'accessible' as a limit can be misinterpreted.

**405 Ramps**

**405.1 General.** Ramps along **accessible** routes shall comply with Section 405.

**EXCEPTION:** ~~In assembly areas, aisle ramps adjacent to seating and not serving elements required to be on an **accessible** route shall not be required to comply with Section 405.~~

Committee Action:            AS                    AM                    D

# 1-3 – 12

## 102

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

**Revise as follows:**

**102 Anthropometric Provisions.** The technical criteria in this standard are based on adult dimensions and anthropometrics. This standard also contains technical criteria based on children's dimensions and anthropometrics for reach ranges, handrails, drinking fountains, water closets, toilet compartments, lavatories and sinks, dining surfaces, work surfaces and benches.

**Reason:** This is the companion update to 308.1 children's reach ranges, 505.4 children's handrails.

Committee Action:           AS                   AM                   D

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102-REED.doc

# 1-4 – 12

## 102

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

**Revise as follows:**

**102 ~~Anthropometric Provisions~~ Provisions and Considerations.** The technical criteria in this standard are based on a variety of important design technology and design considerations. These include such things as technological and economic feasibility. It is also based in part on the physical body sizes and functional abilities of adults and children so to accommodate the largest range of people possible given the current technological and economic constraints. ~~adult dimensions and anthropometrics. This standard also contains technical criteria based on children's dimensions and anthropometrics for drinking fountains, water closets, toilet compartments, lavatories and sinks, dining surfaces, work surfaces and benches.~~

**Reason:** The language above acknowledges the fact that the standard is based on a variety of issues that impact recommended architecture as opposed to only anthropometric considerations. As worded, the current standard is redundant (e.g., "...adult dimensions and anthropometrics..." while anthropometry does include both the measurement and analysis of physical and functional body dimensions). The new language is more accurate.

Committee Action:           AS                   AM                   D

102-STEINFELD.doc

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# 1-5 – 12

## 104.2

**Proponent:** Kimberly Paarlberg, International Code Council

**Delete and substitute as follows:**

~~**104.2 Dimensions.** Dimensions that are not stated as “maximum” or “minimum” are absolute. All dimensions are subject to conventional industry tolerances.~~

**104.2 Dimension tolerances.** All dimensions are subject to conventional industry tolerances except where the requirement is stated as a range with specific minimum and maximum end points.

**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.

Many people find the existing language confusing. Is 34” maximum absolute? Or is 16” to 18” absolute? Are the absolute dimensions (ranges) also subject to industry tolerances? The proposed language is very similar to ADA.

Committee Action:           AS                   AM                   D

104.2 #1-PAARLBERG.doc

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# 1-6 – 12

## 104.2

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**104.2 Dimensions.** Dimensions that are not stated as “maximum” or “minimum” are absolute. All dimensions are subject to conventional industry tolerances except where the requirement is stated as a range with specific minimum and maximum end points.

**Reason:** The Department of Justice’s 2010 ADA Standards do not allow a tolerance where a range is stated. As originally written, it can be argued that even where a range is stated, conventional industry tolerances apply.

The 2010 ADA Standards state:

**104.2 Dimensions.** Dimensions that are not stated as “maximum” or “minimum” are absolute. All dimensions are subject to conventional industry tolerances.

Committee Action:           AS                   AM                   D

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104.2-WAI.doc

## 1-7 – 12

### 104.2 (New)

**Proponent:** Kimberly Paarlberg, International Code Council

**Add new text as follows:**

**104.2 Calculation of Percentages.** Where the required number of *elements* or *facilities* to be provided is determined by calculations of ratios or percentages and remainders or fractions result, the next greater whole number of such *elements* or *facilities* shall be provided. Where the determination of the required size or dimension of an *element* or *facility* involves ratios or percentages, rounding down for values less than one half shall be permitted.

**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.

Scoping provisions typically require you to always round up, however, this idea of addressing rounding is in the ADA.

Committee Action:           AS                   AM                   D

104.2 #2-PAARLBERG.doc

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## 1-8 – 12

### 105.2.1, 105.2.2, 105.2.4, 105.2.6, 105.2.8

**Proponent:** Kimberly Paarlberg, International Code Council

**Revise as follows:**

**105.2.1 Manual on Uniform Traffic Control Devices:** MUTCD-~~2003~~ 2009 (The Federal Highway Administration, Office of Transportation Operations, Room 3408, 400 7th Street, S.W., Washington, DC 20590).

**105.2.2 National Fire Alarm Code:** NFPA 72-~~2007~~ 2010 (National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269-9101).

**105.2.4 Power Operated Pedestrian Doors:** ANSI/ BHMA A156.10-~~2005~~ 2011(Builders Hardware Manufacturers' Association, 355 Lexington Avenue, 15th Floor, New York, NY 10017).

**105.2.6 Safety Standard for Platform Lifts and Stairway Chairlifts:** ASME A18.1-~~2005~~ 2008(American Society of Mechanical Engineers International, Three Park Avenue, New York, NY 10016-5990).

~~**105.2.8 Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment** ASTM F 1292-99. (ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959).~~

**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 latest versions of standard should be referenced unless there is a specific reason not to update. There should not be earlier editions of a standard referenced. Section 105.2.8 lists an earlier edition of a standard also listed in Section 105.2.9.

The revisions shown above are based the current editions of these standards listed in the 2012 *International Building Code*. Staff will determine for the August 2012 Committee meeting if other standards listed in Section 105.2 have more current editions

Committee Action:           AS                   AM                   D

105.2-PAARLBERG.doc



# 1-9 – 12

## 105.2.5

**Proponent:** Brian Black, BDBlack & Associates, representing National Elevator Industry Inc.

**Revise as follows:**

**105.2.5 Safety Code for Elevators and Escalators:** ASME A17.1- ~~2007~~ 2013/CSA B44-~~07~~ 13  
(American Society of Mechanical Engineers International, Three Park Avenue, New York, NY 10016-5990)

**Reason:** This change updates the reference standard to the edition that will be published by the time the next A17.1 is published. A significant benefit to persons with disabilities will be the inclusion of new **Occupant Evacuation Operation** rules in the 2013 edition. These rules specify how elevators will operate during fire conditions to allow persons to use the elevators to evacuate the building.

Committee Action:           AS                   AM                   D

105.2.5-BLACK.doc

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# 1-10 – 12

## 106.5

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

**Revise or add the following definitions:**

### 106.5 Defined terms

**assembly area.** A building or facility, or portion thereof, used for the purpose of entertainment, worship, educational or civic gatherings, or similar purposes. For the purposes of these requirements, assembly areas include, but are not limited to, classrooms, lecture halls, courtrooms, public meeting rooms, public hearing rooms, legislative chambers, motion picture houses, auditoria, theaters, playhouses, dinner theaters, concert halls, centers for the performing arts, amphitheaters, arenas, stadiums, grandstands, or convention centers.

**assistive listening system (ALS).** An amplification system utilizing transmitters, receivers, and coupling devices to bypass the acoustical space between a sound source and a listener by means of induction loop, radio frequency, infrared, or direct-wired equipment.

**space.** A definable area, such as a room, toilet room, hall, assembly area, entrance, storage room, alcove, courtyard, or lobby.

**transition plate.** A sloping pedestrian walking surface located at the end(s) of a gangway.

**vehicular way.** A route provided for vehicular traffic, such as in a street, driveway, or parking facility.

**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.

**Definitions:** These definitions are contained in the 2010 ADA but are not in the A117.1, or not in the way. The terms are used and the definitions will assist the users.

Committee Action:      AS                      AM                      D

106.5-ROETHER.doc

## 3-1 – 12

### 301.3 (New)

**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.

Committee Action:           AS                   AM                   D

301.3 (New)-REED.doc

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## 3-2 – 12

### 302.1, 303.1

**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.

Committee Action:      AS                      AM                      D

302.1-ROETHER.doc

## 3-3 – 12

### 302.1

**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.

Committee Action:                    AS                    AM                    D

302.1-KENDZIOR.doc

## 3-4 – 12

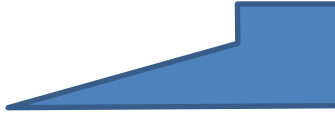
### F303.3

**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  $\frac{1}{4}$  inch can be beveled and that the  $\frac{1}{4}$  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  $\frac{1}{4}$  inch and the  $\frac{1}{4}$  inch vertical portion located in the upper portion of the  $\frac{1}{2}$  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  $\frac{1}{4}$  inch in height and not more than  $\frac{1}{2}$  inch maximum in height shall be beveled. Unfortunately that language is sometimes being interpreted to limit the  $\frac{1}{4}$  inch vertical change to being the bottom or first change and not allowing the vertical change to occur between the height of  $\frac{1}{4}$  and  $\frac{1}{2}$  inches from the floor.

Providing this new configuration will show that the  $\frac{1}{4}$  inch vertical is permitted at any point in the  $\frac{1}{2}$  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  $\frac{1}{4}$  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  $\frac{1}{2}$  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  $\frac{1}{2}$  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.

Committee Action:                    AS                    AM                    D

303.3(Figure)-PAARLBERG.doc

## **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,**

**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 <sup>1</sup>/<sub>2</sub> 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 <sup>3</sup>/<sub>4</sub> 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 <sup>1</sup>/<sub>4</sub> 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.

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304.1 Roether .docx

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## 3-6 – 12

### 304.3.1

**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.

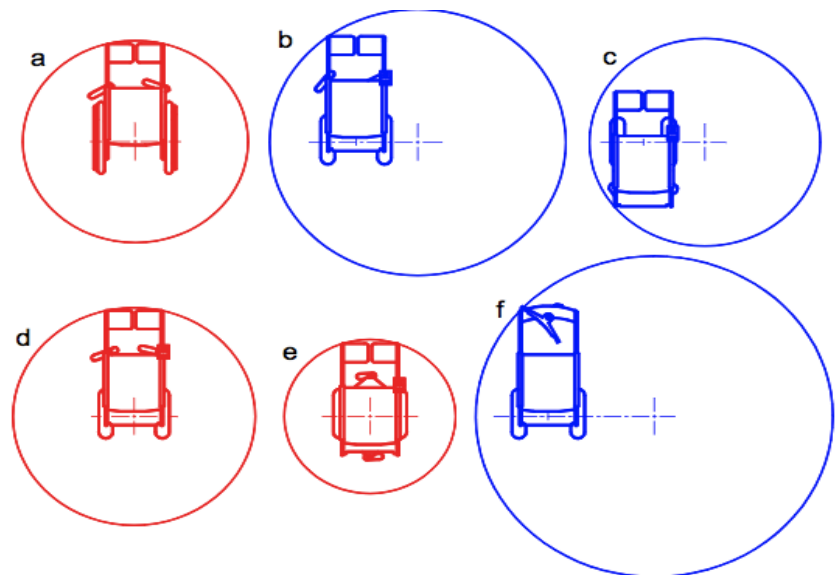
**Discussion:**

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 through 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)**

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304.3.1-HILBERRY.doc

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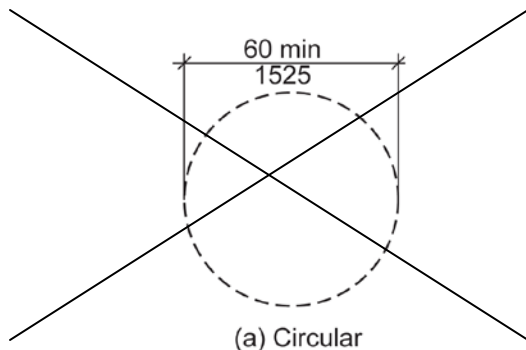
## 3-7 – 12

### 304.3.1, Figure 304.3(a)

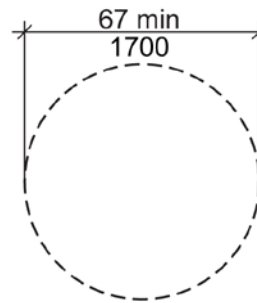
**Proponent:** Edward Steinfeld, IDEA Center, School of Architecture and Planning, University at Buffalo, State University of New York

**Revise as follows:**

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



(a) Circular  
**Figure 304.3(a)**  
**SIZE OF TURNING SPACE**



(a) Circular  
**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.

Committee Action:           AS                   AM                   D

304.3.1-STEINFELD.doc

## 3-8 – 12

### 304.3.1

**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.'

Committee Action:           AS                   AM                   D

304.3.1-PAARLBERG.doc

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## 3-9 – 12

### 304.3.2

**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 through 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:            AS                            AM                            D

304.3.2-HILBERRY.doc

## 3-10 – 12

### 304.3.2, 1003.3.2

**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 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..

Committee Action:           AS                   AM                   D

304.3.2 ANDERSEN.doc

## 3-11 – 12

### 304.3.2

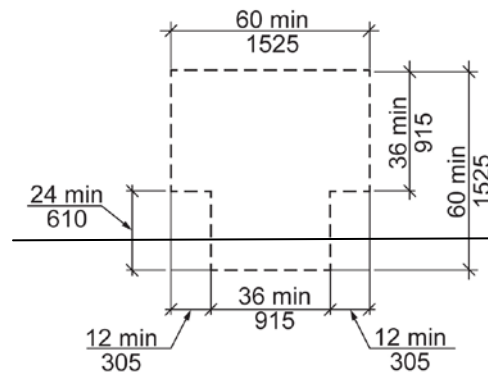
**Proponent:** Jonathan White, representing himself

**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:

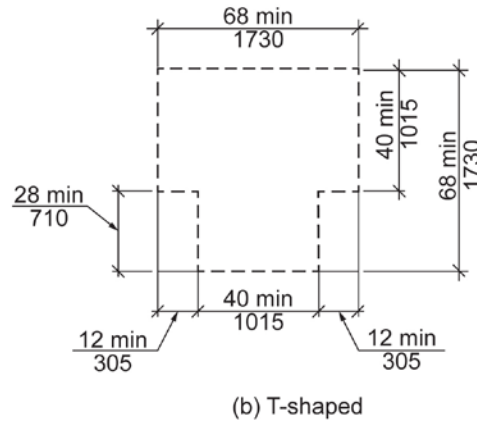
1. Where the arms of the T-shaped space are 42 inches (1065 mm) minimum in width, the base of the T shall be permitted to be 38 inches (965 mm) minimum in width, with the arms of the T clear of obstructions 15 inches (380 mm) minimum in each direction.
2. Where the arms of the T-shaped space are 44 inches (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.

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304.3.2-WHITE.doc

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## 3-12 – 12

### 304.4

**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.

Committee Action:           AS                   AM                   D

304.4-PAARLBERG.doc

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## 3-13 – 12

### 305.3, 305.7.2

**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 minima. 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.

Committee Action:                   AS                   AM                   D

305.3-HILBERRY.doc

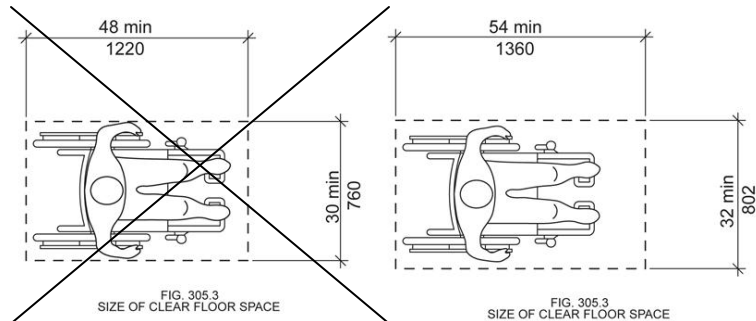
## 3-14 – 12

### 305.3, Figure 305.3, 305.7.1, 305.7.2

**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.



**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.

Committee Action:           AS                   AM                   D

305.3-STEINFELD.doc

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## 3-15 – 12

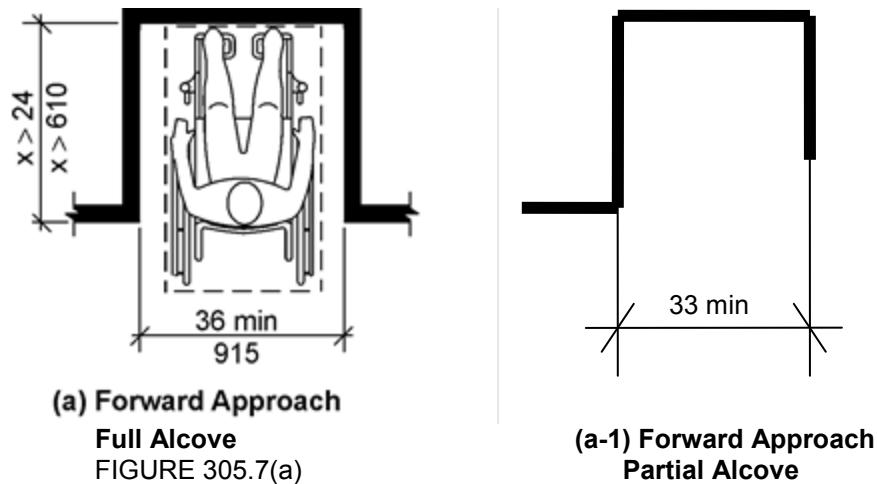
### 305.7.2, Figure 305.7(a)

**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.**



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

Committee Action: AS AM D

305.7.2-FALSTAD.doc

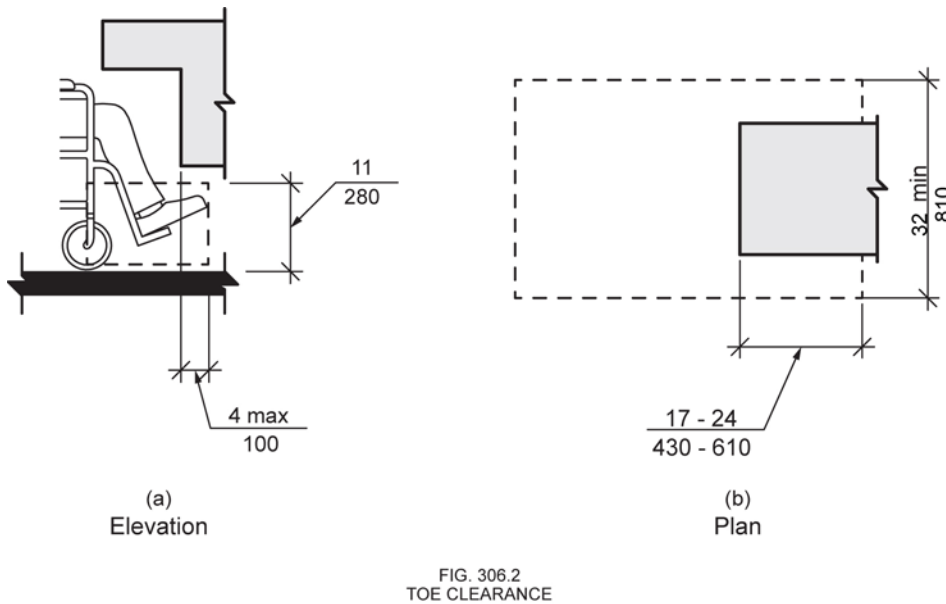
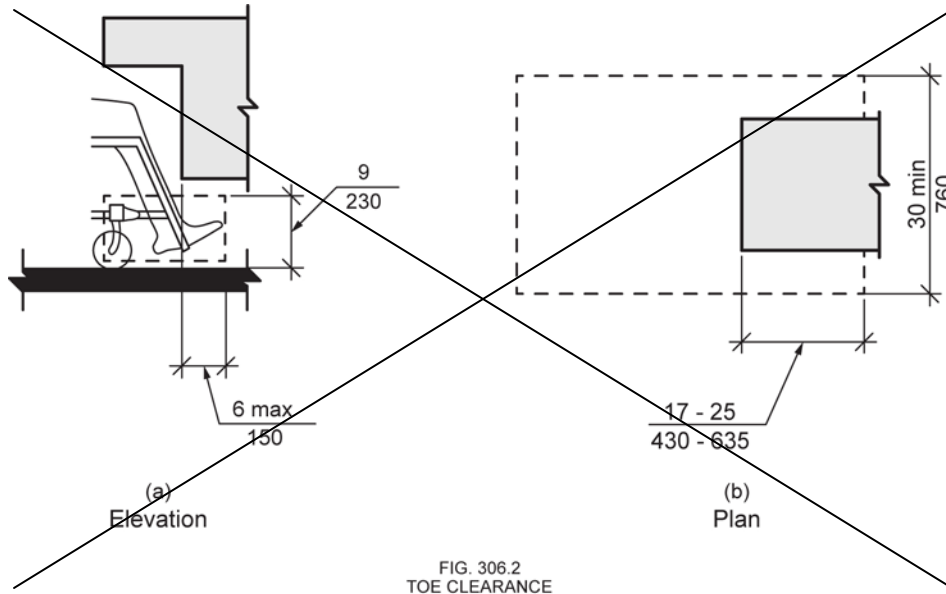
### 3-16 – 12

**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**

**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 (280 mm)** above the floor shall be considered toe clearance and shall comply with Section 306.2.



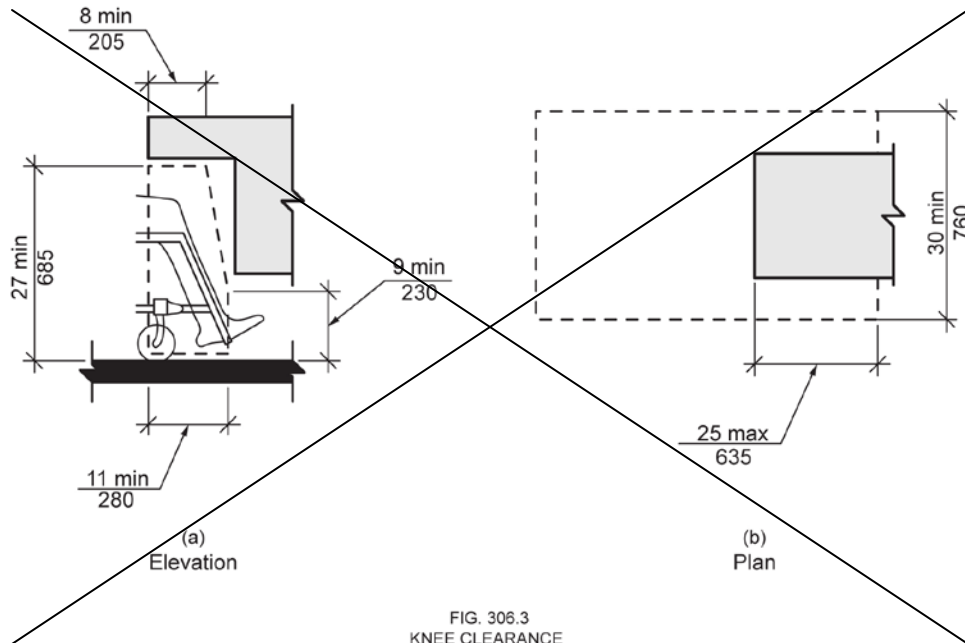


**306.2.2 Maximum Depth.** Toe clearance shall be permitted to extend ~~25~~ 24 inches (~~635~~ 610 mm) maximum under an element.

**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.



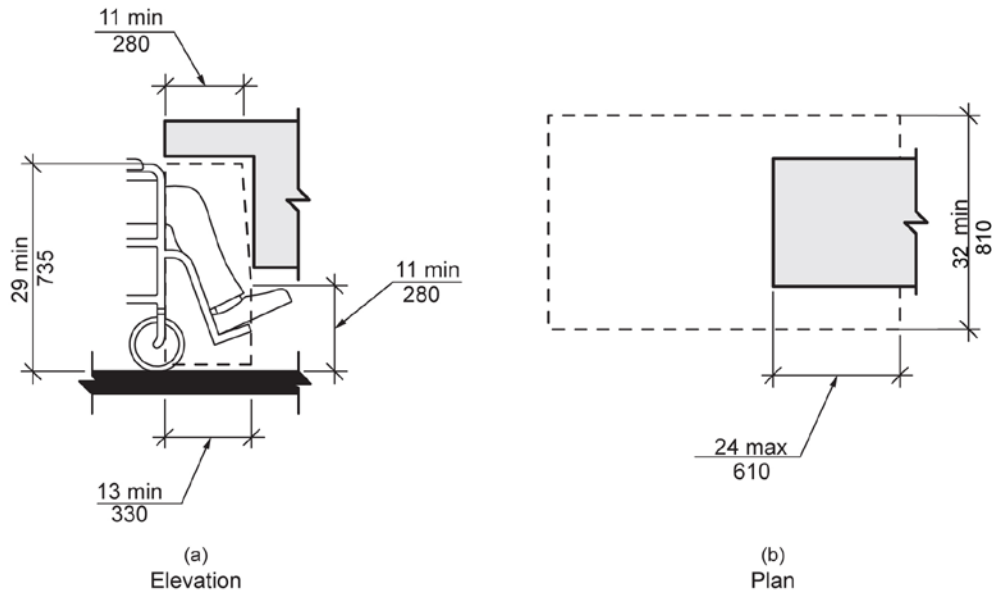


FIG. 306.3  
KNEE CLEARANCE

**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 ~~44~~ 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.

**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.

**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.

Committee Action:            AS                    AM                    D

306.2.1-STEINFELD.doc

## 3-17 – 12

### 306.2.2, 306.3.2

**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.

Committee Action:                    AS                    AM                    D

306.2.2 PAARLBERG.doc

## 3-18 – 12

### 307.2

**Proponent:** Robert Feibleman, HAND Construction, representing self

**Revise as follows:**

**307.2 Protrusion Limits.** Objects with leading edges more than 27 inches (685 mm) and not more than 80 inches (2030 mm) above the floor shall protrude 4 inches (100 mm) maximum horizontally into the circulation path, (walks, halls, corridors, passageways or aisles).

**EXCEPTION:** Handrails shall be permitted to protrude 4 ½ inches (115 mm) maximum.

**Reason:** As written, the term circulation path includes all areas whereas the intent is to exclude rooms and areas where furniture is typically placed. Further defining the intent would help.

Committee Action:           AS                   AM                   D

307.2-FEIBLEMAN.doc

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# 3-19– 12

## 308.1, Table 308.1 (New)

**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.

<b>Table 308.1 – Children’s Reach Ranges</b>			
<b><u>Forward or Side Reach</u></b>	<b><u>Ages 3 and 4</u></b>	<b><u>Ages 5 through 8</u></b>	<b><u>Ages 9 through 12</u></b>
<u>High (maximum)</u>	<u>36 in (915 mm)</u>	<u>40 in (1015 mm)</u>	<u>44 in (1120 mm)</u>
<u>Low (minimum)</u>	<u>20 in (510)</u>	<u>18 in (455 mm)</u>	<u>16 in (405 mm)</u>

**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.

Committee Action:           AS                   AM                   D

308.1-REED.doc

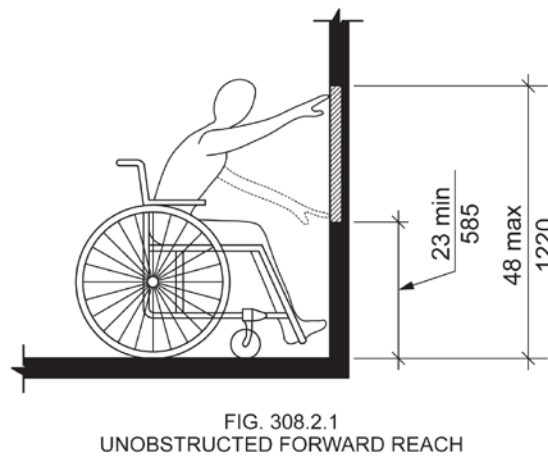
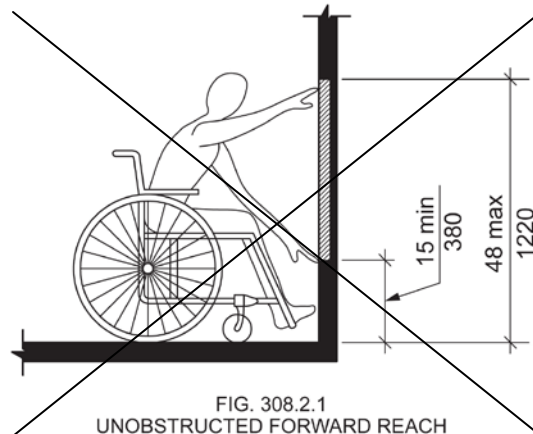
## 3-20 – 12

### 308.2.1, Figure 308.2.1

**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.



**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.

Committee Action: AS AM D

308.2.1-STEINFELD.doc



## 3-21 – 12

### 308.2.1, 308.2.2

**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.

Committee Action:           AS                   AM                   D

308.2.2-Paarlberg.doc

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## 3-22 – 12

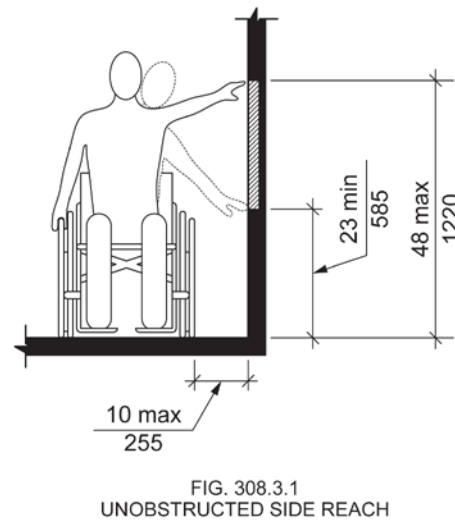
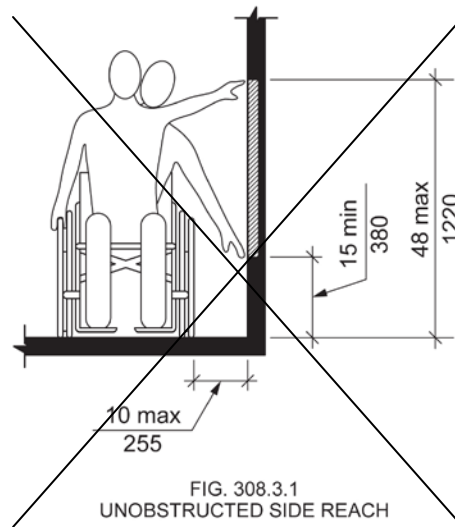
### 308.3.1, Figure 308.3.1

**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 ~~45~~ 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.



**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*

<b>Height from the floor</b>	<b>% capable of side unobstructed reach</b>	
	<b>Manual (n=236)</b>	<b>Power (n=110)</b>
27" - 28"	96	86
26" - 27"	86	71
25" - 26"	85	71
24" - 25"	85	70
<b>23" - 24"</b>	<b>68</b>	<b>56</b>
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.

Committee Action:           AS                   AM                   D

**308.3.1-STEINFELD.doc**

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## 3-23 – 12

### 308.3.1

**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.

Committee Action:           AS                   AM                   D

308.3.1 #1(REVISED)-PAARLBERG.doc

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## 3-24 – 12

### 308.3.1

**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.

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.

Committee Action:           AS                   AM                   D

308.3#2(REVISED)-PAARLBERG.doc

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## 3-25 – 12

### 308.3.1

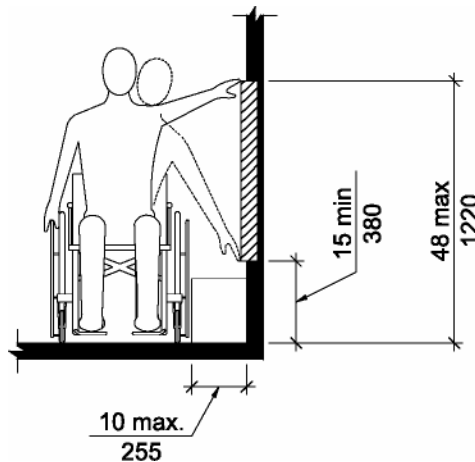
**Proponent:** Robert D. Feibleman, HAND Construction Company

**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.

Committee Action: AS AM D

308.3.1-FEIBLEMAN.doc



## 3-26 – 12

### 308.3.2, 611.3

**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.

Committee Action:           AS                   AM                   D

308.3.2(replacement7-20)-PAARLBERG.doc

## 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)

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 not 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 by 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.

Committee Action:           AS                   AM                   D

309.1 (NEW)-PAARLBERG.doc

## 3-28– 12

### 309.2

**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 90<sup>th</sup>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.

Committee Action:           AS                   AM                   D

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309.2-STEINFELD.doc

**3-29– 12**  
**309.3, 309.4 (New)**

**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 to 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.

Committee Action:           AS                   AM                   D

309.3-ZUKAS.doc

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# 3-30 – 12

## 309.4

**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?

Committee Action:           AS                   AM                   D

309.4-BOECKER.doc

**3-31- 12**  
**309.4.1 (New)**

**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.

Committee Action:           AS                   AM                   D

**309.4.1 (New)-REED.doc**

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## 4-1 – 12

### 402 (New), 402.1 (New)

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

#### **402 Accessible means of egress**

**402.1 General.** Means of egress shall comply with Section 1007 of the International Building Code.

#### **EXCEPTIONS:**

1. Where means of egress are permitted by local *building* or life safety codes to share a common path of egress travel, *accessible means of egress* shall be permitted to share a common path of egress travel.
2. Areas of refuge shall not be required in detention and correctional *facilities*.

**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 committee often says that other codes than IBC adopt A117.1. The A117.1 should refer to IBC for means of egress to be consistent with ADA 207.1 and to include safe egress in the technical criteria in this standard. I do not want to reference the older editions of the IBC. The latest IBC exceeds the requirements in the editions references.

The proposed language matches ADA 207.1. However, in my opinion, the exceptions are not needed.

Committee Action:           AS                   AM                   D

402.1 (New)(Revised)-PAARLBERG.doc

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## 4-2 – 12

### 402.2

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

**Revise as follows:**

**402.2 Components.** Accessible routes shall consist of one or more of the following components: Walking surfaces with a running slope not steeper than 1:20, doors and doorways, ramps, curb ramps excluding the flared sides, elevators, and platform lifts. All components of an accessible route shall comply with the applicable portions of this standard.

**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: for 402.2.** To provide consistent language with ADA Section 403.3.

Committee Action:      AS                      AM                      D

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402.2 ROETHER.doc

**4-3- 12**  
**402.2 (New)**

**Proponent:** Melanie J. Hughes, VA Department for the Blind and Vision Impaired, representing Association for the Education and Rehabilitation of the Blind and Visually Impaired (AER)

**Add new text as follows:**

**402.2. Conflict with Vehicular Routes.** Accessible routes shall not overlap vehicular routes except at crossings.

**Reason:** Lack of protected accessible routes to shopping centers, malls and other public spaces separated from the roadway by large parking lots present a barrier to those who are dependent upon public transportation and pedestrian modes of travel. The need to walk through parking lots to get from public transportation stops, public streets, or sidewalks, makes it difficult and unsafe for persons who have visual impairments or mobility impairments and persons of short stature, including children, to access many facilities.

Committee Action:           AS                   AM                   D

402.2 (New)-HUGHES.doc

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## 4-4 – 12

### 402.4 (New)

**Proponent:** Carroll Lee Pruitt, FAIA, NCARB, APA, representing Accessibility Professionals Association

**Add new text as follows:**

**402.4. Parking.** Accessible routes shall be located so that users are not required to wheel or walk behind parked vehicles or in traffic lanes.

**Exceptions:**

1. Users are permitted to wheel or walk behind the vehicle from which they exited.

**Reason:** This code change provides a safer path of travel for wheelchair users access to the building entrance. Allowing the accessible route to be in the drive makes the route more susceptible to civil drainage control considerations. This is currently in the California Code and was in the Texas Code from 1994 to 2010. It is extremely difficult for drivers of SUV's and Pick-Up Trucks to see wheel chair users when backing out.

Committee Action:                   AS                   AM                   D

402.4 (New)-PRUITT.doc

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## 4-5- 12

### 403.5

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

**Revise as follows:**

**403.5 Clear Width.** Except as provided in 403.5.2 and 403.5.3, the clear width of an accessible route shall be 36 inches (915 mm) minimum.

**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 for 403.5.** To provide consistent language with the ADA. This is a simple addition of text directing the users of the standard to provisions where the width is required to be other than 36 inches. A117.1 has the corresponding provisions, but not the text helping the users get to them..

Committee Action:      AS                      AM                      D

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## 4-6 – 12

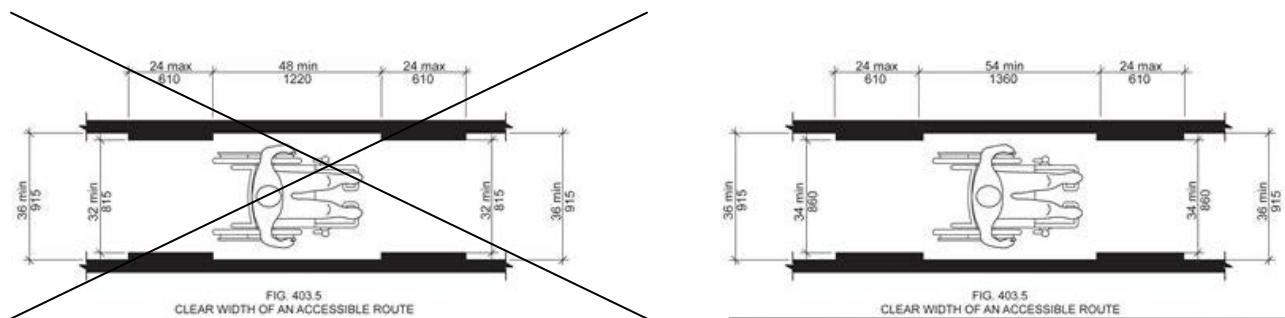
### 403.5, Figure 403.5, 403.5.1, Figure 403.5.1( c ) (New), 403.5.2

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

**Revise as follows:**

**403.5 Clear Width.** The clear width of an accessible route shall be 36 inches (915 mm) minimum.

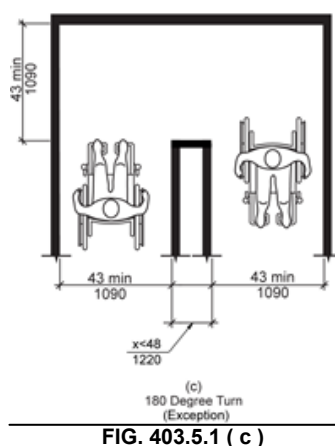
**EXCEPTION:** The clear width shall be permitted to be reduced to ~~32~~ 34 inches (~~815~~ 860 mm) minimum for a length of 24 inches (610 mm) maximum provided the reduced width segments are separated by segments that are 48 54 inches (1220 1370 mm) minimum in length and 36 inches (915 mm) minimum in width.



**403.5.1 Clear Width at 180 Degree Turn Around Object.** Where an accessible route makes a 180 degree turn around an object that is less than 48 inches (1220 mm) in width, clear widths shall be 42 inches (1065 mm) minimum approaching the turn, 48 inches (1220 mm) minimum during the turn, and 42 inches (1065 mm) minimum leaving the turn.

#### **EXCEPTIONS:**

1. Section 403.5.1 shall not apply where the clear width during the turn is 60 inches (1525 mm) minimum.
2. Section 403.5.1 shall not apply where a minimum clear width of 43 inches (1090 mm) is provided approaching, during, and leaving the turn.



**FIG. 403.5.1 ( c )**

**403.5.2 Passing Space.** An accessible route with a clear width less than ~~60~~ 64 inches (~~1525~~ 1625 mm) shall provide passing spaces at intervals of 200 feet (61 m) maximum. Passing spaces shall be either a 60-inch (1525 mm) minimum by ~~60-inch~~ 64-inch (~~1525~~ 1625 mm) minimum space, or an intersection of two walking surfaces that provide a T-shaped turning space complying with Section 304.3.2, provided the base and arms of the T-shaped space extend ~~48~~ 54 inches (~~1220~~ 1360 mm) minimum beyond the intersection.

**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**

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 subsections 403 (Walking Surfaces) would accommodate an occupied length of 54 inches and occupied width of 32 inches (adjusted to 34 inches to be consistent with the 2 inch increase in the standard to accommodate width changes related to movement) for those parts of the standard based on occupied length and width.**

A new exception is proposed for the 180-degree turns, based on an analysis also completed for the Anthropometry of Wheeled Mobility report. The analysis suggested that 95% of manual wheelchair users, as well as 95% of power chair and scooter users could accomplish a turn around a barrier when all three sides of the turn were 43 inches (Steinfeld, et al., 2010, pg. 166).

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.

Committee Action:                    AS                    AM                    D

403.5-STEINFELD.doc

## 4-7 – 12

### 403.5, 406.1, 406.4, 406.7, 406.10, 705.5.4

**Proponent:** Gina Hilberry, United Cerebral Palsy Association

#### **Revise as follows:**

**403.5 Clear Width.** The clear width of an interior accessible route shall be 36 inches (915 mm) minimum. The clear width of an exterior accessible route shall be 48 inches (1220 mm) minimum.

#### **EXCEPTIONS:**

1. The clear width shall be permitted to be reduced to 32 inches (815 mm) minimum for a length of 24 inches (610 mm) maximum provided the reduced width segments are separated by segments that are 48 inches (1220 mm) minimum in length and 36 inches (915 mm) minimum in width.
2. The clear width of an exterior ramp shall be permitted to be reduced to 36 inches (915 mm) minimum.

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

#### **EXCEPTIONS:**

1. The curb ramp running slope shall not exceed 8.3 percent maximum but shall not required the ramp length to exceed 15.0 feet (4.5 m).
2. The running slope of blended transitions shall be 5 percent maximum.

**406.4 Width.** Curb ramps shall be ~~36 inches (915 mm)~~ 48 inches (1220 mm) minimum in width, exclusive of flared sides.

**406.7 Landings.** Landings shall be provided at the tops of curb ramps. The clear length of the landing shall be ~~36 inches (915 mm)~~ 48 inches (1220 mm) minimum. The clear width of the landing shall be at least as wide as the curb ramp, excluding flared sides, leading to the landing. Where the turning space or landing is constrained at the back-of-sidewalk, the landing shall be 48 inches (1220 mm) wide minimum and 60 inches (1550 mm) deep minimum.

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

**406.10 Diagonal Curb Ramps** ~~Diagonal or corner type~~ Curb ramps with returned curbs or other well-defined edges shall have the edges parallel to the direction of pedestrian flow. ~~The bottom of diagonal curb ramps shall have 48 inches (1220 mm) minimum clear space outside active traffic lanes of the roadway.~~ Diagonal Curb ramps provided at marked crossings shall provide the 48 inches (1220 mm) minimum clear space within the markings. ~~Diagonal Curb ramps with flared sides shall have a segment of curb 24 inches (610 mm) minimum in length on each side of the curb ramp and within the marked crossing.~~

**705.5.4 Alignment.** Truncated domes shall be aligned in a square or radial grid pattern.

**Reason:** These proposals all relate to current best practices in the Public Right-of-Way and exterior environments.



Section 403.5 Width of exterior accessible route: this change matches the current language in the PROW guidelines. The edges of sidewalks and other accessible routes are clearly different from the edges of hallways and corridors and similar interior surfaces. Dropping off the edge of a sidewalk can have serious consequences. Passing oncoming pedestrians on 36 inch wide is impossible.

Section 406.4 Width of curb ramps and Section 406.7 Landings. These changes bring A117.1 into harmony with the current PROW guidelines.

Section 406.10 Diagonal ramps are no longer recommended design layouts. Deletion of the word diagonal allows the requirements to remain largely in place but to be applied to other curb ramps plan types.

Section 705.5.4 At blended transitions where the slope of the surface is at 5% maximum, it is important that the truncated domes align with the path of travel. Adding "or radial" permits the installation of domes aligned with the path of travel.

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403.5-HILBERRY.doc

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## 4-8 – 12

### 403.5.1

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

**Revise as follows:**

**403.5.1 Clear Width at 180 Degree Turn.** Where an accessible route makes a 180 degree turn around an object that is less than 48 inches (1220 mm) in width, clear widths shall be 42 inches (1065 mm) minimum approaching the turn, 48 inches (1220 mm) minimum during the turn and 42 (1065 mm) inches minimum leaving the turn 52 inches (1320 mm) in width minimum, clear widths shall be as permitted for turn complying with 405.5.1. Where an accessible route makes a 180 degree turn around an object that is less than 52 inches (1320 mm) inches, the clear widths approaching the turn, during the turn and leaving the turn, shall be one of the following sets of dimensions:

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

Committee Action:      AS                      AM                      D

403.5.1-HILBERRY.doc

## 4-9 – 12

### 403.5.2 (NEW)

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

**Revise as follows:**

**403.5.2 Clear Width at 90 Degree Turn.** Where an accessible route makes a 90 degree turn the clear widths approaching the turn and leaving the turn shall be one of the following sets of dimensions:

1. Both legs of the turn shall be 40 inches (1016 mm) minimum.
2. Where one leg of the turn is 40 inches (1016 mm) minimum for a distance of 68 inches (1727 mm) from the interior corner of the turn, the other leg shall be 36 inches (915 mm) minimum.
3. Where the interior corners of the turn are chamfered for 8 inches minimum along both walls, both legs of the turn shall be 36 inches (915 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.

Committee Action:            AS                    AM                    D

403.5.2 (NEW)-HILBERRY.doc

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## 4-10 – 12

### 403.5.3 (New)

**Proponent:** Jonathan White, representing himself

**Add new text as follows:**

**403.5.3 Clear Width at 90 Degree Turn.** Where an accessible route makes a 90 degree turn, the clear width shall be 40 inches (1015 mm) minimum. At least one leg of the turn shall be clear of obstructions for a length of 14 inches (355 mm) minimum with the other leg clear of obstructions for at least 28 inches (710 mm) minimum.

#### **EXCEPTIONS:**

1. Where one leg of the turn is 42 inches (1065 mm) minimum in width, the other shall be permitted to be 38 inches (965 mm) minimum in width, with the narrower leg being clear of obstructions for a length of 26 inches (660 mm) minimum, and the other leg being clear of obstructions for a length of 15 inches (380 mm) minimum.
2. Where one leg of the turn is 44 inches (1115 mm) minimum in width, the other shall be permitted to be 36 inches (915 mm) minimum in width, with the narrower leg being clear of obstructions for a length of 24 inches (610 mm) minimum, and the other leg being clear of obstructions for a length of 16 inches (405 mm) minimum.

**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 90-degree 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

<b>% Accommodated</b>	<b>Data Source</b>	<b>Manual (n=208)</b>	<b>Power (n=150)</b>	<b> Scooter (n=23)</b>
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:           AS                   AM                   D

403.5.3 (New)-WHITE.doc

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## 4-11 – 12

**404, 404.1, 404.2, 404.2.3, 404.2.3.2, 404.2.3.4, 404.2.3.5, 404.2.4.1, 404.2.5, 404.2.6, 404.2.7, 404.2.8, 404.2.9, 404.2.10, 404.3, 404.3.2, 404.3.4**

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

**Revise as follows:**

### **404 Doors, and Doorways and Gates**

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

**EXCEPTION:** Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with 404.2.3, 404.2.6, 404.2.7, 404.2.8, 404.3.2 and 404.3.4 through 404.3.6.

**404.2 Manual Doors, Doorways and Manual Gates.** Manual doors and doorways, and manual gates, intended for user passage including ticket gates, shall comply with Section 404.2.

**EXCEPTION:** Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.2.6, 404.2.7, and 404.2.8.

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

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

#### **Fig. 404.2.3.2 Maneuvering Clearance at Manual Swinging Doors and Gates**

**Table 404.2.4.1** Maneuvering Clearances at Manual Swinging Doors and Gates

**Table 404.2.3.2—Maneuvering Clearances at Manual Swinging Doors and Gates**

TYPE OF USE		MINIMUM MANEUVERING CLEARANCES	
Approach Direction	Door or Gate Side	Perpendicular to Doorway	Parallel to Doorway (beyond latch unless noted)
From front	Pull	60 inches (1525 mm)	18 inches (455 mm)

*(Balance of table is not changes)*

**404.2.3.4 Doorways without Doors or Gates.** Doorways without doors or gates that are less than 36 inches (915 mm) in width shall have maneuvering clearances complying with Table 404.2.3.3

#### **Fig. 404.2.3.4 Maneuvering Clearance at Doorways without Doors or Gates**

**Table 404.2.3.4—Maneuvering Clearances for Doorways without Doors or Gates**

Approach Direction	MINIMUM MANEUVERING CLEARANCES Perpendicular to Doorway
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From front	48 inches (1220 mm)
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**404.2.3.5 Recessed Doors and Gates.** Where any obstruction within 18 inches (455 mm) of the latch side of a doorway projects more than 8 inches (205 mm) beyond the face of the door or gate, measured perpendicular to the face of the door, maneuvering clearances for a forward approach shall be provided.

**Fig. 404.2.3.5**  
**Maneuvering Clearance at Recessed Doors and Gates**

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

**Fig. 404.2.5**  
Two Doors or Gates in a Series

**404.2.6 Door and Gate Hardware.** Handles, pulls, latches, locks, and other operable parts on accessible doors and gates shall have a shape that is easy to grasp with one hand and does not require tight grasping, pinching, or twisting of the wrist to operate. Operable parts of such hardware shall be 34 inches (865 mm) minimum and 48 inches (1220 mm) maximum above the floor. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides.

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

**404.2.7 Closing Speed.** Door and gate closing speed shall comply with 404.2.8.

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

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

**404.2.8 Door and Gate Opening Force.** Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors or gates other than fire doors shall be as follows:

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

These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door or gate in a closed position.

**404.2.9 Door and Gate Surface.** Door and gate surfaces within 10 inches (255 mm) of the floor, measured vertically, shall be a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in such surface shall be within  $\frac{1}{16}$  inch (1.6 mm) of the same plane as the other. Cavities created by added kick plates shall be capped.

**EXCEPTIONS:**

*(Exceptions 1 and 2 are not changed)*

3. Doors and gates that do not extend to within 10 inches (255 mm) of the floor shall not be required to comply with Section 404.2.9.

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

*(Exception is not changed)*

**404.3 Automatic Doors and Power-Assisted Doors and Gates.** Automatic doors and automatic gates shall comply with Section 404.3. Full powered automatic doors shall comply with ANSI/BHMA A156.10 listed in Section 105.2.4. Power-assist and low-energy doors shall comply with ANSI/BHMA A156.19 listed in Section 105.2.3.

~~**EXCEPTION:** Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.3.2, 404.3.4, and 404.3.5.~~

**404.3.2 Maneuvering Clearances.** Maneuvering clearances at power-assisted doors and gates shall comply with Section 404.2.3.

**404.3.4 Two Doors or Gates in Series.** Doors or gates in series shall comply with Section 404.2.5.

**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 for 404** To provide consistent language with the ADA. ADA consistently uses gates when discussing doors. The amendments through this section are simply providing consistent coverage. The exception to Section 404.1 is relocating an existing exception found in A117.1 Section 404.2 and others to a location similar to ADA.

Committee Action:      AS                      AM                      D

404 ROETHER.doc



# 4-12 – 12

## 404.2.2, Figure 404.2.2

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

**Revise as follows:**

**404.2.2 Clear Width.** Doorways shall have a clear opening width of ~~32~~ **34** inches (~~815~~ **865** mm) minimum. Clear opening width of doorways with swinging doors shall be measured between the face of door and stop, with the door open 90 degrees. Openings more than 24 inches (610 mm) in depth at doors and doorways without doors shall provide a clear opening width of 36 inches (915 mm) minimum. There shall be no projections into the clear opening width lower than 34 inches (865 mm) above the floor. Projections into the clear opening width between 34 inches (865mm) and 80 inches (2030 mm) above the floor shall not exceed 4 inches (100 mm).

### EXCEPTIONS:

1. Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the floor.
2. In alterations, a projection of 5/8 inch (16 mm) maximum into the required clear opening width shall be permitted for the latch side stop.

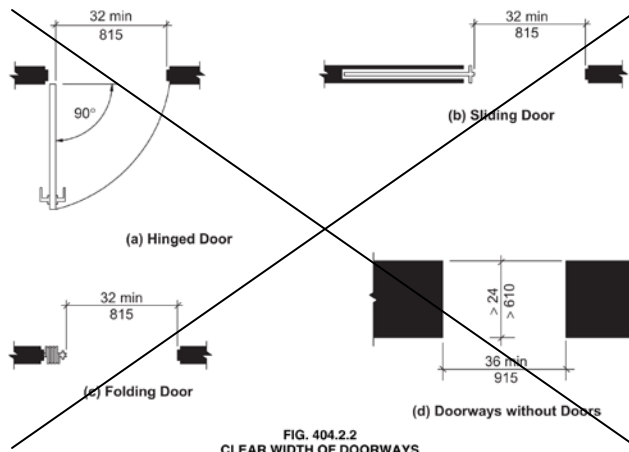


FIG. 404.2.2  
CLEAR WIDTH OF DOORWAYS

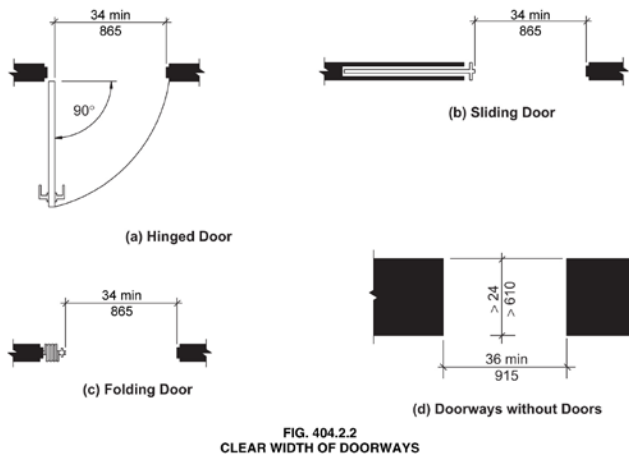


FIG. 404.2.2  
CLEAR WIDTH OF DOORWAYS

**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**

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 404 (Doors and Doorways) would accommodate an occupied length of 54 inches and occupied width of 32 inches (adjusted to 34 inches to be consistent with the 2 inch increase in the standard to accommodate width changes related to movement) for those parts of the standard based on occupied length and width.**

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.

Committee Action:                   AS                   AM                   D

404.2.2-STEINFELD.doc

## 4-13 – 12

### 404.2.3

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

**Revise as follows:**

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

**EXCEPTION:** Entry doors to hospital patient rooms shall not be required to provide the clearance beyond the latch side of the door.

**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 for 404.2.3:** The added text is ADA language not currently in A117.1. The text that is being struck out was an attempt in the standard to allow maneuvering clearances to go under some objects where the knees/toes of a wheelchair user would still have adequate space to operate the door. However, the text is unclear. Further, current interpretation of the ADA is that maneuvering spaces must be clear for the full height of 80 inches. The exception is also found in the IBC, but adding it here provides clarity as well as consistency with the ADA.

Committee Action:      AS                      AM                      D

404.2.3-ROETHER.doc

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## 4-14 – 12

### Table 404.2.3.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**TABLE 404.2.3.2—MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS**

TYPE OF USE		MANEUVERING CLEARANCES AT MANUAL	
Approach Direction	Door Side	Perpendicular to Doorway	Parallel to Doorway (beyond latch unless noted)
From front	Pull	60 inches (1525 mm)	18 inches (455 mm)
From front	Push	48 inches (1220 mm)	0 inches (0 mm) <sup>3</sup>
From hinge side	Pull	60 inches (1525 mm)	36 inches (915 mm)
From hinge side	Pull	54 inches (1370 mm)	42 inches (1065 mm)
From hinge side	Push	42 inches (1065 mm) <sup>1</sup>	22 inches (560 mm) <sup>3&amp;4</sup>
From latch side	Pull	48 inches (1220 mm) <sup>1</sup>	24 inches (610 mm)
From latch side	Push	42 inches (1065 mm) <sup>2</sup>	24 inches (610 mm)

<sup>1</sup>Add 6 inches (150 mm) if closer and latch provided.

<sup>2</sup>Add 6 inches (150 mm) if closer provided.

<sup>3</sup>Add 12 inches (305 mm) beyond latch if closer and latch provided.

<sup>4</sup>Beyond hinge side.

**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.

Coordination with the 2012 ADA Standards for Accessible Design.

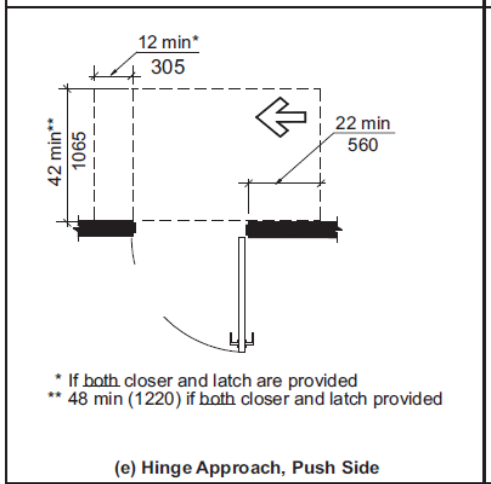
The A117.1 requires there 12 inches beyond the latch side on this door if both a closer and a latch are provided on the door. The ADA does not have this 12 inch requirement.

This requirement was added to the A117.1 standard between the 1998 and 2003 editions by proposal 4-015 and was modified by public comment that cleaned up the footnote reference for it. The proponent's reason statement said that figure (b) the front approach push side and figure (e) the hinge approach push side are similar situations and that having the 12 inches on the forward approach should also be provided on the hinge approach.

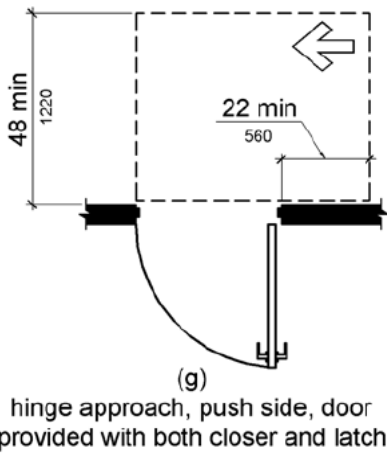
Because this extra requirement creates a discrepancy between the A117.1 and ADA which is not readily apparent and well known, the elimination of the footnote reference would help to coordinate the two standards and make this basic issue of door maneuvering clearances consistent. It seems that the addition of this requirement was probably not well justified when it was added into the 2003 A117.1 standard and with the change made in Section 404.2.3 of the 2009 edition which prevented door maneuvering clearances from including knee and toe clearance it made the difference between the A117.1 and the federal requirements that much greater. With some of the task groups looking at changing the 'building blocks' which could further affect maneuvering clearances, it would seem that this difference between the two standards should be eliminated or better justification should be provided so that it could be added into the federal requirements and coordinated that way.

The graphic representations of the various layouts are provided to better illustrate the differences. In the 2009 standard it is Fig 404.2.3.2(e) and in the 2010 ADA it is Figure 404.2.4.1(g). See ADA figure 404.2.4.1(f) for base condition.

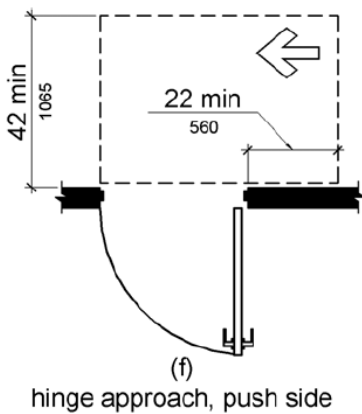
The following is Figure 404.2.3.2(e) from the A117.1-2009 standard.



The following is Figure 404.2.4.1(g) from the 2010 ADA Standards for Accessible Design. This is the comparable requirement for the door shown in Figure 404.2.3.2(e) from the A117.1-2009 standard.



The following is Figure 404.2.4.1(f) from the 2010 ADA Standards for Accessible Design. This is the comparable base requirement for the door shown in Figure 404.2.3.2(e) from the A117.1-2009 standard (hinge approach/push side of door which does not have BOTH a closer and a latch).



Committee Action: AS AM D

## 4-15 – 12

Figure 404.2.3.2, Table 404.2.3.2, Figure 404.2.3.3(a), Table 404.2.3.3, Table 404.2.3.4, Figure 404.2.3.4, Figure 404.2.3.5 (b), (c)

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

**Delete and substitute as follows:**

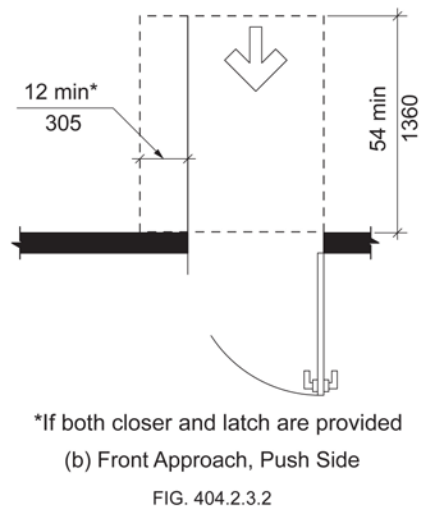
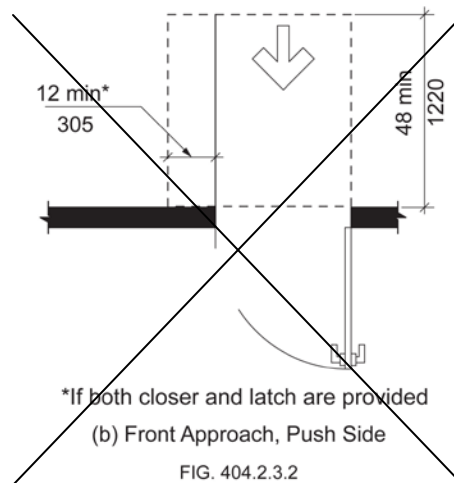


Table 404.2.3.2 – Maneuvering Clearances at Swinging Doors

TYPE OF USE		MINIMUM MANEUVERING CLEARANCES	
Approach Direction	Door Side	Perpendicular to Doorway	Parallel to Doorway (beyond latch unless noted)
From front	Pull	60 inches (1525 mm)	18 inches (455 mm)
From front	Push	48 inches (1220 mm)	0 inches (0 mm)
From hinge side	Pull	60 inches (1525 mm)	36 inches (915 mm)
From hinge side	Pull	54 inches (1370 mm)	42 inches (1065 mm)
From hinge side	Push	42 inches (1065 mm)	22 inches (560 mm) <sup>1,2,3,4</sup>
From latch side	Pull	48 inches (1220 mm)	24 inches (610 mm)
From latch side	Push	42 inches (1065 mm)	24 inches (610 mm)

Table 404.2.3.2 – Maneuvering Clearances at Swinging Doors

TYPE OF USE		MINIMUM MANEUVERING CLEARANCES	
Approach Direction	Door Side	Perpendicular to Doorway	Parallel to Doorway (beyond latch unless noted)
From front	Pull	60 inches (1525 mm)	18 inches (455 mm)
From front	Push	54 inches (1220 mm)	0 inches (0 mm)
From hinge side	Pull	60 inches (1525 mm)	36 inches (915 mm)
From hinge side	Pull	54 inches (1370 mm)	42 inches (1065 mm)
From hinge side	Push	42 inches (1065 mm)	22 inches (560 mm) <sup>1,2,3,4</sup>
From latch side	Pull	54 inches (1220 mm)	24 inches (610 mm)
From latch side	Push	42 inches (1065 mm)	24 inches (610 mm)

Table 404.2.3.2 – Maneuvering Clearances at Sliding and Folding Doors

Approach Direction	MINIMUM MANEUVERING CLEARANCES	
	Perpendicular to Doorway	Parallel to Doorway (beyond stop or latch side unless noted)
From front	48 inches (1220 mm)	0 inches (0 mm)
From nonlatch side	42 inches (1065 mm)	22 inches (560 mm) <sup>1</sup>
From latch side	42 inches (1065 mm)	24 inches (610 mm)

Table 404.2.3.2 – Maneuvering Clearances at Sliding and Folding Doors

Approach Direction	MINIMUM MANEUVERING CLEARANCES	
	Perpendicular to Doorway	Parallel to Doorway (beyond stop or latch side unless noted)
From front	54 inches (1220 mm)	0 inches (0 mm)
From nonlatch side	42 inches (1065 mm)	22 inches (560 mm) <sup>1</sup>
From latch side	42 inches (1065 mm)	24 inches (610 mm)

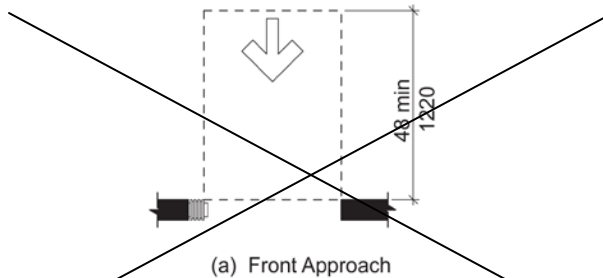


FIG. 404.2.3.3  
MANEUVERING CLEARANCE AT SLIDING AND FOLDING DOORS

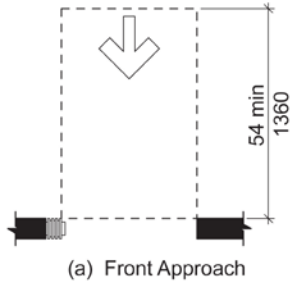


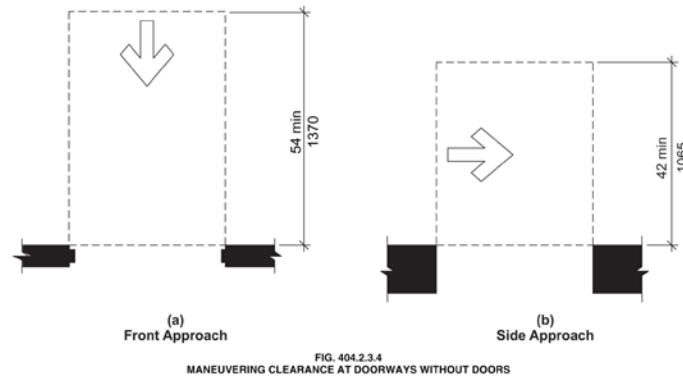
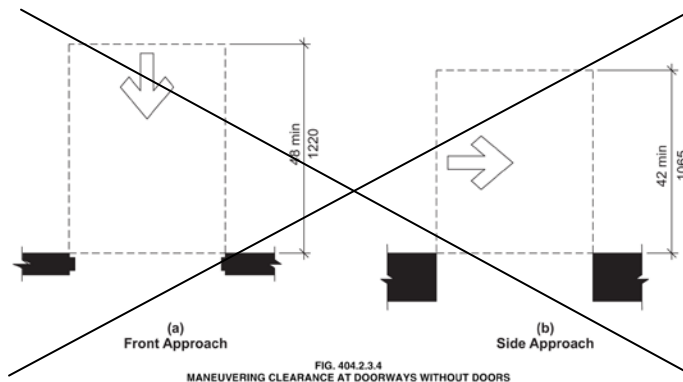
FIG. 404.2.3.3  
MANEUVERING CLEARANCE AT SLIDING AND FOLDING DOORS

Revise Table as follows:

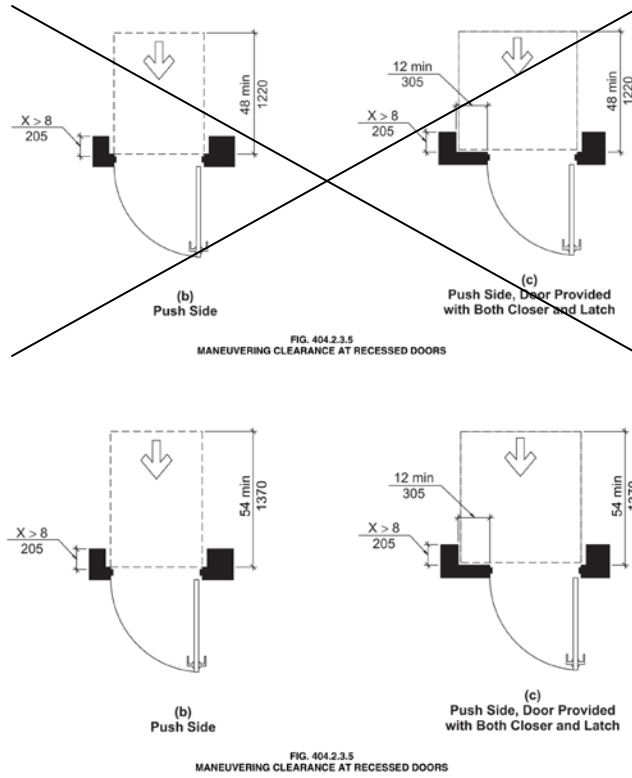
**TABLE 404.2.3.4 - MANEUVERING CLEARANCES FOR DOORWAYS WITHOUT DOORS**

Approach direction	MINIMUM MANEUVERING CLEARANCES Perpendicular to Doorway
From front	48 54 inches (1220 1370 mm)
From side	42 inches (1065 mm)

Delete and substitute Figure as follows:







**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

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 404 (Doors and Doorways) would accommodate an occupied length of 54 inches and occupied width of 32 inches for those parts of the standard based on occupied length and width.**

The calculation used to determine the appropriate clearances 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.

Committee Action:           AS                   AM                   D

F404.2.3.2-STEINFELD.doc

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## 4-16 – 12

### Figure 404.2.3.5

Proponent: Gene Boecker, Code Consultants, Inc

Revise as follows:

Door recess drawings are not correct. The text indicates that the recess is to be measured from the face of the door but the figures show in two cases the recess measured from the face of the frame.

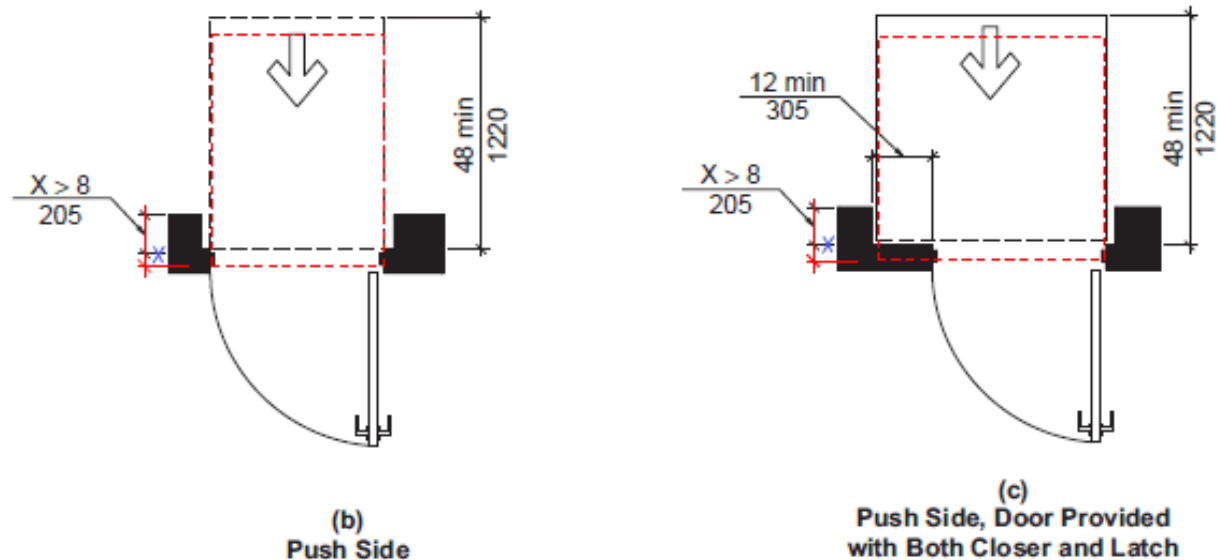


FIG. 404.2.3.5  
MANEUVERING CLEARANCE AT RECESSED DOORS

**Reason:** When the door is in a frame and the door swings toward you, the face of the door is typically the same as the closest edge of the frame. However, when the door swings away from you, it is on the far side of the frame and the nearest face of the door is already recessed from the edge of the frame. The modified Figure shows the proper method. Although not shown, obviously the 48 inch dimension would need to be revised to show the distance from the face of the maneuvering space to its perpendicular extent.

The illustration shows the clear floor space in front of the door to be measured from the nearest side of the frame - not the door face as the standard states in Section 404.2.3.5:

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

The revision would show the correct method for assessing recess. This has caused a number of incorrect applications and resulted in doors often being located too far from the face of the adjoining wall.

Committee Action: AS AM D

404.2.3.5(Figure)-BOECKER.doc

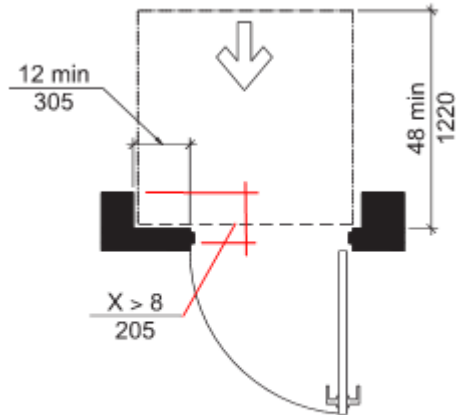
## 4-17 – 12

### Figure 404.2.3.5

**Proponent:** Carroll Lee Pruitt, FAIA, APA, representing Accessibility Professionals Association

**Revise as the Figure 404.2.3.5 (c) as follows:**

Relocate the arrows and call dimension for the 8 inch depth from the left side of the figure to the location shown below.



(c)  
Push Side, Door Provided  
with Both Closer and Latch

**Reason:** The text for this section states that the dimension is to the “face of the door” measured perpendicular to the “face of the door”. The Figure shows the 8” recess from the face of the wall of the door.

Committee Action:           AS                   AM                   D

404.2.3.5(Figure)-PRUITT.doc

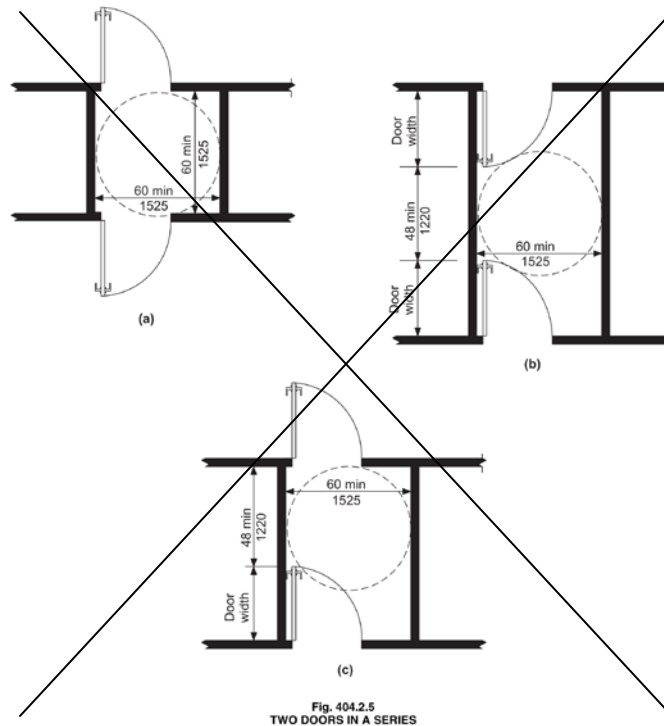
# 4-18 – 12

## 404.2.5, Figure 404.2.5

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

**Revise as follows:**

**404.2.5 Two Doors in a Series.** Distance between two hinged or pivoted doors in series shall be ~~48~~ **54** inches (~~1220~~ **1370** mm) minimum plus the width of any door swinging into the space. The space between the doors shall provide a turning space complying with Section 304.



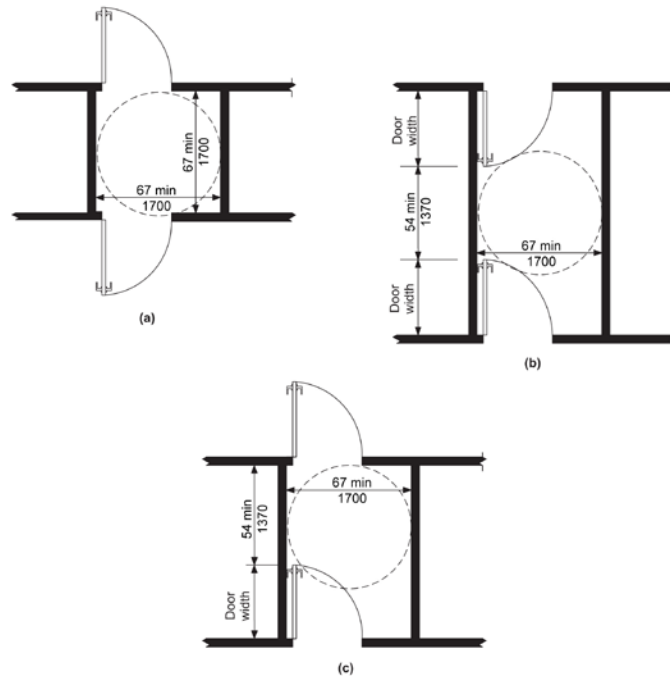


Fig. 404.2.5  
TWO DOORS IN A SERIES

**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**

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. The 180-degree turning diameter accommodates only 75% of manual and power wheelchair 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. A 180-degree turn diameter of 67 inches would accommodate 95% of manual and power wheelchair users. **Proposed changes to subsection 404 (Doors and Doorways) would accommodate an occupied length of 54 inches and occupied width of 32 inches for those parts of the standard based on occupied length and width. It would also allow for a 180-degree turn at two-doors in a series.**

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 and in a memorandum entitled "Summary of Turning Discussion and Responses and Recommended Dimensions for Turning Spaces" that was submitted to the ICC/ANSI A117 Task Force on Anthropometry of Wheeled Mobility Subcommittee on Turning Spaces.

**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. (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:           AS                   AM                   D

404.2.5-STEINFELD.doc

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## 4-19 – 12

### 404.2.5

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**404.2.5 Two Doors in Series.** Distance between two hinged or pivoted doors in series shall be 48 inches (1220 mm) minimum plus the width of any door swinging into the space. Where the doors in a series form a vestibule and where one of the doors is an exterior door, the space between the doors shall provide a turning space complying with Section 304.

**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 original intent of the last sentence was to stop entrapment in vestibules where the exterior door may be locked or the force may be so great that a person with limited mobility could not open it. It was not anticipated that someone would believe that doors across the hall from one another would be considered doors in a series. This added language should limit this requirement to locations where it was intended.

Committee Action:           AS                   AM                   D

404.2.5 (revised)-PAARLBERG.doc

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## 4-20- 12

### 404.2.7.1

**Proponent:** Robert D. Feibleman, HAND Construction, representing self  
**Revise as follows:**

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

**Exception:** Closers on toilet compartment doors are not required to be adjustable .

**Reason:** Section 604.9.3 requires toilet compartment doors to comply with Section 404, and Section 404.2.7 closing speed defines for closers and springs. The speed of closing should not be relevant to a toilet partitions. Hydraulic closers aren't used. The hinges are designed to self-close, but the speed of this mechanism isn't adjustable enough to accomplish the requirements of Section 404.2.7. I don't believe it's intended to be applicable to toilet partitions.

Committee Action:           AS                   AM                   D

404.2.7.1-FEIBLEMAN.doc

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## 4-21 – 12

### 404.2.7.2

**Proponent:** Robert D. Feibleman, HAND Construction, representing self

**Revise as follows:**

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

**Exception:** Spring hinges on toilet compartment doors are not required to be adjustable.

**Reason:** Section 604.9.3 requires toilet compartment doors to comply with Section 404, and Section 404.2.7 closing speed defines for closers and springs. The speed of closing should not be relevant to a toilet partitions. Hydraulic closers aren't used. The hinges are designed to self-close but the speed of this mechanism isn't adjustable enough to accomplish the requirements of Section 404.2.7. I don't believe it's intended to be applicable to toilet partitions.

Committee Action:           AS                   AM                   D

404.2.7.2-FEIBLEMAN.doc

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## 4-22 – 12

### 404.2.8

**Proponent:** Anthony Alarid, New Mexico Governor's Commission on Disability (NMGCD)

**Revise as follows:**

**404.2.8 Door Opening Force.** Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors other than fire doors shall be as follows:

1. Interior hinged door: 5.0 pounds (22.2 N) maximum
2. Sliding or folding door: 5.0 pounds (22.2 N) maximum
3. Exterior hinged door: 8.5 pounds (37.7 N) minimum to 10 (44.4 N) pounds maximum.

These forces do not apply to the force to retract latch bolts or disengage other devices that hold the door in a closed position.

**Reason:** Exterior doors must be usable by individuals who are able-bodied, ambulatory, or disabled. Just as interior doors are, the opening force on exterior doors should also be regulated to make them usable. When elements within a facility are required to, and do comply with accessibility standards, it becomes irrelevant if an individual cannot get past the exterior entry door to access these elements.

Committee Action:           AS                   AM                   D

404.2.8-ALARID.doc

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## 4-23 – 12

### 404.2.8

**Proponent:** Gene Boecker, Code Consultants, Inc

**Revise as follows:**

**404.2.8 Door-Opening Force.** Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors other than fire doors shall be as follows:

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

These forces ~~do not~~ shall also apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.

**EXCEPTION:** The 5.0 pounds force to retract latch bolts or disengage other devices that hold the door in a closed position shall not apply to panic hardware, delayed egress devices or fire-rated hardware.

**Reason:** The usability of doors depends on the functionality of all aspects of door usage including retracting the bolt. However, certain types of doors require additional force to open. These types of door hardware are those which the various building and fire codes prescribe for user safety. Panic hardware is used in higher occupancy locations to avoid occupant crush. Where a number of people could press on the door, a force parallel to the door may not be possible if there is sufficient force jamming the door against the frame. Panic devices require operation in the direction of travel, obviating the possible binding of the door hardware. Because if this single operation to open the door, it must be able to resist casual contact and therefore requires an operating force greater than 5.0 pounds

Delayed egress doors are provided where security or protection of the occupants is necessary. In Alzheimer's wings in the hospitals and nursing homes, delayed egress devices are often used to slow down the person's ability to walk out. This delay allows staff to intercept the individual and bring them back into the building, avoiding possible injury outside due to traffic or other potential hazards. These types of hardware also need to avoid casual contact, similar to that noted for panic hardware.

Committee Action:                   AS                   AM                   D

404.2.8-BOECKER.doc

## 4-24 – 12

### 404.2.8

**Proponent:** Gail Himes, City of Tacoma, Washington

**Revise as follows:**

**404.2.8 Door-Opening Force.** Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors other than fire doors shall be as follows:

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

These are static forces measured at the lever or handle. These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.

Door force shall be measured so that from a closed position of 12 degrees, the time required to move the door to an open position of 90 degrees shall be 5 seconds minimum

**Reason:** These changes are to standardize the location and method of measuring the door force. Currently there is no consistent way to measure the forces. The location at the lever or handle replicates the normal point of pushing or pulling on the door. The time is designated as 5 seconds minimum so that dynamic/impact forces are not added to the static force. Therefore, two or more people testing the force of a door should get the same readings.

Committee Action:           AS                   AM                   D

404.2.8-HIMES.doc

## 4-25 – 12

### 404.2.8

**Proponent:** Joseph R. Hetzel, P.E., Thomas Associates, Inc, representing American Association of Automatic Door Manufacturers (AAADM)

**Revise as follows:**

**404.2.8 Door Opening Force.** Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors other than fire doors shall be as follows:

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

These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.

**EXCEPTION:** Where 1 of every 8 door leafs at a single location is a full power automatic door, all doors at the same location, serving the same space, shall be permitted an opening force of 8.5 pounds (37.7 N) maximum.

**Reason:** Individuals needing accessibility normally seek an accessible route, and an automatic door is proposed to be the door closest to the accessible route. Thus, the minimum opening force for other manual doors at the single location can be increased to non-accessibility requirements without compromising accessibility. This proposal will assist some building owners who struggle with stack pressures by providing an alternative, superior means of providing accessibility.

Committee Action:           AS                   AM                   D

404.2.8 #2-HETZEL.doc

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## 4-26 – 12

### 404.2.8

**Proponent:** Joseph R. Hetzel, P.E., Thomas Associates, Inc., representing Door & Access Systems Manufacturers Association (DASMA)

**Revise as follows:**

**404.2.8 Door-Opening Force.** Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors other than fire doors shall be as follows:

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

For manually operated upward acting doors, the opening force for manual operation shall 15 pounds (66.6 N) maximum. During a loss of power, the opening force for manual operation of a motor operated upward acting door shall be 25 pounds (111 N) maximum.

These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.

**Reason:** Buildings such as those used for self-service storage often use upward acting doors as the sole means of accessing storage space. When a particular storage space is required to be accessible, in some cases another type of door meeting accessibility requirements cannot be practically provided. Currently, ICC/ANSI A117.1 does not address upward acting doors. The maximum force limitations for opening a door are based on operational characteristics inherent in upward acting doors. Manually opening a motorized upward acting door is typically performed only in a situation involving a loss of power.

Committee Action:            AS                    AM                    D

404.2.8-HETZEL.doc

## 4-27 – 12

### 404.2.9

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

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

**EXCEPTIONS:**

1. Sliding doors shall not be required to comply with Section 404.2.9.
2. Tempered glass doors without stiles and having a bottom rail or shoe with the top leading edge tapered at no less than 60 degrees from the horizontal shall not be required to comply with the 10-inch (255 mm) bottom rail height requirement.

Doors that do not extend to within 10 inches (255 mm) of the floor shall not be required to comply with Section 404.2.9.

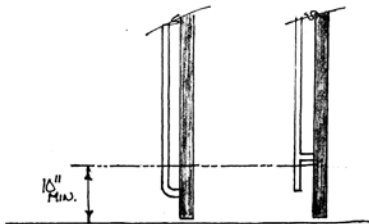
**Reason:** The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and publishes a Commentary on the standard 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 is intended to address an issue that has come up on several interpretation requests. The added language should provide better clarity as to how the provision is to be applied and enforced. While the person raising the question knew the intent of the provision, they were being challenged on the issue because of a literal reading of what the standard says it is regulating.

As currently written, the provision regulates the “door surface” but does not indicate whether it also includes items like the door hardware or any other type of object that may not be on the “door surface”. An example of the question I received dealt with a decorative door pull that went the full height of the door. The question was whether the “door surface” requirement only applied to the door itself or whether the hardware was also regulated.

Clearly the intent of the existing provision is to provide a minimum 10 inch smooth surface that would allow the footrest of a wheelchair or some other type of mobility device to slide along the door as the user opened it. A door pull or any other object which prevents this free movement along the lower 10 inches should be prohibited.

The attached figure illustrates the two door pulls that were being proposed. The first example shows the door hardware being attached within the 10 inch vertical distance. The second shows the hardware being attached above the 10 inch vertical height but with the door pull still extending to within 10 inches of the floor. Therefore, while the “door surface” is smooth the obstruction would prevent free movement along the bottom of the door.



Committee Action:

AS

AM

D

404.2.9-Paarlberg.doc



## 4-28 – 12

### 404.2.9

**Proponent:** Joseph R. Hetzel, P.E., Thomas Associates, Inc, representing Door & Access Systems manufacturers Association (DASMA)

**Revise as follows:**

**404.2.9 Door Surface.** Door surfaces within 10 inches (255 mm) of the floor, measured vertically, shall be a smooth surface on the push side extending the full width of the door. Parts creating horizontal or vertical joints in such surface shall be within  $\frac{1}{16}$  inch (1.6 mm) of the same plane as the other. Cavities created by added kick plates shall be capped.

**EXCEPTIONS:**

1. Sliding doors and upward acting doors shall not be required to comply with Section 404.2.9.
2. Tempered glass doors without stiles and having a bottom rail or shoe with the top leading edge tapered at no less than 60 degrees from the horizontal shall not be required to comply with the 10-inch (255 mm) bottom rail height requirement.
3. Doors that do not extend to within 10 inches (255 mm) of the floor shall not be required to comply with Section 404.2.9.

**Reason:** Currently, ICC/ANSI A117.1 does not address upward acting doors. Such doors have inherent design features similar to those of sliding doors such that an exception to 404.2.9 is also warranted.

Committee Action:           AS                   AM                   D

404.2.9-HETZEL.doc

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## 4-29 – 12

### 404.2.9

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

**Revise as follows:**

**404.2.9 Door Surface.** Door surfaces within 10 inches (255 mm) of the floor, measured vertically, shall be a smooth surface on the push side extending the full width of the door . Parts creating horizontal or vertical joints in such surface shall be within  $\frac{1}{16}$  inch (1.6 mm) of the same plane as the other. Cavities created by added kick plates shall be capped.

**EXCEPTIONS:**

*(Exceptions 1 through 3 are not changed)*

4. Existing doors and gates without smooth surfaces within 10 inches (255 mm) of the finish floor or ground shall not be required to provide smooth surfaces complying with 404.2.9 provided that if added kick plates are installed, cavities created by such kick plates are capped.

**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 for 404.2.9:** Exception number 4 is new text in ADA not in the 2009 A117.1.

Committee Action:      AS                      AM                      D

404.2.9-ROETHER.doc

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## 4-30 – 12

### 404.3, 404.3.2, 404.3.5

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

**Revise as follows:**

**404.3 Automatic Doors and Power-Assisted Doors and Gates.** Automatic doors and automatic gates shall comply with Section 404.3. Full powered automatic doors shall comply with ANSI/BHMA A156.10 listed in Section 105.2.4. Power-assist and low-energy doors shall comply with ANSI/BHMA A156.19 listed in Section 105.2.3.

**EXCEPTION:** Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.3.2, 404.3.4, and 404.3.5.

**404.3.2 Maneuvering Clearances.** Maneuvering clearances at power-assisted doors shall comply with Section 404.2.3. Clearances at swinging automatic doors and gates without standby power and serving an accessible means of egress shall comply with Section 404.2.3.

**EXCEPTION:** Where automatic doors and gates remain open in the power-off condition, compliance with Section 404.2.3 shall not be required.

**404.3.5 Control Switches.** Manually operated controls ~~switches~~ shall comply with Section 309. The clear floor space adjacent to the control ~~switch~~ shall be located beyond the arc of the door swing.

**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: for 404.3.2:** ADA specifies that automatic doors without standby power need to provide maneuvering clearances. Such is not currently in A117. In Section 404.3.5, the controls are not limited to switchtes.

Committee Action:      AS                      AM                      D

404.3-ROETHER.doc

## 4-31 – 12

### 404.3, 404.3.2, 404.3.4, 404.3.5, 404.3.6 (NEW)

**Proponent:** Kim Paarlberg, International Code Council

#### Revise as follows:

**404.3 Automatic Doors.** Automatic doors and automatic gates shall comply with Section 404.3. Full powered automatic doors shall comply with ANSI/BHMA A156.10 listed in Section 105.2.4. Power-assist doors and low-energy automatic doors shall comply with ANSI/BHMA A1 56.19 listed in Section 105.2.3.

**EXCEPTION:** Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.3.2, 404.3.4, and 404.3.5.

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

#### EXCEPTIONS:

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

**404.3.4 Two Doors in Series.** Doors in series shall comply with Section 404.2.5.

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

**404.3.5 Controls Switches.** Manually operated controls switches shall comply with Section 309. The clear floor space adjacent to the control switch shall be located beyond the arc of the door swing.

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

**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 purpose for the change is to align the standard content with terminology common to the automatic door industry, its products, and the standards that govern them.

There is confusion in the requirements for doors addressed by BHMA A156.10 and A156.19. The following information was provided by Joe Hetzel representing the American Association of Automatic Door Manufacturers (AAADM).

- \* A low energy automatic door is different from a power assist door
- \* A power assist door is more like a manual door that employs power to assist the user in manually operating the door
- \* An automatic door can be either a full power door or a low energy door
- \* Full power doors are addressed in BHMA A156.10
- \* Low energy doors are addressed in BHMA A156.19
- \* Power assist doors are also addressed in BHMA A156.19, but they are separate from low energy

Definitions from A156.19:

**Low Energy Power Operated Door:** A door with (a) power mechanism(s) that opens and closes the door upon receipt of an actuating signal and does not generate more kinetic energy than specified in this Standard.

**Power Assist Door:** A door with a power mechanism that reduces the opening resistance of a self closing door.

**The reasons for the changes are as follows:**

- 404.3 – this clarifies what is an automatic door and what is power assist regardless of the referenced standard
- 404.3.2 – clarify that means of egress is only maneuvering clearance is only on one side; exceptions are for when there is there is power or options that swing free
- 404.3.4 – Automatic doors do not need the extra turning space that is required in A117.1.
- 404.3.5 – controls can be other than switches
- 404.3.6 – trying to address ADA 404.3.6 where break out options are actually used, but not sure this is not addressed already in 404.3.1.

Committee Action:            AS                            AM                            D

404.3-PAARLBERG.doc

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## 4-32 – 12

### 404.3

**Proponent:** Joseph R. Hetzel, P.E., Thomas Associates Inc, Door & Access Systems Manufacturers Association (DASMA)

**Revise as follows:**

**404.3 Automatic Doors.** ~~Automatic doors and automatic gates shall comply with Section 404.3.~~ Full powered automatic doors, other than upward acting doors, shall comply with ANSI/BHMA A156.10 listed in Section 105.2.4. Power-assist and low-energy doors, other than upward acting doors, shall comply with ANSI/BHMA A156.19 listed in Section 105.2.3.

**EXCEPTION:** Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.3.2, 404.3.4, and 404.3.5.

**Reason:** ANSI/BHMA A156 is not applicable to upward acting doors. The sentence on automatic doors and automatic gates is repetitive and unnecessary.

Committee Action:           AS                   AM                   D

404.3-HETZEL.doc

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## 4-33 – 12

### 404.3

**Proponent:** Joseph R. Hetzel, P.E., Thomas Associates, Inc., representing American Association of Automatic Door Manufacturers (AAADM)

**Revise as follows:**

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

**Exception:** Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with Sections 404.3.2, 404.3.4 and 404.3.5.

A door that provides a barrier-free path of travel through a pedestrian entrance, and a door in a pedestrian entrance leading from a vestibule into the floor area, shall be a full power automatic door where the entrance serves a hotel, a government building, a building containing a care or detention occupancy, or a building more than 3225 square feet (300 m<sup>2</sup>) containing an assembly occupancy, a business occupancy or a mercantile occupancy.

**EXCEPTIONS:**

1. These requirements shall not apply to an individual suite having an area of less than 3225 square feet (300 m<sup>2</sup>) where located within a building classified as an assembly occupancy, a business occupancy, or a mercantile occupancy, where such suite is completely separated from the remainder of the building.
2. A non-active door leaf in a multiple leaf door in a barrier-free path of travel shall not be required to comply with these requirements.

**Reason:** The proposed language is based on code language currently in existence, and successfully used, in the province of Ontario, Canada. The occupancies cited as requiring automatic doors are associated with locations where a high degree of public use would be anticipated, and would maximize accessibility in these locations.

Committee Action:            AS                    AM                    D

404.3 #2-HETZEL.doc

## 4-34 – 12

### 404.3.4, 404.3.5, 404.3.6 (New)

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**404.3.4 Two Doors in Series.** Doors in series shall comply with Section 404.2.5.

**EXCEPTION:** Automatic doors in a series are not required to provide a turning space complying with Section 304.

**404.3.5 Control Switches.** Manually operated control switches shall comply with Section 309. The clear floor space adjacent to the control switch shall be located beyond the arc of the door swing. Where automatic doors are doors in a series, the clear floor space for the control switches shall be located outside the arc of both doors.

**404.3.6 Door Hardware.** Handles, pulls, latches, locks, and other operable parts on accessible doors shall have a shape that is easy to grasp with one hand and does not require tight grasping, pinching, or twisting of the wrist to operate. Operable parts of such hardware shall be 34 inches (865 mm) minimum and 48 inches (1220 mm) maximum above the floor. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides.

**EXCEPTION:** Locks and control switches used only for security purposes and not used for normal operation are not required to comply with Section 404.3.6.

**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 not an entrapment issue in vestibules with automatic doors on both sides. Therefore the turning space in the vestibule is should not be required. This exception may be appropriate for both automatic and power assist door.

In a two doors in a series situation, if a 2<sup>nd</sup> button for the 2<sup>nd</sup> door is provided inside the vestibule, it should be outside the swing of the 1<sup>st</sup> door as well as the 2<sup>nd</sup>. If someone outside hits the button for the 1<sup>st</sup> door, you do not want it to swing open and hit the person trying to reach the 2<sup>nd</sup> button.

Power assisted doors should have the same hardware requirements as manual doors. Power doors have switched on top of the door that is used to turn the power operation and/or sensor on and off at the beginning and end of the business day. Therefore the exception is needed for automatic door.

Committee Action:           AS                   AM                   D

404.3.4-PAARLBERG.doc



## 4-35 – 12

### 404.3.5

**Proponent:** Gail Himes, City of Tacoma, Washington

**Revise as follows:**

**404.3.5 Control Switches.** Manually operated control switches shall comply with Section 309. The control switch shall be along the path of travel and within of 10 feet of the door. The clear floor space shall be located adjacent to and centered on the control switch and shall be located beyond the arc of the door swing.

**Reason:** There is currently no requirement to have manually operated control switches along the path of travel or within a reasonable distance from the door. According to the Manual for Uniform Traffic Control Devices, the average walking speed of an individual is 3.5 feet per second. Once the average individual operates the control switch, it will take them nearly 3 seconds to reach the door threshold. People with more severe disabilities can take much longer to reach the door. Door timing can be adjusted; however, many building owners/managers are reluctant to let doors stay open very long due to energy loss, insects, etc.

Committee Action:            AS                    AM                    D

404.3.5-HIMES.doc

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## 4-36 – 12

### 404.3.6 (New)

**Proponent:** Joseph R. Hetzel, P.E., Thomas Associates, Inc., representing American Association of Automatic Door Manufacturers (AAADM)

**Add new text as follows:**

**404.3.6 Multiple Exterior Doors At The Same Location.** Where multiple exterior doors at the same location serve the same interior space, 1 of every 8 exterior door leafs shall be a full power automatic door, subject to the following

1. The automatic door shall be closest to the accessible route.
2. The automatic door shall be provided with back-up battery or generator for occupancies of 150 or more.

**Reason:** The proposal will provide true accessibility. Individuals needing accessibility normally seek an accessible route, and an automatic door is proposed to be the door closest to the accessible route. The proposed language is based on code language currently in existence, and successfully used, in the province of Ontario, Canada.

Committee Action:           AS                   AM                   D

404.3.6-HETZEL.doc

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## 4-37 – 12

### 405.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**405.1 General.** Ramps along accessible routes shall comply with Section 405.

#### **EXCEPTIONS:**

1. In assembly areas, aisle ramps adjacent to seating and not serving elements required to be on an accessible route shall not be required to comply with Section 405.
2. Exterior sidewalks that are a minimum of 48 inches wide and slope with grade are not required to comply with Section 405.

**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.

In hilly sites, sidewalks that move up with the grade may be sloped enough to be considered a ramp. However, to put curb protection and handrails on these sidewalks will block access to street parking and adjacent building entrances. This exception is consistent with Access Board's proposal - Public Right-of-way.

Committee Action:                    AS                    AM                    D

405.1 (NEW)-PAARLBERG.doc

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## 4-38 – 12

### 106.5, 405.5, 405.8

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

**Revise as follows:**

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

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

**405.8 Handrails.** Ramp runs with a rise greater than 6 inches (150 mm) shall have handrails complying with 505.

**EXCEPTION:** Within employee work areas, handrails shall not be required where ramps that are part of common use circulation paths, and which are used for the movement of equipment, are designed to permit the installation of handrails complying with 505. Ramps not subject to the exception to 405.5 shall be designed to maintain a 36 inch (915 mm) minimum clear width when handrails are installed.

**Add following new definitions.**

#### 106.5 Defined terms

**circulation path.** An exterior or interior way of passage provided for pedestrian travel, including but not limited to, walks, hallways, courtyards, elevators, platform lifts, ramps, stairways, and landings.

**common use.** Interior or exterior circulation paths, rooms, spaces, or elements that are not for public use and are made available for the shared use of two or more people.

**employee work area.** All or any portion of a space used only by employees and used only for work. Corridors, toilet rooms, kitchenettes and break rooms are not employee work areas.

**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 for Sections 405.5 and 405.8.** These are two exceptions added to the ADA to address issues in facilities where ramps are frequently used for movement of goods and equipment. Often this is accomplished by motorized means such as forklifts as well as non-motorized devices. In order to incorporate the definitions in the A117.1 and make sure they are limited in application to employee work areas, the 3 definitions are needed.

Committee Action:      AS                      AM                      D

405.5-ROETHER.doc

**4-39 – 12**  
**405.7.1**

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**405.7.1 Slope.** Landings shall have a slope not steeper than 1:48 and shall comply with Section 302.  
Changes in level are not permitted.

**Reason:** As originally written it can be argued that changes in level if compliant with section 302 would be allowed at ramp landings. Adding the sentence would be consistent with the Department of Justice's 2010 ADA Standards which states:

**405.7.1 Slope.** Landings shall comply with 302. Changes in level are not permitted.

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

Committee Action:           AS                   AM                   D

405.7.1-WAI.doc

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## 4-40 – 12

### 405.7.4

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

**Revise as follows:**

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

**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 for 405.7.4:** ADA specifies a 60 by 60 space at ramp landings where a change of direction occurs. A117.1 language would allow a T-turn not allowed by ADA.

Committee Action:      AS                      AM                      D

405.7.4-ROETHER.doc

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## 4-41 – 12

### Figure 405.9.2

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

**Revise as follows:**

#### Figure 405.9.2 Ramp Edge Protection

– revise graphic for bottom bars – harmonize graphics

#### Reason for Figure 405.9.2:

**ADA and A117.1 figures show different sections but both illustrate the edge protection..**

**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.

Committee Action:      AS                      AM                      D

405.9.2 figure-ROETHER.doc

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## 4-42 – 12

406, 406.1, 406.2, 406.3, 406.4, 406.5, 406.6, 406.7, 406.8, 406.9, 406.10, 406.11

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

### **406 Curb Ramps**

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

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

~~**406.3 Sides of Curb Ramps.** Where provided, curb ramp flares shall comply with Section 406.3.~~

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

~~**406.4 Width.** Curb ramps shall be 36 inches (915 mm) minimum in width, exclusive of flared sides.~~

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

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

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

~~**406.10 Diagonal Curb Ramps.** Diagonal or corner type curb ramps with returned curbs or other well defined edges shall have the edges parallel to the direction of pedestrian flow. The bottoms of diagonal curb ramps shall have 48 inches (1220 mm) minimum clear space outside active traffic lanes of the roadway. Diagonal curb ramps provided at marked crossings shall provide the 48 inches (1220 mm) minimum clear space within the markings. Diagonal curb ramps with flared sides shall have a segment of curb 24 inches (610 mm) minimum in length on each side of the curb ramp and within the marked crossing.~~

~~**406.11 Islands.** Raised islands in crossings shall be a cut through level with the street or have curb ramps at both sides. Each curb ramp shall have a level area 48 inches (1220 mm) minimum in length and 36 inches (915 mm) minimum in width at the top of the curb ramp in the part of the island intersected by the crossings. Each 48-inch (1220 mm) by 36-inch (915 mm) area shall be oriented so the 48-inch (1220 mm) length is in the direction of the running slope of the curb ramp it serves. The 48-inch (1220 mm) by 36-inch (915 mm) areas and the accessible route shall be permitted to overlap.~~

### **406 Curb Ramps and Blended Transitions**

~~**406.1 General.** Curb ramps and blended transitions on accessible route shall comply with Section 406~~

~~**406.2 Perpendicular Curb Ramps.** Perpendicular curb ramps shall comply with Sections 406.2 and 406.5.~~

~~**406.2.1 Turning Space.** A turning space 48 inches (1220 mm) minimum by 48 inches (1220 mm) minimum shall be provided at the top of the curb ramp and shall be permitted to overlap other turning spaces and clear spaces. Where the turning space is constrained at the back-of-sidewalk, the turning~~



space shall be 48 inches (1220 mm) minimum by 60 inches (1525 mm) minimum. The 60 inches (1525 mm) dimension shall be provided in the direction of the ramp run.

**406.2.2 Running Slope.** The running slope of the curb ramp shall cut through or shall be built up to the curb at right angles or shall meet the gutter grade break at right angles where the curb is curved. The running slope of the curb ramp shall be 5 percent minimum and 8.3 percent maximum but shall not require the ramp length to exceed 15 feet (4573 mm). The running slope of the turning space shall be 2 percent maximum.

**406.3 Parallel Curb Ramps.** Parallel curb ramps shall comply with Sections 406.3 and 406.5.

**406.3.1 Turning Space.** A turning space 48 inches (1220 mm) minimum by 48 inches (1220 mm) minimum shall be provided at the bottom of the curb ramp and shall be permitted to overlap other turning spaces and clear spaces. If the turning space is constrained on 2 or more sides, the turning space shall be 4 feet (1.2 m) minimum by 60 inches (1525 mm). The 60 inches (1525 mm) dimension shall be provided in the direction of the pedestrian street crossing.

**406.3.2 Running Slope.** The running slope of the curb ramp shall be in-line with the direction of sidewalk travel. The running slope of the curb ramp shall be 5 percent minimum and 8.3 percent maximum but shall not require the ramp length to exceed 15 feet (4573 mm). minimum. The running slope of the turning space shall be 2 percent maximum.

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

**406.4.1 Running Slope.** The running slope of blended transitions shall be 5 percent maximum.

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

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

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

**406.5.3 Cross Slope.** The cross slope of curb ramps, blended transitions, and turning spaces shall be 2 percent maximum. At pedestrian street crossings without yield or stop control and at midblock pedestrian street crossings, the cross slope shall be permitted to equal the street or highway grade.

**406.5.4 Counter Slope.** The counter slope of the gutter or street at the foot of curb ramp runs, blended transitions, and turning spaces shall be 5 percent maximum.

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

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

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

**406.5.9 406.8 Obstructions.** Curb ramps shall be located or protected to prevent their obstruction by parked vehicles.

**406.5.10 ~~406.9~~ Handrails.** Handrails shall not be required on curb ramps.

**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 is using the proposed regulations for curb cuts in Section R304 in the Access Board's proposal: Public right-of-way. Items currently in A117.1 that still seemed relevant are proposed to be maintained. The issue of detectable warnings is addressed in a separate proposal.

Committee Action:           AS                   AM                   D

406 (New)-PAARLBERG.doc

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## 4-43 – 12

### 406.5

**Proponent:** Gina Hilberry, United Cerebral Palsy Association and the City of St. Louis, Office on the Disabled Advisory Council

**Revise as follows:**

**406.5 Floor Surface.** Floor surfaces of curb ramps shall comply with 302. Surfaces shall not be constructed of semi-permeable or porous asphalt or concrete paving materials.

**Reason:** In the current edition of the Public Right-of-Way Guidelines, Advisory R302.7.1 includes the following statement: "Pedestrian access route surfaces must be generally planar and smooth. Surfaces should be chosen for easy rollability. Surfaces that are heavily textured, rough, or chamfered and paving systems consisting of individual units that cannot be laid in plane will greatly increase rolling resistance and subject pedestrians who use wheelchairs, scooters and rolling walkers to the stressful and often painful effects of vibration. Such materials should be reserved for borders and decorative accents located outside of or only occasionally crossing the pedestrian access route. Surfaces should be designed, constructed, and maintained according to appropriate industry standards, specifications, and recommendations for best practice."

The City of St. Louis has experimented with semi-permeable and porous asphalt and concrete paving materials in a variety of locations. In addition, a series of videos were taken with a group of people with disabilities using several surfaces that were installed using specifications and methods beyond industry standards. Current standards as applied to porous and semi-permeable asphalt and concrete paving do not result in surfaces with easy rollability. This is particularly problematic when applied to curb ramps where rolling resistance and changes in level are particularly difficult for people using wheelchairs or rolling walkers. It should be noted, that people with visual impairments using long canes commented repeatedly that the rough porous surfaces also caught their cane tips and decreased their ability to move quickly and smoothly.

Semi-permeable rubber surfaces are specifically excluded from these comments. These surfaces tested out to be smooth, planar and very useable by all user experts.

Committee Action:            AS                    AM                    D

406.5-HILBERRY.doc

## 4-44 – 12

406.12, 406.13, 406.13.1, 406.13.2, 406.14, 705.6 (New), 705.7 (New), 805.10

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

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

**406.12 Where detectable warnings are required.** Detectable warning surfaces complying with Section 705 shall be provided at the following locations on pedestrian access routes and at transit stops:

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

**Exception:** Detectable warning surfaces are not required at pedestrian refuge islands that are cut-through at street level and are less than 6 feet (1829 mm) in length in the direction of pedestrian travel.

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

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

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

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

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

**705.7 Placement.** The placement of detectable warning surfaces shall comply with Section 705.7.

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

1. Where the ends of the bottom grade break are in front of the back of curb, detectable warning surfaces shall be placed at the back of curb.
2. Where the ends of the bottom grade break are behind the back of curb and the distance from either end of the bottom grade brake to the back of curb is 60 inches (1525 mm) or less, detectable warning surfaces shall be placed on the ramp run within one dome spacing of the bottom grade break.
3. Where the ends of the bottom grade break are behind the back of curb and the distance from either end of the bottom grade brake to the back of curb is more than 60 inches (1525 mm), detectable warning surfaces shall be placed on the lower landing at the back of curb.
- 4.

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

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

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

**705.7.5 Pedestrian At-Grade Rail Crossings.** At pedestrian at-grade rail crossings not located within a street or highway, detectable warning surfaces shall be placed on each side of the rail crossing. The edge of the detectable warning surface nearest the rail crossing shall be 72 inches (1829) minimum and 15 feet (4679 mm) maximum from the centerline of the nearest rail. Where pedestrian gates are provided, detectable warning surfaces shall be placed on the side of the gates opposite the rail.

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

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

**805.10 Track Crossings.** Where a circulation path crosses tracks, it shall comply with Section 402 and shall have a detectable warning 24 inches (610 mm) in depth complying with Section 705 extending the full width of the circulation path. The detectable warning surface shall be located so that the edge nearest the rail crossing is 6 foot (1830 mm) minimum and 15 foot (4570 mm) maximum from the centerline of the nearest rail.

**EXCEPTION:** Openings for wheel flanges shall be permitted to be 2<sup>1</sup>/<sub>2</sub> inches (64 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.

This language for where detectable warnings are required and how to size and locate them is consistent with R208.1 and R305 of the Access Board's Proposal: Public Right-of-way. The location and size is not in 705 and more specifically addressed.

Committee Action:                   AS                   AM                   D

406.12 (new)-PAARLBERG.doc

## 4-45– 12

### 407.2.1.1, Figure 407.2.1.1

**Proponent:** Hale Zukas, representing World Institute on Disability

**Revise as follows:**

**407.2.1.1 Height.** Call buttons and keypads shall be located 42 inches (965 mm) above the floor ~~within one of the reach ranges specified in Section 308,~~ measured to the centerline of the highest operable part.

**EXCEPTION:** Existing call buttons and existing keypads shall be permitted to be located 54 inches (1370 mm) maximum above the floor, measured to the centerline of the highest operable part.

**Delete Figure 407.2.1.1**

**Reason:**

1. This proposal merely reinstates a standard which had been in effect for decades and with which almost all existing call buttons comply.
2. By requiring call buttons to be at a single absolute height (rather than anywhere within one of the very wide reach ranges in Section 308), this proposal makes them easier to find for people with impaired or no vision.
3. Dr. Steinfeld has stated that, given his group's research findings, 42 inches is the optimum height for accommodating the needs both of standing adults and of wheeled mobility device users.
4. Specifying 42 inches as the height for call buttons eliminates need for a figure.

Committee Action:           AS                   AM                   D

407.2.1.1-ZUKAS.doc

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**4-46 – 12**  
**407.2.1.4.1 (New)**

**Proponent:** Anthony Alarid, New Mexico Governor’s Commission on Disability (NMGCD)

**Revise as follows:**

**407.2.1.4.1 Distance from Elevator Door.** Call buttons shall be located a distance of 36 inches (915 mm) maximum from the elevator door opening.

**Reason:** The height of the call button is currently regulated in 407.2.1.1. The standards do not address the distance that a call button can be mounted from the elevator door opening. If the mounting distance is too far removed from the elevator door, it can present a problem for individuals who are blind, for the elderly who may move slowly, or for individuals who use mobility aids. The call button may not be located if the user is blind or has low vision, or the door can open and close before a caller with limited mobility is able to respond to the door that opens, not having sufficient time to safely enter the elevator before the door closes. See photos on Page 2 of “before” and “after” relocated call buttons where the relocation created access issues due to the increased distance of travel.



BEFORE



AFTER

Committee Action:           AS                   AM                   D

407.2.1.4.1 (New)-ALARID.doc

## 4-47 – 12

### 407.2.1.6

**Proponent:** Brian Black, BDBlack & Associates, representing National Elevator Industry Inc.

**Revise as follows:**

**407.2.1.6 Keypads.** ~~Where keypads are~~ Keypads, where provided, keypads shall be in a standard tele-  
~~phone keypad arrangement and shall comply with Section 407.4.7.2.~~

**Reason:** This change correlates with the proposed change to 407.4.7.2 that places the standard telephone arrangement in that section to regulate keypads inside of elevator cars as well as those at hall call stations.

Committee Action:           AS                   AM                   D

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407.2.1.6-BLACK.doc



## 4-48 – 12

### 407.2.4

**Proponent:** Brian Black, BDBlack & Associates, representing National Elevator Industry Inc.

**Delete with substitution as follows:**

~~**407.2.4 Destination Signs.** Where signs indicate that elevators do not serve all landings, signs in raised characters and braille complying with Sections 703.3 and 703.4 shall be provided above the hall call button or keypad.~~

~~**EXCEPTION:** Destination oriented elevator systems shall not be required to comply with Section 407.2.4.~~

**Reason:** ASME A17.1/CSA B44 includes *Nonmandatory Appendix E: Elevator Requirements for Persons with Physical Disabilities in Jurisdictions enforcing the National Building Code of Canada*. In 2011 the Appendix E Subcommittee of the Canadian Standards Association (CSA) B44 Technical Committee undertook an effort to harmonize its document with ICC/ANSI A117.1-2009. This item was identified as a requirement that should be removed to a building code (e.g, the ICC *International Building Code* or *National Building Code of Canada*).

Compliance with Section 407 is under the control of the elevator contractor installing the elevator system. Accessible building directional signs are the responsibility of a subcontractor that is providing signs for the building. Adding this requirement to the accessible sign requirements of the building code will ensure that the proper contractor will be responsible for these signs.

Committee Action:           AS                   AM                   D

407.2.4-BLACK.doc

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## 4-49 – 12

### 407.4.6.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**407.4.6.1 Location.** Controls shall be located within one of the reach ranges specified in Section 308.

#### **EXCEPTIONS:**

1. Where the elevator panel complies with Section 407.4.8.
2. In existing elevators, where a parallel approach is provided to the controls, car control buttons with floor designations shall be permitted to be located 54 inches (1370 mm) maximum above the floor. Where the panel is changed, it shall comply with Section ~~407.4.6.1~~ 308.

**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 current reference accomplishes nothing other than referring back to the base paragraph and therefore to Section 308. It seemingly will also create a circular reference because as you work through 407.4.6.1 you end up back at exception 2 and then get sent right back up to the beginning. Why not just reference 308 directly at this point?

This issue came up based upon a revision that was made in the exception to Section 308.3.1 in the 2009 code. The 2009's revised exception says "existing elements that are not altered shall be permitted at 54 inches (1370 mm) above the floor." It seems that with the "that are not altered" text being added in 2009 it will now allow a direct reference to Section 308 and it will still coordinate with the exception in 407.4.6.1 that says "where the panel is changed."

Committee Action:                    AS                    AM                    D

407.4.6.1-PAARLBERG.doc

## 4-50 – 12

### 407.4.6.2.2, 407.4.7.1.2 (New)

**Proponent:** Gene Boecker, Code Consultants, Inc.

**Revise as follows:**

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

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

*(Renumber subsequent sections)*

**Reason:** The intent is two-fold: first, to relocate the designation information to the section which requires car control designations; and second, to clarify the intent that numbers must be used but letters can accompany the numbers to assist in the designation.

**Relocation.** The current text is in the section of the standard which deals with the arrangement of the buttons on the car control panel. The text which addresses the numbers to be in ascending order is appropriate in here as is the text relating to left/right arrangement where there are columns. The rest of the information deals with the actual content of what is supposed to be designated. The proposal moves this text to a new section in the existing section titled “Designations. . . .” The title of the new section is “Designation” to make it clear that the intent is that the arrangement is addressed in the arrangement section and the designation on the car buttons is in the designation section of the standard.

**Numbers/Letters.** The text is copied from the prior location beginning with the phrase “Floors shall be. . .” and ending with “the minus symbol (“-”).” An additional sentence is added to indicate that letters may be used in conjunction with the numbers but that the primary designation is numeric while letters can be used to help identify levels based on local culture. For example, the negative floors are known as basements in some parts of the country but referred to as cellars in other parts. This would allow the “-1” level to be designated “-1B” (first basement) or “-1C” (first cellar) as well as the “-1” intended by the original text. Alternately, two letters could be used in a manner such as “-1LL” to indicate the Lower Level - common language for conference centers. However, the proposal is specific in that not more than two letters can be used. Otherwise, the size of the designation text and Braille grows and the subsequent length becomes too great to be able to quickly identify the desired floor.

The section is intended to be inserted near the beginning of the section so the subsection “Location” should be renumbered as will subsequent subsections.

Committee Action:                   AS                   AM                   D

407.4.6.2.2-BOECKER.doc

## 4-51 – 12

### 407.4.6.4, 407.4.6.4.1, 407.4.6.4.2

**Proponent:** Brian Black, BDBlack & Associates, representing National Elevator Industry Inc.

**Revise as follows:**

**407.4.6.4 Emergency Controls Buttons.** ~~Emergency eControls buttons~~ shall comply with Section 407.4.6.4.

**407.4.6.4.1 Height.** ~~Emergency control buttons~~ Where provided, door open, door close, alarm and emergency stop buttons shall have their centerlines 35 inches (890 mm) minimum above the floor.

**407.4.6.4.2 Location.** ~~Emergency controls, including the emergency alarm,~~ Where provided, door open, door close, alarm and emergency stop buttons shall be grouped at the bottom of the panel.

**Reason:** The term “emergency controls” has been in the standard since 1980 but has never been defined. In fact, there is no industry consensus on what constitutes an emergency control in a passenger elevator. The term was first used in the 1976 *NEII® Suggested Minimum Passenger Elevator Requirements for the Handicapped* and at that time it was understood to refer to the door open, door close, alarm and emergency stop buttons. (Note that the “phone” button is not listed as it is addressed separately in Section 407.4.10.)

The phrase “where provided” clarifies that some or all of these control buttons may not be provided in an elevator car operating panel. None of the listed buttons is required to be accessible to the public by ASME A17.1/CSA B44, and alarm and emergency stop switches are no longer required in passenger elevators by that code. None is necessary to make the elevator accessible to persons with disabilities.

Committee Action:            AS                    AM                    D

407.4.6.4-BLACK.doc

## 4-52– 12

### 407.4.7.2, 407.4.7.2.1 (New), 407.4.7.2.2 (New), 407.4.7.2.3 (New), 407.4.7.2.4 (New), 407.4.7.2.5 (New)

**Proponent:** Brian Black, BDBlack & Associates, representing National Elevator Industry Inc.

**Revise as follows:**

**407.4.7.2 Keypads.** Where provided, keypads shall comply with Section 407.4.7.2.

**407.4.7.2.1 Arrangement.** Key pads shall be in a standard telephone keypad arrangement, except that the bottom left key shall have a star complying with Table 407.4.7.1.3 and the bottom right key shall have a minus sign.

**407.4.7.2.2 Size.** Keypad keys shall be  $\frac{3}{4}$  inch (19 mm) in the smallest dimension.

**407.4.7.2.3 Identification.** Keypad keys shall be identified by visual characters complying with Section 703.2 centered on the corresponding keypad button. The number five key shall have a single raised dot. The dot shall have a base diameter of 0.118 inch (3 mm) minimum and 0.120 inch (3.05 mm) maximum, and a height of 0.025 inch (0.6 mm) minimum and 0.037 inch (0.9 mm) maximum.

**407.4.7.2.4 Operation.** Keypads shall be mechanical. The force required to activate the keys shall be 0.5 pounds (2.5 N) minimum and 1.25 pounds (5 N) maximum.

**407.4.7.2.5 Touch screens.** Touch screen input devices shall be permitted where a mechanical keypad is provided.

**Reason:** Proposed 407.4.7.2.1 moves the “standard telephone keypad” requirement found in Section 407.2.1.6 to the keypad section to have keypads both at the landings and in the cars comply with this arrangement. The star in the bottom left corner designated that key as the one to press to reach the main floor, and the minus sign in the bottom right corner replaces the telephone “#” symbol to allow the input of negative floor numbers. This is typical industry practice and is also codified in ISO 4190-5 (*Lift installation – Part 5: Control devices, signals and additional fittings*) and the San Francisco Building Code.

Proposed 407.4.7.2.2 is necessary because the size of the keys is regulated for hall call controls by Section 407.2.1.2 but is not regulated for keypads in cars. Section 407.4.6.2 regulates the size of car buttons “with floor designations”, but keypad keys do not designate specific floors.

Proposed 407.4.7.2.3 is renumbered existing text.

Proposed 407.4.7.2.4 requires an accessible keypad to be mechanical and to provide feedback that a button has been activated. The force limits are consistent with ISO 4190-5.

Proposed 407.4.7.2.5 clarifies that touch screen technology is permitted where a mechanical, accessible keypad is provided.

Committee Action:           AS                   AM                   D

407.4.7.2-BLACK.doc

## 4-53 – 12

### 407.4.9.1.1

**Proponent:** Brian Black, BDBlack & Associates, representing National Elevator Industry Inc.

**Revise as follows:**

**407.4.9.1.1 Size.** Characters shall be ~~1/2~~ 5/8 inch (~~13~~ 16 mm) minimum in height.

**Reason:** ASME A17.1/CSA B44 includes *Nonmandatory Appendix E: Elevator Requirements for Persons with Physical Disabilities in Jurisdictions enforcing the National Building Code of Canada*. In 2011 the Appendix E Subcommittee of the Canadian Standards Association (CSA) B44 Technical Committee undertook an effort to harmonize its document with ICC/ANSI A117.1-2009. This item was identified as a Canadian requirement that the US standard should adopt. Note that it provides greater accessibility than the existing text.

Committee Action:           AS                   AM                   D

407.4.9.1.1-BLACK.doc

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## 4-54 – 12

### 407.4.10

**Proponent:** Hansel Bauman, Architect, representing National Association of the Deaf

**Revise as follows:**

**407.4.10 Emergency Communications.** Visual and audible emergency two-way communication systems between the elevator car and a point outside the hoistway shall comply with Section 407.4.10 and ASME A17.1/CSA B44 listed in Section 105.2.5.

**Reason:** The addition of the term visual and audible is recommended to stress the need for emergency visual communication in elevators for deaf and hard of hearing individuals. In order to provide deaf and hard of hearing individuals with clear and immediate communication during emergency situations in elevators a text screen pad is recommended to be included in public elevators and at a location outside the hoistway.

Committee Action:           AS                   AM                   D

407.4.10-BAUMAN.doc

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## 4-55 – 12

### 407.4.10.3 (New)

**Proponent:** Brian Black, BDBlack & Associates, representing National Elevator Industry Inc.

**Add new text as follows:**

**407.4.10.3 Instructions.** If instructions for use are provided, essential information shall be presented in both visual form and raised characters and braille complying with Sections 703.3 and 703.4.

**Reason:** ASME A17.1/CSA B44 includes *Nonmandatory Appendix E: Elevator Requirements for Persons with Physical Disabilities in Jurisdictions enforcing the National Building Code of Canada*. In 2011 the Appendix E Subcommittee of the Canadian Standards Association (CSA) B44 Technical Committee undertook an effort to harmonize its document with ICC/ANSI A117.1-2009. This item was identified as a Canadian requirement that should be added to the US standard.

This proposed change would ensure an equivalent level of accessibility for persons who are blind or visually impaired where visual instructions on the use of the emergency communications is provided.

Committee Action:            AS                    AM                    D

407.4.10.3 (New)-BLACK.doc

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## 4-56 – 12

### 408.4.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**408.4.1 Inside Dimensions.** Elevator cars shall provide a clear floor width of 42 inches (1065 mm) minimum. The clear floor area shall not be less than 15.75 square feet (1.46 m<sup>2</sup>). The elevator car shall provide a clear floor space complying with Section 305.3.

**EXCEPTION:** For installations in existing buildings, elevator cars that provide a clear floor area of 15 square feet (1.4 m<sup>2</sup>) minimum, and provide a clear inside dimension of 36 inches (915 mm) minimum in width and 54 inches (1370 mm) minimum in depth, shall be permitted. This exception shall not apply to cars with doors on adjacent sides.

**Reason:** This proposal is intended to ensure that the depth of the elevator car can accommodate the 48 inch depth requirement for a clear floor space. It will really have a fairly limited application but will close a loophole that exists when the elevator car is built to the minimum area requirements.

As it is currently written a 47.62 inch by 47.62 inch car would meet the currently imposed 42 inch minimum width and 15.75 sq. ft. size. However, it would not accommodate the 48 inch depth required for a clear floor space. Once the "width" goes over 47.25 inches, they would no longer get the 48 inch depth unless the car does exceed the 15.75 sq. ft. minimum area.

The possibility of a 47.62 by 47.62 inch elevator car would represent the worst case scenario for the minimum depth. This new text would address the situation where the width is between 47.25 and 47.62 inches and the car is exactly 15.75 square feet in area. If the car gets "wider" and is not "deep" enough, the door location provisions of Section 408.3.3 will kick in and move the door to the "narrow end" of the car.

Because this proposal does have a very limited range of application (minimum area elevator car with width between 47.25 and 47.62 inches) it may not be worth making this change; but approving it does close an apparent loophole which could allow the LULA elevator to have a depth which could not accommodate the generally required 48 inch clear floor space.

Committee Action:           AS                   AM                   D

408.4.1-PAARLBERG.doc

## 4-57 – 12

### 408.4.1

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**408.4.1 Inside Dimensions.** Elevator cars shall provide a clear floor width of 42 inches (1065 mm) minimum and a clear depth 54 inches (1370 mm) minimum. The clear floor area shall not be less than 15.75 square feet (1.46 m2).

**EXCEPTIONS:**

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

**Reason:** The Department of Justice's 2010 ADA Standards requires a minimum depth of 54 inches. As currently written it is possible to achieve a minimum clear floor area of 15.75 square feet with a depth that may be less than 54 inches if the width is greater than 42 inches, which would not be compliant with the 2010 ADA Standards.

In addition, the 2010 Standards allow an exception that existing cars are permitted to have a clear width of 51 inches minimum and a clear depth of 51 inches minimum if the doors provide a minimum clear opening of 36 inches. For consistency with the 2010 ADA Standards, it is proposed that an additional exception mirroring the 2010 Standards be added.

The 2010 ADA Standards states:

**408.4.1 Car Dimensions and Doors.** Elevator cars shall provide a clear width 42 inches (1065 mm) minimum and a clear depth 54 inches (1370 mm) minimum. Car doors shall be positioned at the narrow ends of cars and shall provide 32 inches (815 mm) minimum clear width.

**EXCEPTIONS:**

1. Cars that provide a clear width 51 inches (1295 mm) minimum shall be permitted to provide a clear depth 51 inches (1295 mm) minimum provided that car doors provide a clear opening 36 inches (915 mm) wide minimum.
2. Existing elevator cars shall be permitted to provide a clear width 36 inches (915 mm) minimum, clear depth 54 inches (1370 mm) minimum, and a net clear platform area 15 square feet (1.4 m2) minimum.

Committee Action:                    AS                    AM                    D

408.4.1-WAI.doc

## 4-58 – 12

### 409.3.1

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**409.3.1 Power Operation.** Elevator car doors and gates shall be power operated and shall comply with ANSI/BHMA A156.19 listed in Section 105.2.3. Elevator cars with a single opening shall have low energy power operated hoistway doors and gates.

**EXCEPTION:** Hoistway doors or gates shall be permitted to be of the self-closing, manual type, ~~where that door or gate provides access to a narrow end of the car that serves only one landing.~~ more than one opening is provided in the elevator car.

**Reason:** The 2010 ADA Standards only allow hoistway doors or gates to be self-closing, manual type where more than one opening is provided. As currently written, there may be only one opening that is a self-closing manual type, which would make the elevator non-compliant with the 2010 ADA Standards.

Most new construction and alterations must comply with the Department of Justice's 2010 ADA Standards or the Department of Transportation's ADA Standards. To ensure elevators comply with both Standards, it is recommended that the exception mirror the 2004 ADAAG that was adopted by both enforcing agencies. The 2004 ADAAG states:

**409.3.1 Power Operation.**

**EXCEPTION:** In elevator cars with more than one opening, hoistway doors and gates shall be permitted to be of the manual open, self-close type.

Committee Action:            AS                            AM                            D

409.3.1-WAI.doc

## 5-1 – 12

### 502.1, 502.9 (New), 502.10 (New)

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**502.1 General.** Accessible car and van parking spaces in parking lots shall comply with Sections 502.2 through 502.8. Accessible car and van parking spaces provided as part of on-street parking shall comply with Sections 502.9 through 502.10.

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

**502.9.1 Wide Sidewalks.** Where the width of the adjacent sidewalk or available right-of-way exceeds 14 feet (4267 mm), an access aisle 60 inches (1525 mm) wide minimum shall be provided at street level the full length of the parking space and shall connect to a pedestrian access route. The access aisle shall comply with Section 502.4 and shall not encroach on the vehicular travel lane.

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

**502.9.1.2 Narrow Sidewalks.** An access aisle is not required where the width of the adjacent sidewalk or the available right-of-way is less than or equal to 14 feet (4267 mm). When an access aisle is not provided, the parking spaces shall be located at the end of the block face.

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

**502.10 Parking Meters and Parking Pay Stations.** Parking meters and parking pay stations that serve accessible parking spaces shall comply with Section 309.

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

**502.10.2 Displays and Information.** Displays and information shall be visible from a point located 40 inches (1016 mm) maximum above the center of the clear space in front of the parking meter or parking pay station.

**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 provisions from the Access Boards' proposed Public Right-of-way requirements address street parking (R309). The current requirements in A117.1 really only works on a practical basis for parking lots.

Committee Action:           AS                   AM                   D

502.9 (NEW)-PAARLBERG.doc

## 5-2 – 12

### 502.3

**Proponent:** Gene Boecker, Code Consultants, Inc.

**Revise as follows:**

**502.3 Vehicle Space Marking.** Car and van parking spaces shall be marked to define the width. Where parking spaces are marked with lines, the width measurements of parking spaces and adjacent access aisles shall be made from the centerline of the markings.

#### **EXCEPTIONS:**

1. Where parking spaces or access aisles are not adjacent to another parking space or access aisle, measurements shall be permitted to include the full width of the line defining the parking space or access aisle.
2. Marked spaces are not required in valet or mechanical parking facilities provided all of the following conditions are met:
  - 2.1 Accessible van spaces are provided as follows:
    - 2.1.1. Not less than one space, or;
    - 2.1.2. Not less than two spaces where a facility has a total parking capacity of 200 or more.
  - 2.2. A passenger loading zone complying with Section 503 is provided;
  - 2.3. At least one accessible parking space is made available unless all required accessible parking spaces are occupied;
  - 2.4. Each van accessible space shall be permanently marked and provided with signage containing the International Symbol of Accessibility complying with Section 703.6.3.1 and accompanied by a sign stating "Vehicles parked in this space are subject to relocation if necessary to accommodate a vehicle that cannot be parked in another accessible parking space." Such signs shall not be obstructed by a vehicle parked in the space; and
  - 2.5 A plan is provided to the Authority Having Jurisdiction indicating the following:
    - 2.5.1. An attendant shall park and retrieve all vehicles not equipped with special controls in which either the driver or passenger is a person with a disability;
    - 2.5.2 An attendant shall direct drivers of vehicles equipped with special controls to the accessible parking spaces, accompanying the driver to and from the space along the drive route and the accessible route from the parking space.

**Reason:** The Standard is not clear regarding how parking facilities are to be addressed where they are served by an attendant (valet) or by mechanical parking. In both of those instances, the operator of the vehicle does not actually park the vehicle but leaves it for an attendant to park. In these types of facilities, parking spaces are usually not marked so identifying specific accessible parking spaces is not easily found. As the standard is written now, all accessible spaces must be marked so it is in conflict with the use of these valet and mechanical parking facilities. Shall all accessible spaces be marked? If so where must these be? Why mark the spaces if an attendant parks the vehicle? Why mark access aisles if the aisles disappear as soon as the next vehicle is parked by the attendant?

This language is modeled from the exception in the New York City Building Code. It places some degree of responsibility on the method used for attendant parking. In order to be able to use this exception, all of the conditions must be met. The following describes each of the provisions:

2.1 Accessible van spaces must be provided in addition to regular accessible spaces.  
2.1.1 and 2.1.2 At least one accessible van parking space must be provided and permanently marked. Where the facility has 200 or more parking spaces possible, two accessible van spaces must be provided. This is based on the scoping provisions in Section 1106.1 of the International Building Code (IBC) and Section 208.2 of the 2010 ADA Standards for Accessible Design (2010 Standards) as adopted by the US Department of Justice for one in six accessible spaces to be a van accessible space. Where the

number of total parking spaces is not more than 200, only six accessible spaces are required, resulting in a single van accessible space. This makes the responsibility for van spaces consistent with other types of parking. (See 2.4 for additional discussion.)

2.2 The passenger loading zone is already required by the scoping provisions of Section 1106.7.3 and 1106.7.3 of the IBC as well as Sections 209.4 and 209.5 of the 2010 Standards. This provision acts as a pointer and reminder that this condition is required regardless of what other equivalencies may be provided.

2.3 Because this is an exception to required marked parking spaces, the ability to create an accessible parking space in valet parking is based on how the attendant parks the vehicle. The space is the size of the vehicle. The key is making sure that the access aisle is available for the persons seeking to use them. This is usually accommodated by parking the vehicle such that one or the other side has sufficient space next to a vehicular aisle or pedestrian path. The last part of this item is simply stating that at some time it may not be possible to provide the access aisle any longer due to the manner in which valet parking is accommodated. In mechanical parking facilities, the criteria are more along the lines of access to/from the vehicle parking position. The word "required" parking spaces is intentionally used to bring attention to the fact that there is a specific minimum number of accessible spaces required elsewhere which must be addressed.

2.4 The van accessible spaces required in 2.1 must be marked and provided with signage. Because van spaces require additional height these spaces should be identified and made available. The remainder of the parking facility may or may not have adequate height. This provision requires that at least these two spaces have adequate height and the proper access aisles. Should the facility have sufficient height, more than two van accessible spaces could be provided if the vehicles can be moved (subject to 2.4 and 2.5 above).

2.5 In order to be able to not have marked parking spaces, an operations plan must be submitted to the Authority Having Jurisdiction. The official receives the plan and files it with the project.

2.5.1 and 2.5.2 These two criteria address the method for getting the vehicle to the accessible parking space. If the vehicle does not have special controls, then it can be driven and parked by the attendant. If the vehicle has special controls, then the attendant assists the driver in parking the vehicle at what is an accessible space (albeit not marked) and directing the driver along the vehicular path to the parking space and then along the pedestrian path to available accessible routes into and through the parking facility.

This may allow for more accessible spaces to be provided and more accessible van spaces to be provided than what would be available with permanently marked parking lots. The minimum required number of accessible spaces must be provided. However, attendant parking gives the attendant the control over location and parking which means that in a valet arrangement almost all parking spaces could be accessible spaces.

The current text is not clear regarding what must be done to mark parking spaces in valet and mechanical parking facilities. This proposal seeks to maintain the requirement that accessible spaces be provided while removing the obligation to mark spaces in facilities where parking is either flexible in configuration (valet) or fixed in regard to position but flexible regarding usage (mechanical).

Committee Action:                   AS                   AM                   D

TEMPLATE.doc

## 5-3 – 12

### 502.4.2

**Proponent:** Gail Himes, City of Tacoma, Washington

**Revise as follows:**

**502.4.2 Width.** Access aisles serving car and van parking spaces shall be 60 inches (1525 mm) minimum in width. Building elements shall not reduce the width.

**Reason:** It is common for designers to locate obstructions in the access aisle. This will emphasize that this is not permissible. Reducing the width can impede or deny access to people with disabilities.

Committee Action:           AS                   AM                   D

502.4.2-HIMES.doc

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## 5-4 – 12

### 502.4.4

**Proponent:** Gail Himes, City of Tacoma, Washington

**Revise as follows:**

**502.4.4 Marking.** Access aisles shall be marked so as to discourage parking in them. Where access aisles are marked with lines, the width measurements of access aisles and adjacent parking spaces shall be made from the centerline of the markings. The markings shall be diagonal stripes with a maximum angle of 20 degrees from the outer lines designating the aisles. For a 5 foot wide access aisle the stripes shall be 12 inches wide with 24 inches on center, and for an 8 foot wide access aisle the stripes shall be 24 inches wide with 48 inches on center.

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

**Reason:** Markings that are perpendicular to the outside lines of the access aisle may be misinterpreted as a crossing. A diagonal stripe helps differentiate access aisles from the street crossings and improve safety.

Committee Action:           AS                   AM                   D

502.4.4-HIMES.doc

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**5-5 – 12**  
**502.5**

**Proponent:** Gail Himes, City of Tacoma, Washington

**Revise as follows:**

**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. Ramps shall not be located in the access aisle.

**Reason:** Ramps in the access aisle may impede the deployment of a ramp or lift, or create an uneven surface when entering or exiting a vehicle.

Committee Action:           AS                   AM                   D

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502.5-HIMES.doc

## 5-6 – 12

### 502.7

**Proponent:** Gail Himes, City of Tacoma, Washington

**Revise as follows:**

**502.7 Identification.** Where accessible parking spaces are required to be identified by signs, the signs shall include the International Symbol of Accessibility complying with Section 703.6.3.1. Signs identifying van parking spaces shall contain the designation “van accessible.” Such signs shall be located at the head and centered on each parking space. Such signs shall be 60 inches (1525 mm) minimum above the floor of the parking space, measured to the bottom of the sign.

**Reason:** Accessible parking signs that are off to one side of the parking stall or shared by two stalls make it confusing for drivers and parking enforcement staff. In Washington State, the ground symbol for the parking space is optional. Centering the parking sign on the stall would reduce confusion and violations.

Committee Action:            AS                    AM                    D

502.7-HIMES.doc

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**5-7 – 12**  
**502.9 (NEW)**

**Proponent:** Robert D. Feibleman, HAND Construction, representing self

**Add new text as follows:**

**502.9 Carport Structures.** Carport structural supports posts are permitted to reduce the required width of parking spaces and access aisles provided the post complies with the following:

1. The post is centered on a line delineating two parking spaces or between a parking space and access aisle.
2. The post is 7 inches maximum in width and 16 inches maximum in length as measured along the delineating line;
3. The post is located 72 inches maximum from the head of the parking space.



**Reason:** Carport supports are not addressed and are currently not allowed in the parking space nor access aisle. The resulting narrowed point will create a maneuvering issue. The location of the post in the front third of the space allows for the structural design and for most car/van doors to open without hitting them.

Committee Action:           AS                   AM                   D

502.9 (NEW)-FEIBLEMAN.doc

## 5-8 – 12

### 503.3.3

**Proponent:** Ed Roether, representing the ADA/A117 Harmonization Task Group and Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**503.3.3 Length.** Access aisles shall be extend the full length of the vehicle pull-up spaces they serve. ~~20 feet (6100 mm) minimum in length.~~

**Reason: (Roether)** 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. A117.1 could result in access aisles being too short in some cases.

**(Wai):** There may be states and counties in which the length of an accessible parking stall is required to be greater than 20 feet. By only requiring the access aisle to be a minimum of 20 feet in length, the access aisle may be situated along side an accessible stall in such a way to conflict with the use of the aisle by a vehicle lift if the length of the access aisle is not the same length as the accessible stall. Where the access aisle is 20 feet, but the accessible stall is greater than 20 feet, the access aisle would not be in compliance with the 2010 ADA Standards. The 2010 ADA Standards require the length of the access aisle to be the same length as the accessible stall.

Also, local jurisdictions may allow the length of the accessible stall to be less than 20 feet. This design of the accessible stall and access aisle would be unusual in that the access aisle would then be longer than the stall, which can affect parking lot and garage layouts.

The 2010 ADA Standards state:

**503.3.2 Length.** Access aisles shall extend the full length of the vehicle pull-up spaces they serve.

Committee Action:      AS                      AM                      D

503.3.3-ROETHER.doc

## 5-9 – 12 504

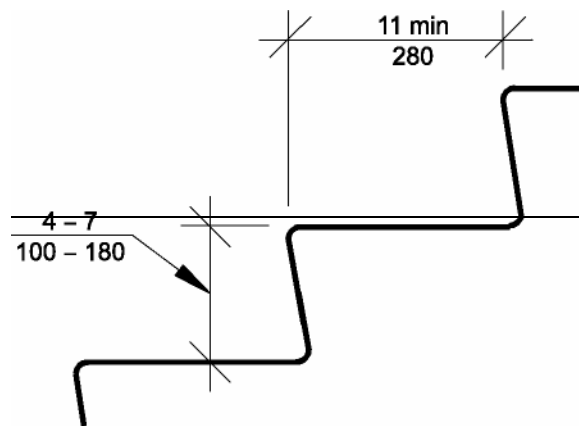
Proponent: Gail Himes, City of Tacoma, Washington

Delete without substitution as follows:

### 504 Stairways

~~504.1 General.~~ Accessible stairs shall comply with Section 504.

~~504.2 Treads and Risers.~~ All steps on a flight of stairs shall have uniform riser height and uniform tread depth. Risers shall be 4 inches (100 mm) minimum and 7 inches (180 mm) maximum in height. Treads shall be 11 inches (280 mm) minimum in depth.



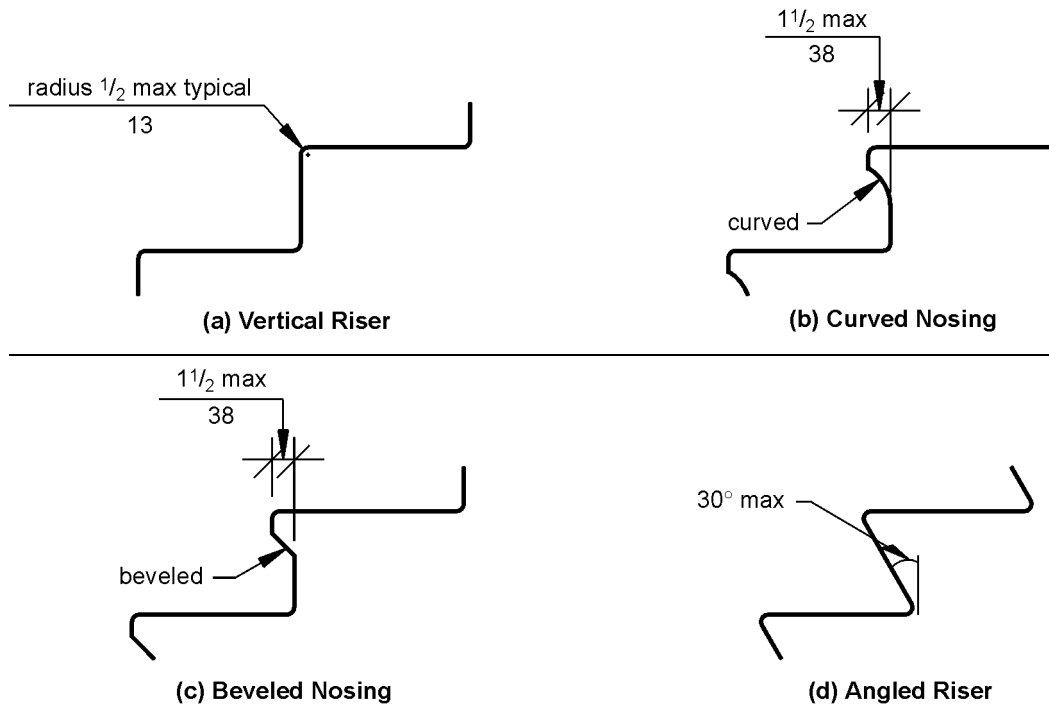
**Fig. 504.2**  
**Treads and Risers for Accessible Stairways**

~~504.3 Open Risers.~~ Open risers shall not be permitted.

~~504.4 Tread Surface.~~ Stair treads shall comply with Section 302 and shall have a slope not steeper than 1:48.

~~504.5 Nosings.~~ The radius of curvature at the leading edge of the tread shall be  $\frac{1}{2}$  inch (13 mm) maximum. Nosings that project beyond risers shall have the underside of the leading edge curved or beveled. Risers shall be permitted to slope under the tread at an angle of 30 degrees maximum from vertical. The permitted projection of the nosing shall be  $1\frac{1}{2}$  inches (38 mm) maximum over the tread or floor below.

~~504.5.1 Visual contrast.~~ The leading 2 inches (51 mm) of the tread shall have visual contrast of dark-on-light or light-on-dark from the remainder of the tread.



**Fig. 504.5**  
**Stair Nosings**

**504.6 Handrails.** Stairs shall have handrails complying with Section 505.

**504.7 Wet Conditions.** Stair treads and landings subject to wet conditions shall be designed to prevent the accumulation of water.

**504.8 Lighting.** Lighting for interior stairways shall comply with Section 504.8.

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

**504.8.2 Lighting Controls.** If provided, occupancy-sensing automatic controls shall activate the stairway lighting so the illuminance level required by Section 504.8.1 is provided on the entrance landing, each stair flight adjacent to the entrance landing, and on the landings above and below the entrance landing prior to any step being used.

**504.9 Stair Level Identification.** Stair level identification signs in raised characters and braille complying with Sections 703.3 and 703.4 shall be located at each floor level landing in all enclosed stairways adjacent to the door leading from the stairwell into the corridor to identify the floor level. The exit door discharging to the outside or to the level of exit discharge shall have a sign with raised characters and braille stating "EXIT."

**Reason:** These requirements are in International Building Code Section 1009. Stairs are not considered an accessible route of travel under the 2009 International Building Code, Chapter 11 or ICC/ANSI A117.1, Chapter 4.

Committee Action: AS AM D

504-HIMES.doc

## 5-10 – 12

**504.1, 504.2, 504.3, 504.4, 504.5, 504.5.1, 504.6, 504.6.1 (New), 504.6.2 (New), 504.6.3, 504.7, 504.8 (New), 504.9 (New), 504.10, 504.11**

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**504.1 General.** Accessible stairs shall comply with Section 504.

**EXCEPTION:** Stepped aisles providing access to tiered seating are not required to comply with this section.

**504.2 Treads and Risers.** All steps on a flight of stairs shall have uniform riser height and uniform tread depth. Risers shall be 4 inches (100 mm) minimum and 7 inches (180 mm) maximum in height. Treads shall be 11 inches (280 mm) minimum in depth. The riser height shall be measured vertically between the nosings of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's nosing. Winder treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair.

**504.3 Dimensional uniformity.** Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm) in any flight of stairs. The greatest winder tread depth at the walkline within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

**EXCEPTIONS:**

1. Consistently shaped winders, complying with Section 504.2, differing from rectangular treads in the same stairway flight.
2. Risers complying with Section 504.3.1.

**504.3.1 Sloping public way.** Where the bottom or top riser adjoins a sloping public way, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of stairway width. The nosings or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight. The distinctive marking stripe shall be visible in descent of the stair and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51 mm).

**504.4 ~~504.3~~ Open Solid Risers.** ~~Open risers shall not be permitted.~~ Risers shall be solid.

**EXCEPTIONS:**

1. Solid risers are not required for stairways provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
2. Solid risers are not required for occupancies in Group I-3 or in Group F, H and S occupancies other than areas accessible to the public. There are no restrictions on the size of the opening in the riser.
3. Solid risers are not required for spiral stairways.

**504.5 ~~504.4~~ Tread Stairway walking Surface.** ~~Stair treads shall comply with Section 302 and shall have a slope not steeper than 1:48. The walking surface of treads and landings of a stairway shall not be~~

sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. Stairway treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached.

**EXCEPTIONS:**

1. Openings in stair walking surfaces shall be a size that does not permit the passage of 1/2-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided a sphere with a diameter of 1 1/8 inches (29 mm) cannot pass through the opening.

**504.6 504.5 Nosings.** The radius of curvature at the leading edge of the tread shall be  $4\frac{1}{2}$  9/16inch (43 14.3 mm) maximum. Nosings that project beyond risers shall have the underside of the leading edge curved or beveled. Beveling of nosings shall not exceed 9/16 inch (14.3 mm). Risers shall be permitted to slope under the tread at an angle of 30 degrees maximum from vertical.

**504.6.1 Nosing projection size.** The permitted projection of the nosing shall be  $4\frac{1}{2}$  1-1/4 inches (38 32 mm) maximum over the tread or floor below.

**504.6.2 Nosing projection uniformity.** All nosing projections of the leading edges shall be of uniform size, including the projections of the nosings leading edge of the floor at the top of a flight.

**504.5.4 504.6.3 Visual contrast.** The leading 2 inches (51 mm) of the tread shall have visual contrast of dark on-light or light-on-dark from the remainder of the tread.

**504.7 Stairway landings.** There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall not be less than the width of stairways they serve. Every landing shall have a minimum width measured perpendicular to the direction of travel equal to the width of the stairway. Where the stairway has a straight run the depth need not exceed 48 inches (1219 mm). Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. When wheelchair spaces are required on the stairway landing as an area of refuge, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

**504.8 Curved stairways.** Curved stairways with winder treads shall have treads and risers in accordance with Section 504.2 and the smallest radius shall not be less than twice the required width of the stairway.

**EXCEPTION:** The radius restriction shall not apply to curved stairways for occupancies in Group R-3 and within individual dwelling units.

**504.9 Spiral stairways.** Spiral stairways are permitted to be used as a component in the means of egress only within dwelling units or from a space not more than 250 square feet (23 m2) in area and serving not more than five occupants, or from technical production areas.

A spiral stairway shall have a 7 1/2-inch (191 mm) minimum clear tread depth at a point 12 inches (305 mm) from the narrow edge. The risers shall be sufficient to provide a headroom of 78 inches (1981 mm) minimum, but riser height shall not be more than 9 1/2 inches (241 mm). The minimum stairway clear width at and below the handrail shall be 26 inches (660 mm).

**504.6 504.10 Handrails.** Stairs shall have handrails complying with Section 505.

**504.7 504.11 Wet Conditions.** Stair treads and landings subject to wet conditions shall be designed to prevent the accumulation of water.



**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.

If the A117 is going to address stairways, they should address straight, curved and spiral stairways. They should also include safety issues they do not currently address like uniformity, landings, walk lines, etc. The text of this proposal is based on the 2012 International Building Code.

Committee Action:           AS                   AM                   D

504-PAARLBERG.doc

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## 5-11- 12

### 504.5

**Proponent:** David W. Cooper, Stairway Manufacturing and Design Consulting, representing Stairway Manufacturers Association

**Revise as follows:**

**504.5 Nosings.** The ~~radius of curvature or bevel at the nosing shall not exceed ½ inch (12.7 mm) maximum from~~ at the leading edge of the tread shall be ½ inch (13 mm) maximum. Nosings that project beyond risers shall have the underside of the leading edge curved or beveled. Risers shall be permitted to slope under the tread at an angle of 30 degrees maximum from vertical. The permitted projection of the nosing shall be 1 ½ inches (38 mm) maximum over the tread or floor below.

**Reason:** This proposal provides needed correlation with changes in the building code recognizing that the radius of the curvature is a non factor but rather the limitation of the distance from the leading edge.

Committee Action:            AS                    AM                    D

504.5-COOPER.doc

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## 5-12 – 12

### 504.5.1

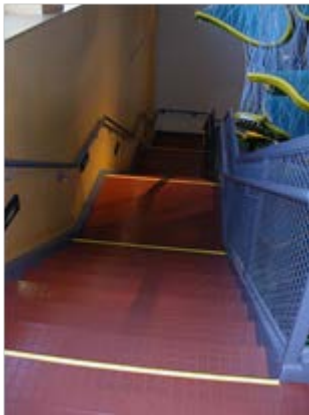
**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**504.5.1 Visual contrast.** At the nosing of a stairway landing and at the nosing of the bottom tread, the leading 2 inches (51 mm) of the landing or tread shall have visual contrast of dark on-light or light-on-dark from the remainder of the tread.

**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.

Cadence is established within two or three steps, so you do not look down at your feet. The location where the change is from level to steps and from steps to level is where the visual cues are relevant.



Committee Action:            AS                    AM                    D

504.5.1 (revised)-PAARLBERG.doc

# 5-13 – 12

## 504.5.1

**Proponent:** Kim Paarlberg, International Code Council

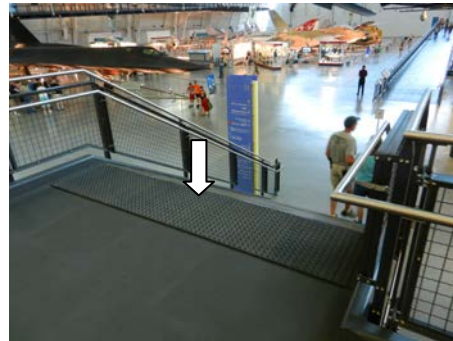
**Revise as follows:**

**504.5.1 Visual contrast.** The leading 2 inches (51 mm) of the landing or tread shall have visual contrast of dark on-light or light-on-dark from the remainder of the tread.

**EXCEPTION:** Where a stair has detectable warnings complying with Section 705 at the leading edge of each landing, visual contrast is not needed provided the detectable warnings extend the full width of the stairway and extend 24 inches minimum from the nosing.

**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.

Cadence is established within two or three steps, so you do not look down at your feet. The application shown is in the Air and Space Museum in Washington D.C. This may be a good option for high traffic stairways where the contrasting stripe might be worn off, or if the stairway is patterned so that there contrasting color is in question, or in stairways where there is a requirement for photoluminescent striping also required.



Committee Action:

AS

AM

D

504.5.1 #2(New)-PAARLBERG.doc

## 5-14 – 12

### 504.8.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**504.8.1 Illumination Level.** Lighting facilities shall be capable of providing ~~10~~1 foot-candles (~~108~~ 10.8 lux) of illuminance measured at the center of tread surfaces and on landing surfaces within 24 inches (610 mm) of step nosings.

**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 building code requires 1 footcandle for means of egress lighting. The standard to charge photoluminescent stripes requires 1 footcandle. OSHA asks for 5 footcandles for exit ways and 3 footcandles for access ways. What is the justification for 10 footcandles in ICC A117.1.

Committee Action:            AS                    AM                    D

504.8 #1-PAARLBERG.doc

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## 5-15 – 12

### 504.8.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

~~**504.8.2 Lighting Controls.** If provided, occupancy sensing automatic controls shall activate the stairway lighting so the illuminance level required by Section 504.8.1 is provided on the entrance landing, each stair flight adjacent to the entrance landing, and on the landings above and below the entrance landing prior to any step being used.~~

**504.8.2 Automatic lighting controls.** Automatic lighting controls shall be permitted to activate the required illumination for the means of egress provided they meet all of the following conditions:

1. The controls shall be configured to provide the required illumination within each room or space while occupied.
2. Where provided, occupant sensors shall activate the required illumination for a minimum duration of 15 minutes.
3. Where the automatic lighting controls fail, the controls shall fail in the on or operating state.
4. Occupant sensors shall not turn extinguish lighting to charge luminous egress path markings
5. All designated emergency lighting luminaries in the means of egress path shall operate in the event of a loss of power.
6. The automatic lighting controls shall be tested as a component of the emergency lighting equipment in accordance with Section 604.5 of the *International Fire Code*.

**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.

If there are automatic controls in stairways, they should be addressed in a totally safe manor or removed from the A117.1 standard as outside the scope.

Committee Action:                    AS                    AM                    D

504.8 #2-PAARLBERG.doc

## 5-16 – 12

### 504.9, 504.10 (New)

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

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

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

**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.

Tactile signage is required by the building code both inside and outside of the exit doors. The current provisions in 504 only address the signage within the stair tower.

1011.4 Raised character and Braille exit signs. A sign stating EXIT in raised characters and Braille and complying with ICC A117.1 shall be provided adjacent to each door to an *area of refuge*, an exterior area for assisted rescue, an *exit stairway*, an *exit ramp*, an *exit passageway* and the *exit discharge*.

1022.9 Stairway identification signs. ... In addition to the *stairway* identification sign, a floor-level sign in raised characters and Braille complying with ICC A117.1 shall be located at each floor-level landing adjacent to the door leading from the *interior exit stairway* and *ramp* into the *corridor* to identify the floor level.

Committee Action:            AS                    AM                    D

504.9-PAALBERG.doc

## 5-17 – 12

### 505.3

**Proponent:** David W. Cooper, Stair Manufacturing and Design Consulting, representing Stairway Manufacturers Association

**Revise as follows:**

**505.3 Open Risers.** Open risers shall not be permitted.

**EXCEPTION:**

1. Openings that do not allow the passage of a 4 inches (102 mm) diameter sphere shall be permitted in the lower 4 inches (102 mm) of the riser height.

**Reason:** This proposal provides needed correlation with the building code sphere rule limitation and improved specification to require the opening in the lower portion of the riser allowing for compliance with the ADA recommended nosing profiles.

Committee Action:           AS                   AM                   D

505.3-COOPER.doc

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## 5-18 – 12

### 505.4

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

**Revise as follows:**

**505.4 Height.** Top of gripping surfaces of handrails shall be 34 inches (865 mm) minimum and 38 inches (965 mm) maximum vertically above stair nosings, ramp surfaces and walking surfaces. Handrails shall be at a consistent height above stair nosings, ramp surfaces and walking surfaces.

**EXCEPTION:** Where a second handrail is provided primarily for children's use, the top gripping surface shall be 28 inches (710 mm) maximum vertically above stair nosings, ramp surfaces and walking surfaces. A 9 inch (230 mm) minimum vertical clearance shall be provided between upper and lower handrails.

**Reason:** Add this Exception for Children's handrails because they are an important safety feature for adults and children. Add this exception for children's handrail height as shown in 2010 ADA Advisory 505.4.

See companion change in Section 102 Anthropometric Provisions.

Committee Action:           AS                   AM                   D

505.4-REED.doc

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## 5-19 – 12

### 505.6, 505.7.2

**Proponent:** David W. Cooper, Stairway Manufacturing and Design Consulting, representing Stairway Manufacturers Association

#### Revise as follows:

**505.6 Gripping Surface.** Gripping surfaces shall be continuous, without interruption by newel posts, other construction elements, or obstructions.

#### Exceptions:

1. Handrail brackets or balusters attached to the bottom surface of the handrail shall not be considered obstructions, provided they comply with one of the following criteria options:

#### Option 1

- 1.1 The perimeter dimension of the handrail cross section is 4 inches (102 mm) minimum and 6 ¼ inches (159 mm) maximum,
- 1.2 Not more than 20 percent of the handrail length is obstructed,
- 1.3 Horizontal projections beyond the sides of the handrail occur 1 1/2 inches (38 mm) minimum below the bottom of the handrail, and provided that for each 1/2 inch (13 mm) of additional handrail perimeter dimension above 4 inches (100 mm), the vertical clearance dimension of 1 1/2 inch (38 mm) can be reduced by 1/8 inch (3.2 mm), and
- 1.4 Edges shall be are rounded.

#### Option 2

- 2.1 The handrail has a noncircular cross section,
  - 2.2 The perimeter dimension of the handrail cross section shall be greater than 6-1/4 inches (159 mm),
  - 2.3 Horizontal projections beyond the sides of the handrail occur 2 1/4 inches (63 mm) minimum below the tallest portion of the handrail and
  - 2.4 Edges are rounded.
2. Where handrails are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of handrails ~~gripping surfaces~~ shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper guards.

**505.7.2 Noncircular Cross Sections.** Handrails with a noncircular cross section shall have a perimeter dimension of 4 inches (400102 mm) minimum. Handrails with a perimeter greater than and 6¼ inches (460159 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of ¾ inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch (8 mm) within ⅞ inch (22mm) below the widest portion of the profile. This required depth shall continue for at least ⅜ inch (10 mm) to a level that is not less than 1¼ inches (45mm) below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1¼ inches (32 mm) to a maximum of 2¾ inches (70 mm). maximum, and Handrails with a perimeter less than 6 ¼ inches (102 mm) shall have a cross-section dimension of 1 inch (25.4 mm) minimum and 2¼ inches (57 mm) maximum.

**Reason:** This proposal provides needed handrail rail shape options for the majority of users both with and without disabilities that do not use the bottom surface of the handrail, by providing handrail shape options with recesses that provide surfaces and sizes that offer preferred visual and tactile recognition, guidance, ready stabilization, greater resistance to shear forces that cause slipping.

Handrail profiles with the grip surface designed in the upper portion are not prone to interrupted loss of grip caused by "hand hopping"

obstacles such as supporting elements. A constant stabilizing grip can be maintained during the full traverse of the stair or ramp. Such a grip is essential to prosthetic users.

This proposal also adds a needed minimum cross section dimension of 1 inch for non-circular cross sections to correlate with recent changes in the building code.

[Dusenberry DO, Simpson H, Dellorusso SJ](#), 2009 Jul. Effect of handrail shape on graspability. [Applied Ergonomics](#). ;40(4):657-69. Epub 2008 Oct 26.

Gray DB, 2009 Jan. [Uses and Preferences of Handrails: People with Mobility and Visual Impairments and Limitations](#)

Committee Action:           AS                   AM                   D

505.6-COOPER.doc

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## 5-20 – 12

### 505.7, 505.7.2, 505.7.3 (New)

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**505.7 Cross Section.** Handrails shall have a cross section complying with Section 505.7.1, or 505.7.2 or 505.7.3 or shall provide equivalent graspability.

**505.7.2 Noncircular Cross Sections Option 1.** Handrails with a noncircular cross section shall have a perimeter dimension of 4 inches (100 mm) minimum and 6<sup>1</sup>/<sub>4</sub> inches (160 mm) maximum, and a cross-section dimension of 2<sup>1</sup>/<sub>4</sub> inches (57 mm) maximum and minimum cross-sectional dimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

**505.7.3 Noncircular cross sections Option 2.** *Handrails* with a perimeter greater than 6<sup>1</sup>/<sub>4</sub> inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch (8 mm) within 7/8 inch (22 mm) below the widest portion of the profile. This required depth shall continue for at least 3/8 inch (10 mm) to a level that is not less than 13/4 inches (45 mm) below the tallest portion of the profile. The minimum width of the *handrail* above the recess shall be 1 1/4 inches (32 mm) to a maximum of 2 3/4 inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

**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.

In looking at handrail provisions between the IBC and ICC A117.1, the following information is missing from cross section. Non-circular cross section Option 2 would provide additional information on what constitutes equivalent graspability.

Committee Action:            AS                    AM                    D

505.7-PAARLBERG.doc

## 5-21 – 12

### 506.1

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

**Revise as follows:**

**506.1 General.** Accessible windows shall have operable parts complying with Sections 308 and 309.

**Reason:** 1. Need that clear floor space to get to the operable parts.  
2. Need to be sure the operable parts are in the reach range.

Committee Action:           AS                   AM                   D

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506.1-FALSTAD.doc

## 5-22 – 12

**506.1, 506.2 (New), 1002.9, 1002.13, 1003.9, 1003.13,**

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

### **Revise as follows:**

**506.1 General.** Where operable Accessible windows are provided in an accessible room or space, at least one shall have operable parts complying with Section 309. Operable windows required to provide natural ventilation shall have operable parts complying with Section 309. Operable windows required to provide an emergency escape and rescue openings shall have operable parts complying with Section 309.

#### **EXCEPTIONS:**

1. Operable windows that are operated only by employees are not required to comply with this section.
2. Operable windows in Type A units that comply with Section 1003.13.

**506.2 Opening force.** The opening force for opening operable windows shall be as follows:

1. 8.5 pounds (37.7 N) maximum for casement or horizontal sliding windows
2. 25 pounds (111 N) maximum for double hung windows

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

#### **EXCEPTIONS:**

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

**1002.13 Windows.** Operable windows shall comply with Section ~~4002.13~~ 506.1.

#### **EXCEPTIONS:**

1. Windows in kitchens are not required to comply with this section.
2. Windows in bathrooms are not required to comply with this section.

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

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

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

**EXCEPTIONS:**

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

**1003.13 Windows.** Operable windows shall comply with Section 1003.13.

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

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

**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.

Section: ADA 229 Windows

**ADA 229.1 General.** Where glazed openings are provided in *accessible* rooms or *spaces* for operation by occupants, at least one opening shall comply with 309. Each glazed opening required by an *administrative authority* to be operable shall comply with 309.

**EXCEPTION:**

1. Glazed openings in *residential dwelling units* required to comply with 809 shall not be required to comply with 229.
2. Glazed openings in guest rooms required to provide communication features and in guest rooms required to comply with 206.5.3 shall not be required to comply with 229.

**506.1** - In ICC A117.1 terminology – The exceptions are basically for Type A dwelling units and non-accessible hotel rooms. 'Operation by occupants' is basically an employee only exception. The only operable windows 'required by the administrative authority' is for ventilation or emergency escape.

**506.2** – This is not coordination, but there is the question if the operable parts includes not only opening the locks and latches, but lifting the sash. The pounds force is from the window standards as a start. This could be changed to any force the committee wants. Remember last cycle that they window industry said that there was no double hung on the market that could meet the force requirements. An option would be to say that an add on could get the 5 lbs. force.

**1002.9 & 1003.9** – If 1002.13 and 1003.13 is going to address windows, then window hardware should not also be in the operable parts section. This is currently how we address doors and door hardware, so that would be consistent.

**1002.13** – Accessible units are required to comply with the accessible window provisions. Question – I understand that hotel rooms and dorm rooms would be operated by residents, but is the same considered for hospitals and nursing homes? Or would their windows be operated by employees? The exceptions for kitchens and bathrooms is because the window in the kitchen is typically over the sink and the window in the bathroom may be elevated for privacy or have a fixture in the immediate area. I could not find a similar exception in ADA, but this seemed logical and was in ICC A117.1 last cycle.

**1003.13** – Windows in Type A units are exempted under ADA. For a total match, this would be deleted. It is shown here to see if the committee wants to match, or would prefer to exceed as currently written.

Committee Action:           AS                   AM                   D

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506.1-ROETHER.doc



## 5-23 – 12

### 507 (New), 507.1 (New), 507.2 (New)

**Proponent:** Melanie J. Hughes, VA Department for the Blind and Vision Impaired, representing Association for the Education and Rehabilitation of the Blind and Visually Impaired (AER)

#### **507. Accessible Routes Adjacent to Vehicular Drives**

**507.1. Separation** Accessible routes located adjacent and parallel to vehicular drives shall be separated from the vehicular drive by one or more of the following:

1. A vertical change in level of 4 inches, minimum.
2. Barriers or railings.
3. Landscape area.

**507.2 Barriers.** Where parking spaces are immediately adjacent to the accessible walkway, wheelstops shall be required. Barriers used to separate an accessible route from the vehicular drive shall comply with current MUTCD requirements.

**Reason:** Lack of protected accessible routes to shopping centers, malls and other public spaces separated from the roadway by large parking lots present a barrier to those who are dependent upon public transportation and pedestrian modes of travel. The need to walk through parking lots to get from public transportation stops, public streets, or sidewalks, makes it difficult and unsafe for persons who have visual impairments or mobility impairments and persons of short stature, including children, to access many facilities.

Committee Action:                    AS                    AM                    D

507 (New)-HUGHES.doc

## 5-24- 12 507 (NEW)

**Proponent:** Robert D. Feibleman, HAND Construction, representing self

**Add new text as follows:**

### **507 Fire Safety Devices**

**507.1 General.** Fire fighting devices such as fire extinguishers, hose connections, valve controls, gauges, and annunciator panels are not required to comply with this standard.

**Reason:** Basic fire alarm and suppression devices are not covered by this standard. However, fire extinguishers and the like are typically located in exit corridors and mistakenly treated as a device that should comply with reach ranges. Locating them low conflicts with placement of handrails. Fire officials prefer occupants leave the building or seek shelter until rescue they do not encourage occupants to fight fires.

Committee Action:           AS                   AM                   D

507 (NEW)-FEIBLEMAN.doc

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## 6-1 – 12

**602.1, 602.2 (New), 602.2.1, 602.2.2, 602.2.2.3, 602.3, 602.3.1 (New), 602.3.2 (New), 602.3.3 (New), 602.3.4 (New), 602.4, 602.5, 602.6,**

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**602.1 General.** Wheelchair accessible drinking fountains shall comply with Sections 602.2 and 307. Drinking fountains for standing persons shall comply with Section 602.3 and 307.

**602.2 Wheelchair accessible drinking fountains.** Wheelchair accessible drinking fountains shall comply with Section 602.2.1 through 602.2.5.

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

### **EXCEPTIONS:**

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

~~602.2.2~~ ~~602.3~~ **Operable Parts.** Operable parts shall comply with Section 309.

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

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

~~606.2.4~~ ~~602.5~~ **Spout Location.** The spout shall be located 15 inches (380 mm) minimum from the vertical support and 5 inches (125 mm) maximum from the front edge of the drinking fountain, including bumpers.

**EXCEPTION:** ~~Where only a parallel approach is provided~~ At drinking fountains primarily for children's use, the spout shall be located 3<sup>1</sup>/<sub>2</sub> inches (89 mm) maximum from the front edge of the drinking fountain, including bumpers.

~~606.2.5~~ ~~602.6~~ **Water Flow.** The spout shall provide a flow of water 4 inches (102 mm) minimum in height. The angle of the water stream from spouts within 3 inches (76 mm) of the front of the drinking fountain shall be 30 degrees maximum, and from spouts between 3 inches (76 mm) and 5 inches (125 mm) from the front of the drinking fountain shall be 15 degrees maximum, measured horizontally relative to the front face of the drinking fountain.

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

~~602.3.1~~ **Operable Parts.** Operable parts shall comply with Section 309.3 and 309.4.

~~602.3.2~~ **Spout Outlet Height.** Spout outlets of drinking fountains for standing persons shall be 38 inches (965 mm) minimum and 43 inches (1090 mm) maximum above the floor.

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

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

**602.3.4 Water Flow.** The spout shall provide a flow of water 4 inches (102 mm) minimum in height. The angle of the water stream from spouts within 3 inches (76 mm) of the front of the drinking fountain shall be 30 degrees maximum, and from spouts between 3 inches (76 mm) and 5 inches (125 mm) from the front of the drinking fountain shall be 15 degrees maximum, measured horizontally relative to the front face of the drinking fountain.

**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 purpose of this proposal for drinking fountains is two-fold. 1) put criteria for children's drinking fountains under the specific requirements. 2) separate criteria for drinking fountains serving wheelchair users from those serving standing persons.

With the exception for children only being for wheelchair drinking fountains, literally standing drinking fountains in a preschool would have to be at an adult height, making them too high for the children they are intended to serve. Also, there are no technical criteria for standing drinking fountains for children. The adult standing requirements are too high for toddlers and pre-schoolers.

This separation of the criteria for wheelchair and standing fountains helps identify which pieces of the criteria are appropriate for each type. Ex: New Section 602.3.1 - Since a wheelchair clear floor space is not needed for access to the drinking fountain for standing persons, a wheelchair clear floor space should not be required for access to the controls through the reference to 309, which picks up a clear floor space under 309.2. (If a clear floor space is desired, it should be similar to that required for tactile signage.)

Are the spout location and water flow necessary for standing drinking fountains? For example, the location of the spout in relation to the back wall is only needed for knee clearance, not standing. Need input from the plumbing industry.

Committee Action:            AS                            AM                            D

602.1-PAARLBERG.doc

## 6-2 – 12

### 602.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**602.3 Operable Parts.** Operable parts shall comply with Section 309.

**EXCEPTION:** Where bottled water fillers are provided as part of drinking fountains serving wheelchair and standing person, the bottled water filler in the drinking fountain for standing persons is not required to comply with Section 309.

**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.

Bottled water fillers are being provided in many university and park settings. Not using disposable bottled water is an important part of recycling efforts. However, if the bottled water filler is behind the standing drinking fountain, it cannot be located in reach ranges. The intent of the exception is to allow for this option only if there is a bottled water filler over the accessible drinking fountain.



Committee Action:           AS                   AM                   D

602.3 (NEW)-PAARLBERG.doc

## 6-3 – 12

### 603.2.3

**Proponent:** Keith Wen, R.A., New York City, Department of Buildings, representing self

**Revise as follows:**

**603.2.3 Door Swing.** Doors shall not swing into the clear floor space or clearance for any fixture.

**EXCEPTIONS:**

1. Doors to a toilet and or bathing room for a single occupant, accessed only through a private office and not for common use or public use shall be permitted to swing into the clear floor space, provided the swing of the door can be reversed in the future to meet Section 603.2.3, and that such future door swing does not obstruct the maneuvering clearances required at the door.
2. Where the room is for individual use and a clear floor space complying with Section 305.3 is provided within the room beyond the arc of the door swing.

**Reason:** 1. It is unclear whether the door should be reversible from day 1 or only in the future.

2. The future door swing must clear the maneuvering clearances required at the door, from both the entry side and the exit side. If the designer does not take into account of the required maneuvering clearance of the future door swing, the door may not be reversible in the future.

Committee Action:            AS                            AM                            D

603.2.3-WEN.doc

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## 6-4 – 12

### 604.1

**Proponent:** Terri Stewart, The American Institute of Architects, representing The Task Force on Aging

**Revise as follows:**

**604.1 General.** Accessible water closets and toilet compartments shall comply with Section 604. Compartments containing more than one plumbing fixture shall comply with Section 603. Wheelchair accessible compartments shall comply with Section 604.9. Ambulatory accessible compartments shall comply with Section 604.10.

**EXCEPTIONS:**

1. Water closets and toilet compartment primarily for children's use shall be permitted to comply with Section 604.10 as applicable.
2. Water closets and toilet compartments for elder use in nursing home or assisted living facilities where fixtures are located in toilet or bath rooms directly accessible from a private or semiprivate bedroom, shall be permitted to comply with Section 604.12

**Reason:** Sufficient space is not provided for the space needed on both sides of the toilet for independent front approach transfers and assisted transfers.

Committee Action:           AS                   AM                   D

604.1-STEWART.doc

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## 6-5 – 12

### 604.4, Figure 604.4

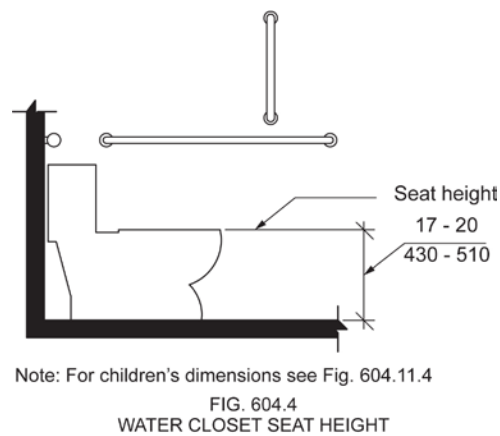
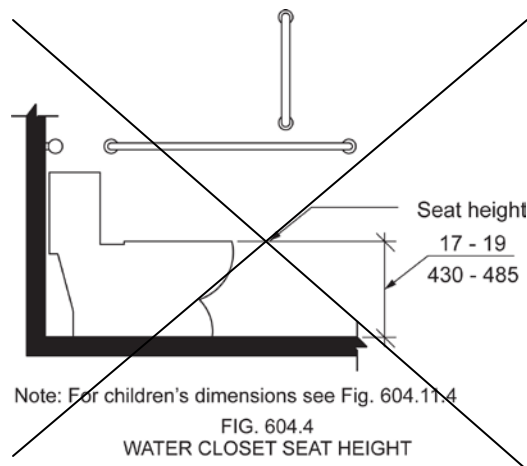
**Proponent:** Edward Steinfeld, IDEA Center, School of Architecture and Planning, University at Buffalo, State University of New York

#### Revise as follows:

**604.4 Height.** The height of water closet seats shall be 17 inches (430 mm) minimum ~~and to 19~~ to 20 inches (485 ~~510~~ mm) maximum above the floor, measured to the top of the seat. Seats shall not be sprung to return to a lifted position.

#### EXCEPTIONS:

1. An accessible water closet which is adjustable in height or which provides multiple hinged seats is permitted to provide adjustability within a range of 11 inches (280 mm) minimum to 25 inches (635 mm) maximum, provided that at least one adjustment setting provides a seat within the range specified in Section 604.4.
2. A water closet in a toilet room for a single occupant, accessed only through a private office and not for common use or public use, shall not be required to comply with Section 604.4.



**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 addition to the findings reported in Steinfeld, et al., 2010, the IDeA Center developed a Design Resource entitled, *Analysis of Seat Height for Wheeled Mobility Devices* that provides more detailed information about the study reported in Steinfeld, et al., 2010. *Analysis of Seat Height for Wheeled Mobility Devices* indicates that the current maximum height of 19 inches (485 mm) accommodates 51% of female manual wheelchair users, 30% of manual wheelchair users, and fewer than 20% of power and scooter users. The report indicates a seat height of 25 inches (635 mm) would accommodate over 95% of all wheeled mobility device users (D'Souza and Steinfeld, 2011, pg. 5).

Increasing the maximum seat height to 20 inches (510 mm) would allow 75% of female manual wheelchair and 53% of male manual wheelchair users (D'Souza and Steinfeld, 2011, pg. 5) to transfer comfortably. Comfort in this case is determined by how closely the height of the transfer surface matches the height of a wheelchair seat. Steinfeld, et. Al., 2010 (pg. 85) report that



"keeping the height of a transfer surface close to the height of a wheelchair seat reduces the effort necessary to transfer and provides a safer environment, especially in bathing and toilet rooms."

However, a fixed seat any higher than 20 inches (510 mm) would likely disadvantage people of short stature, particularly if it was the *only* water closet. Encouraging innovation would help to accommodate a greater number of wheeled mobility users without disadvantaging people of short stature. Adjustability is the best option to accommodate the widest population but in the meantime, the upper limit should be raised to 20 inches (Steinfeld, et al., 2010, pgs. 85-86).

Since the current standard indicates a seat height of 11 inches (280 mm) is acceptable for children's use (604.11.4), any product which is adjustable could reasonably lower to such a level at a minimum.

NOTE: This change necessitates a change to Fig. 604.4 to ensure consistency. Thus, the proposed revised figure has been attached, along with the existing figure for comparison purposes.

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

D'Souza, C. and Steinfeld, E. (2011). *Analysis of Seat Height for Wheeled Mobility Devices*. 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.

Committee Action:                   AS                   AM                   D

604.4-STEINFELD.doc

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## 6-6 – 12

### 604.5

**Proponent:** Terri Stewart, The American Institute of Architects, representing The Task Force on Aging

**Revise as follows:**

**604.5 Grab Bars.** Grab bars for water closets shall comply with Section 609 and shall be provided in accordance with Sections 604.5.1 and 604.5.2. Grab bars shall be provided on the rear wall and on the side wall closest to the water closet.

**EXCEPTIONS:**

1. Grab bars are not required to be installed in a toilet room for a single occupant, accessed only through a private office and not for common use or public use, provided reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with Section 604.5.
2. In detention or correction facilities, grab bars are not required to be in housing or holding cells or rooms that are specially designed without protrusions for purposes of suicide prevention.
3. In nursing home and assisted living facilities where fixtures are located in toilet or bath rooms directly accessible from a private or semiprivate bedroom, two swing up grab bars complying with Sections 604.5.3 and 609 shall be permitted

**Reason:** Grab Bar Type. Grab bars on both sides of the toilet permit individuals with limited lower body strength who require assistance to maintain balance while clothing is removed or replaced. For individuals with limited upper body strength who are capable of independent, standing transfer, grab bars on both sides enable them to pull up to a standing position and lower down to a sitting position.

Committee Action:                    AS                    AM                    D

604.5-STEWART.doc

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## 6-7

### 604.5.1, 604.5.1.1(NEW), 604.5.1.2(NEW)

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**604.5.1 Fixed Side Wall Grab Bars.** Fixed side wall grab bars shall include a horizontal bar complying with Section 605.4.1.1 and a vertical grab bar complying with Section 604.5.1.2. The vertical grab bar at water closets primarily for children's use shall comply with Section 609.4.2

**604.5.1.1 Horizontal Grab Bar.** A fixed horizontal side wall grab bars shall be 42 inches (1065 mm) minimum in length, shall be located 12 inches (305 mm) maximum from the rear wall and extending 54 inches (1370 mm) minimum from the rear wall.

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

**EXCEPTION:** The vertical grab bar at water closets primarily for children's use shall comply with Section 609.4.2.

**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 does several things including breaking the one long section into a format with single topic sections and moves the exception up to the charging paragraph where it becomes a requirement instead of an exception which would be optional to the user.

This proposal was originally developed by the editorial task group during the last standard development cycle. However, since the limited proposal that was printed in the editorial draft simply showed the words "exception" being deleted and replaced with a section number it did create a substantive change which was not appropriate to make as a part of the editorial process.

While the children's requirements are always an option, because it was an exception the user would never have been required to follow that exception unless they wished to. This revised proposal provides a cross reference that is necessary to avoid a technical conflict in the grab bar requirements for children's facilities.

Committee Action:           AS                   AM                   D

604.5.1-paarlberg.doc

## 6-8 – 12

### 604.5.1, Figure 604.5.1

**Proponent:** Alan Gettelman, Bobrick Washroom Equipment, Inc

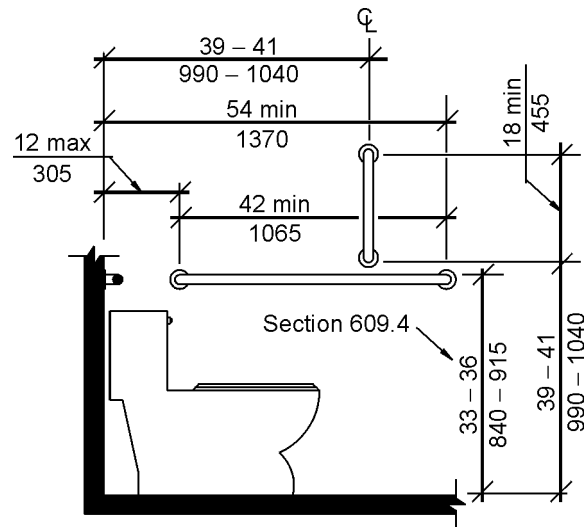
**Revise as follows:**

**604.5.1 Fixed Side Wall Grab Bars.** Fixed side-wall grab bars shall be 42 inches (1065 mm) minimum in length, located 12 inches (305 mm) maximum from the rear wall and extending 54 inches (1370 mm) minimum from the rear wall. In addition, a vertical grab bar 18 inches (455 mm) minimum in length shall be mounted with the bottom of the bar located 39 inches (990 mm) minimum and 41 inches (1040 mm) maximum above the floor, and with the center line of the bar located 39 inches (990 mm) minimum and 41 inches (1040 mm) maximum from the rear wall.

**EXCEPTION:** The vertical grab bar at water closets primarily for children's use shall comply with Section 609.4.2

**Revise Figure as follows:**

Change dimension call out dimension showing the location of the vertical grab bar in relationship to the rear wall as follows: ~~39 – 41 (990 – 1040)~~ to 39-46 (990 1170)



Note: For children's dimensions see Fig. 609.4.2

**Fig. 604.5.1**  
**Side Wall Grab Bar for Water Closet**

**Reason:** Increasing mounting range of Fixed Side wall 18" Vertical Grab Bar to 39 inches to 46 inches from rear wall to accommodate washroom accessory industry standard recessed and partition-mounted combination toilet seat cover, sanitary napkin disposal and toilet tissue dispenser with ADA-compliant toilets that extend 30 inches plus from the rear wall.

It isn't clear that anthropometric or ergonomic data support a more restrictive dimension in this location.

Committee Action: AS AM D

604.5.1-GETTELMAN.doc

## 6-9 – 12

### 604.5.1

**Proponent:** Hank Falstad, Access Technologies services, Inc., representing self

**Revise as follows:**

**604.5.1 Fixed Side Wall Grab Bars.** Fixed side-wall grab bars shall be ~~42~~ 48 inches (~~1065~~ 1220 mm) minimum in length, located 12 inches (305 mm) maximum from the rear wall and extending ~~54~~ 39 inches (~~1370~~ 990 mm) minimum ~~from the rear wall. In addition, a vertical grab bar 18 inches (455 mm) minimum in length shall be mounted with the bottom of the bar located 39 inches (990 mm) minimum and 41 inches (1040 mm) maximum above the floor, and with the center line of the bar located 39 inches (990 mm) minimum and 41 inches (1040 mm) maximum from the rear wall and 41 inches (1040 mm) maximum at which point the grab bar turns up 90 degrees.~~

**EXCEPTION:** ~~The vertical grab bar at water closets primarily for children's use shall comply with Section 609.4.2.~~

**Reason:** This combines the parallel grab bar and the vertical grab bar giving the user a continuous grab bar with greater leveraging using both the forearm and the hand.

Committee Action:            AS                    AM                    D

604.5.1-FALSTAD.doc

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## 6-10 – 12

### 604.5.2, Figure 604.5.2

**Proponent:** Terry G. Wendt Jr, AIA, Wisconsin Department of Transportation

**Revise as follows:**

**604.5.2 Rear Wall Grab Bars.** The rear wall grab bar shall be 36 inches (915 mm) minimum in length and extend from the centerline of the water closet between 12 inches (305) minimum on the side closest to the wall, and 24 inches (610 mm) minimum on the transfer side, and located 5 inches (125 mm) from the side wall.

**EXCEPTIONS:**

1. The rear grab bar shall be permitted to be 24 inches (610 mm) minimum in length, centered on the water closet, where wall space does not permit a grab bar 36 inches (195 mm) minimum in length due to the location of a recessed fixture adjacent to the water closet.
2. Where an administrative authority requires flush controls for flush valves to be located in a position that conflicts with the location of the rear grab bar, that grab bar shall be permitted to be split or shifted to the open side of the toilet area.

**Revise Figure 604.5.2 to reflect changes of text to Section 604.5.2**

**Reason:** Suggested change will make compliance much easier to accomplish by enabling craftspeople to position the grab bar from a known point (the side wall). Having the grab bar position dependent on the location of the water closet often results in non-compliant installations because the exact position of the water closet fluctuates. The requirement of 5 inches from the side wall was calculated based on the water closet centerline being between 16 and 18 inches from the side wall as required by Section 604.2 – if the end of a 36 inch grab bar is positioned 5 inches from the side wall, the ends will be within 1 inch of the 12 inch / 24 inch relative position currently described in Section 604.5.2 (assuming the water closet is positioned in a compliant manner). This would streamline inspections by only requiring two measurements – distance from the side wall and length. It would also make the rear grab bar requirement similarly described as for the other grab bars (based on distance from walls, not fixtures).

Committee Action:           AS                   AM                   D

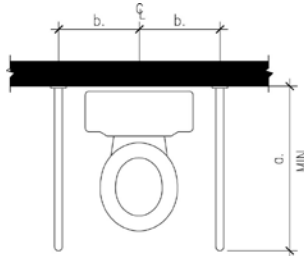
604.5.2-WENDT.docE

## 6-11 – 12

### Figure 604.5.3 (New)

**Proponent:** Terri Stewart, The American Institute of Architects, representing The Task Force on Aging

**Add new Figure as follows:**



**Figure 604.5.3**  
**Swing-up Grab Bars for Water Closet \***

\* Dimension a. and b will be determined upon research results currently being conducted. (See Chapter 5 of White Paper, April 22, 2012.)

**Reason:** Rationale: Grab Bar Type. Grab bars on both sides of the toilet permit individuals with limited lower body strength who require assistance to maintain balance while clothing is removed or replaced. For individuals with limited upper body strength who are capable of independent, standing transfer, grab bars on both sides enable them to pull up to a standing position and lower down to a sitting position.

Committee Action:           AS                   AM                   D

604.5.3(NEW)(FIGURE)-STEWART.doc

## 6-12 – 12

### 604.6, 604.11.6, 1003.11.2.4.6

**Proponent:** Len Swatkowski, Plumbing Manufacturers International

**Revise as follows:**

**604.6 Flush Controls.** Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 309. Hand operated flush controls shall be located on the open side of the water closet or center mounted on the water closet or wall behind it as long as its location complies with one or more of the reach ranges specified in Section 308.

**EXCEPTION:** In ambulatory accessible compartments complying with Section 604.10, flush controls shall be permitted to be located on either side of the water closet.

**604.11.6 Flush Controls.** Flush controls primarily for children's use shall be hand operated or automatic. Hand operated flush controls shall comply with Sections 309.2 and 309.4 and shall be installed 36 inches (915 mm) maximum above the floor. Hand operated flush controls shall be located on the open side of the water closet or center mounted on the water closet or wall behind it as long as its location complies with one or more of the reach ranges specified in Section 308.

**EXCEPTION:** In ambulatory accessible compartments complying with Section 604.10, flush controls shall be permitted to be located on either side of the water closet.

**1003.11.2.4.6 Flush Controls.** Flush controls shall be hand-operated or automatic. Hand operated flush controls shall comply with Section 309. Hand-operated flush controls shall be located on the open side of the water closet or center mounted on the water closet or wall behind it as long as its location complies with one or more of the reach ranges specified in Section 308.

**Reason:** Provide reach ranges for flushing controls – acceptability of flush controls mounted on the center of toilet tanks  
Provide reach-range requirements for flush controls, especially those located in the center of the tank. 604.6, 604.11.6, 1003.11.2.4.6

Committee Action:            AS                    AM                    D

604.6-SWATKOWSKI.doc



## 6-13 – 12

### 604.6

**Proponent:** Peter A. Stratton, Steven Winter Associates, Inc.

**Revise as follows:**

**604.6 Flush Controls.** Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 309. Flush controls shall be located on the open side of the water closet.

**EXCEPTIONS:**

1. In ambulatory accessible compartments complying with Section 604.10, flush controls shall be permitted to be located on either side of the water closet.
2. Dual flush controls are permitted to be centered on the top of the water closet tank and shall comply with Section 309.4.

**Reason:** Water saving requirements of the US Green Building Council's LEED® rating system, among other energy saving programs, including Enterprise Green Communities are addressed at toilet fixtures through the use of dual flush toilets which provide two (dual) push-button-controlled options for flushing; one of which dispenses more water during flushing. Dual flush toilets, especially residential models, include push button controls centered on the top of the toilet tank which are technically non-compliant with ANSI A117.1 604.6 and 1003.11.2.4.6, i.e., they are not located on the "wide side" of toilets. However, technically, ½ of the push button control when mounted on the top of the tank are located between the centerline of the toilet (center of the tank top) and the wide side, but they are not located fully between the centerline and the wide side of the toilet. The only readily available models have top centered controls. ANSI must recognize water savings offered by dual flush toilets while at the same time ensuring that they are accessible. To that end, the proposal suggested here is to allow controls mounted on the top of toilet tanks as long as the push button controls comply with 309.4, operation. When a clear floor space is positioned adjacent to toilets, controls mounted on the top of the tank are within reach from a side approach despite the fact that they are not located technical on the "wide side." See attached pdf standard dual flush control and its location.

Committee Action:           AS                   AM                   D

604.6-STRATTON.doc

## 6-14 – 12

### 604.7, 604.11.7

**Proponent:** Ed Roether, ADA/A117.1 Harmonization Task Group

**Revise as follows:**

**604.7 Dispensers.** Toilet paper dispensers shall comply with Section 309.4. Where the dispenser is located above the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 36 inches (915 mm) maximum from the rear wall. Where the dispenser is located below the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 42 inches (1065 mm) maximum from the rear wall. The outlet of the dispenser shall be located 18 inches (455 mm) minimum and 48 inches (1220 mm) maximum above the floor. Dispensers shall comply with Section 609.3. Dispensers shall not be of a type that control delivery, or do not allow continuous paper flow.

**EXCEPTION:** Toilet paper dispensers that accommodate a maximum of 2 toilet paper rolls of not more than 5 inch diameter each shall be permitted to be located 7 inches minimum and 9 inches maximum in from the of the water closet measured to the centerline of the dispenser.

**604.11.7 Dispensers.** Toilet paper dispensers primarily for children’s use shall comply with Section 309.4. The outlet of dispensers shall be located within an area 24 inches (610 mm) minimum and 42 inches (1065 mm) maximum from the rear wall. The outlet of the dispenser shall be 14 inches (355 mm) minimum and 19 inches (485 mm) maximum above the floor. There shall be a clearance of 1<sup>1/2</sup> inches (38 mm) minimum below the grab bar. Dispensers shall not be of a type that control delivery or do not allow continuous paper flow.

**EXCEPTION:** Toilet paper dispensers that accommodate a maximum of 2 toilet paper rolls of not more than 5 inch diameter each shall be permitted to be located 7 inches minimum and 9 inches maximum in from the of the water closet measured to the centerline of the dispenser

**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 for dispensers.** While the intent of the provisions in the 2009 ICC A117.1 was intended to allow for a larger toilet paper rolls and recessed dispensers within reach of a person using the water closet (and be considered equivalent to the intent of the 2010 ADA standard), there have been concerns that there may be some reviewers that would not consider the option equivalent to what is required by the 2010 ADA Standard. The committee has already identified that the 2010 ADA standard does not work with the mega roll design. Therefore the intent of the exception is to allow for someone using the standard toilet paper roll at the location addressed in the 2010 ADA standard.

Committee Action:                   AS                   AM                   D

802.10.1-Roether.doc

## 6-15 – 12

### 604.7, Figure 604.7

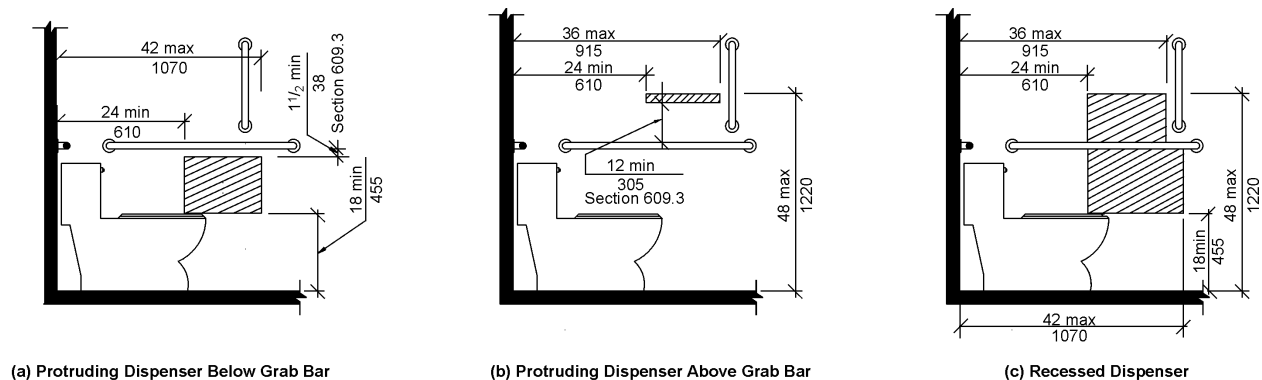
**Proponent:** Alan Gettelman, Bobrick Washroom Equipment, Inc.

**Revise as follows:**

**604.7 Dispensers.** Toilet paper dispensers shall comply with Section 309.4. Where the dispenser is located above the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 36 inches (915 mm) maximum from the rear wall, Where the dispenser is located below the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 42 inches (1070 mm) maximum from the rear wall. The outlet of the dispenser shall be located ~~48 inches (1220 mm)~~ 15 inches (380 mm) minimum and 48 inches (1220 mm) maximum above the floor. Dispensers shall comply with Section 609.3. Dispensers shall not be of a type that control delivery, or do not allow continuous paper flow.

**Revise Figure as follows:**

Change the vertical dimension on figures (a) and (c) indicating the vertical placement of dispensers above the floor from : ~~48 min (1220)~~ to 15 min (380).



Note: For children's dimensions see Fig. 604.11.7 dispenser outlet location

**Fig. 604.7**  
**DISPENSER OUTLET LOCATION**

**Reason:**

- Inconsistent with ICC A117.1- 2009 Section 3098.2 Forward Reach, 308.2.1 Unobstructed (Page 11), " low forward reach shall be 15 inches (380 mm) minimum"  
Figure 308.2.1 Unobstructed Forward Reach (Page 11), dimension call out "15 min (380 mm)"  
Section 308.3 Side Reach, 308.3.1 Unobstructed (Page 13, " low side reach shall be 15 min (380 mm)"
- Inconsistent with 2010 ADA Standards Section 604.7 Dispensers (page 201), "the outlet of the dispenser shall be 15 inches (380 mm) minimum"  
Figure 604.7 Dispenser Outlet Location (page 202), dimension call out "15 min (380 mm)"
- Having a common dimension of 15 inches minimum would be more efficient eliminating the current inconsistency which impacts installers and inspectors.
- The change to a common dimension of 15 inches, in effect, may increase accessibility and encourage greater compliance.
- It isn't clear that anthropometric or ergonomic data support an 18" dimension in this location.

Committee Action: AS AM D

604.7-GETTELMAN.doc

## 6-16 – 12

### 604.7

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**604.7 Dispensers.** Toilet paper dispensers shall comply with Section 309.4. ~~Where the dispenser is located above the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 36 inches (915 mm) maximum from the rear wall. Where the dispenser is located below the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 42 inches (1065 mm) maximum from the rear wall.~~ and shall be 7 inches (180 mm) minimum and 9 inches (230 mm) maximum in front of the water closet measured to the centerline of the dispenser. The outlet of the dispenser shall be located 18 inches (455 mm) minimum and 48 inches (1220 mm) maximum above the floor. Dispensers shall comply with Section 609.3. Dispensers shall not be of a type that control delivery, or do not allow continuous paper flow.

**Reason:** The 2010 Standards has changed the guidelines to specify the location of dispensers relative to the water closet it is serving. As currently written, dispensers can be located to be in compliance with the A117.1 but not in compliance with the Department of Justice's 2010 ADA Standards. The 2010 ADA Standards state:

**604.7 Dispensers.** Toilet paper dispensers shall comply with 309.4 and shall be 7 inches (180 mm) minimum and 9 inches (230 mm) maximum in front of the water closet measured to the centerline of the dispenser. The outlet of the dispenser shall be 15 inches (380 mm) minimum and 48 inches (1220 mm) maximum above the finish floor and shall not be located behind grab bars. Dispensers shall not be of a type that controls delivery or that does not allow continuous paper flow.

Committee Action:           AS                   AM                   D

604.7-WAI.doc

## 6-17 – 12

### 604.7.1 (New)

**Proponent:** Gail Himes, City of Tacoma, Washington

**Add new text as follows:**

#### **604.7 Dispensers.**

**604.7.1 Toilet Paper Dispensers.** Toilet paper dispensers shall comply with Section 309.4. Where the dispenser is located above the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 36 inches (915 mm) maximum from the rear wall. Where the dispenser is located below the grab bar, the outlet of the dispenser shall be located within an area 24 inches (610 mm) minimum and 42 inches (1070 mm) maximum from the rear wall. The outlet of the dispenser shall be located 18 inches (455 mm) minimum and 48 inches (1220 mm) maximum above the floor. Dispensers shall comply with Section 609.3. Dispensers shall not be of a type that control delivery, or do not allow continuous paper flow.

**604.7.2 Other Dispensers.** Seat covers and other dispensers not referenced elsewhere in this standard shall comply with at least one of the reach ranges specified in Section 308.

**Reason:** This section needs to be expanded to address other types of dispensers. Seat covers and other types of dispensers are often located in inaccessible locations due to the lack of clarity in the code.

Committee Action:           AS                   AM                   D

604.7.1(NEW)-HIMES.doc

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## 6-18 – 12

### 604.9.2.3 (New)

**Proponent:** Gina Hilberry, United Cerebral Palsy Association

**Add new text as follows:**

**604.9.2.3 Compartments with Enhanced Approach Area:** Where enhanced approach area is required at toilet compartments, the minimum area of an enhanced wheelchair accessible compartment shall be 60 inches (1525 mm) minimum width measured perpendicular to the side wall, and 82 inches (2083 mm) minimum in depth for both wall hung and floor mounted water closets measured perpendicular to the rear wall.

**Reason:** 604.9.2.3 Standard 56" and 59" deep toilet compartments do not have enough space for people using a front transfer approach to the fixture. By definition the area occupied by the full size chair and person exceeds the space in between the front of the fixture and the partition. Because of this, users are forced to solve the problem by leaving the door open. It should be noted that this is not a scoping suggestion. This is much like the enhanced lavatories or the Type C Units, adding the clause will allow for future editions of the IBC or local jurisdictions to include this requirement in specific circumstances.

Committee Action:            AS                    AM                    D

604.9.2.3 (New)-HILBERRY.doc

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## 6-19 – 12

### 604.9.3, 604.10.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

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

**EXCEPTIONS:**

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

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

**EXCEPTIONS:**

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

**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 will do two things:

1. Relocating the existing text “except if the approach.....42 inches minimum” from the base paragraph into Exception 1 will match the normal format for exceptions and will clearly show that it is an exception which alters the base requirement to comply with Section 404.
2. It will clarify that the 42 inch requirement is intended for the exterior of the compartment and that the interior of the compartment does not need the door to comply with the maneuvering clearances of Section 404. This clarification does require exception 2 be added but it is consistent with the way the requirement has previously been applied.

In essence the only new text within the proposal is the wording “Outside of the compartment” at the beginning of Exception 1 and then all of the text within Exception 2.

Committee Action:           AS                   AM                   D

604.9.3-PAARLBERG.doc

## 6-20 – 12

### Table 604.9.3.1, Figure 604.9.3.1

Proponent: Alan Gettelman, Bobrick Washroom Equipment, Inc.

Revise as follows:

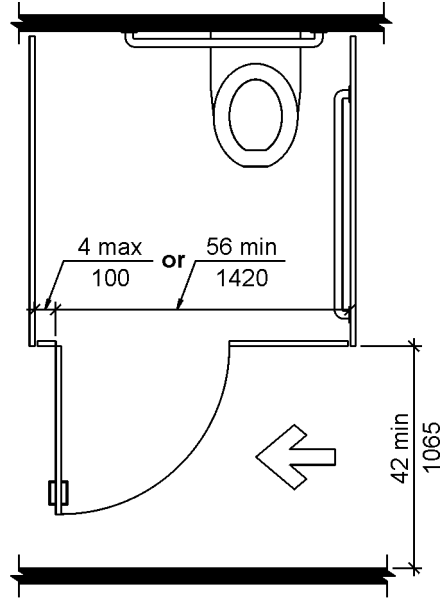
**Table 604.9.3.1 – Door Opening Location**

Door Opening Location	Measured From	Dimension
Front Wall or Partition	From the side wall or partition closest to the water closet	56 inches (1420 mm) minimum
	<b>or</b>	
	From the side wall or partition farthest from the water closet	<del>4 inches (102 mm) maximum</del> <u>4 inches 100 mm) minimum</u> <u>to 6 inches maximum (150 mm)</u>
Side Wall or Partition - Wall-Hung Water Closet	From the rear wall	52 inches (1320 mm) minimum
	<b>or</b>	
	From the front wall or partition	<del>4 inches (102 mm) maximum</del> <u>4 inches 100 mm) minimum</u> <u>to 6 inches maximum (150 mm)</u>
Side Wall or Partition - Floor-Mounted Water Closet	From the rear wall	55 inches (1395 mm) minimum
	<b>or</b>	
	From the front wall or partition	<del>4 inches (102 mm) maximum</del> <u>4 inches 100 mm) minimum</u> <u>to 6 inches maximum (150 mm)</u>

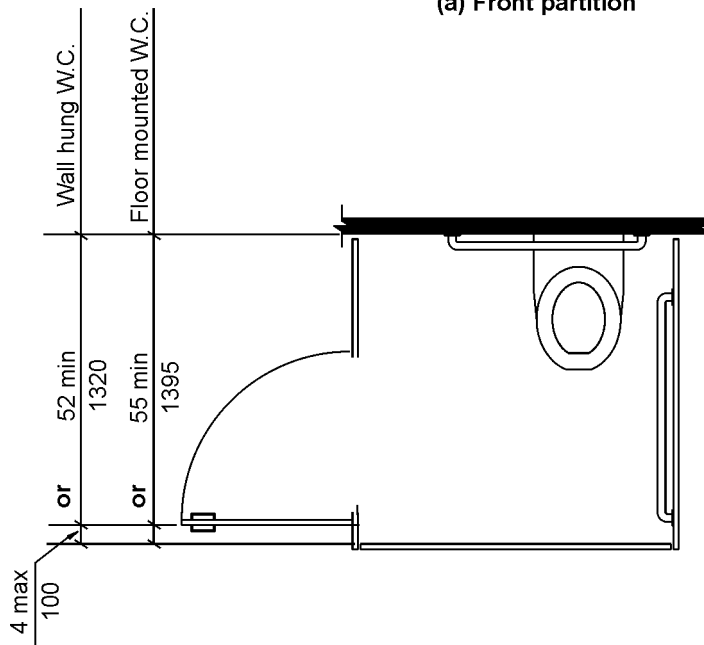
Revise Figure as follows:

Change the called dimension for door opening location to read: 4 inches (100 mm) minimum to 6 inches (150mm) maximum.





(a) Front partition



(b) Side wall or partition

Fig. 604.9.3.1

**Wheelchair Accessible Compartment Doors**

**Reason:**

1. Current absolute 4 inch (100 mm) maximum space from inside edge of side partition and door opening is an overly restrictive dimension creating installation and structural problems.
2. To maintain the 4 inch maximum space with a gap at the side all or with a coved floor into the wall the stile must be moved away from the wall and a 3" wide stile must be used. In many circumstances a 3" wide stile has a single floor anchor point providing minimum structural support for hinging the door.
3. As long as it would be allowed under the condition providing a wider compartment at the same time, allowing a range of 4 inches to 6 inches space for the door opening location would accommodate a number of field conditions; allowing the use of a 4" to 6" wide stile with two floor anchor points would greatly enhance the stability of the partition and door without compromising accessibility.

4. The 4" to 6" range for the location of the door opening would alleviate a structural issue on the Wheelchair Accessible Compartments wider than 60". With the current 4 inch maximum space stile at the other side of the door must be very wide reducing design flexibility and installation options.

Committee Action:           AS                   AM                   D

**604.9.3.1(TABLE)-GETTELMAN updated.doc**

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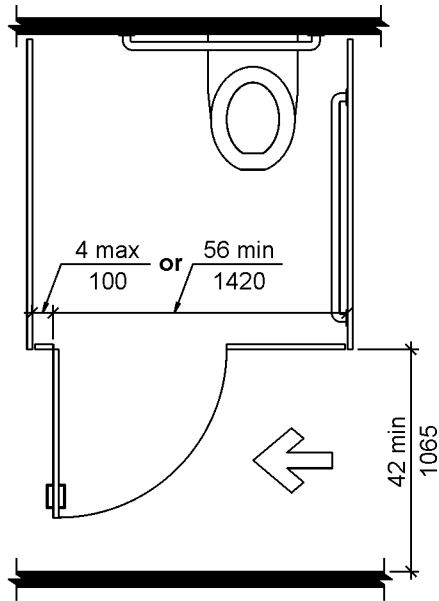
# 6-21 – 12

## Figures 604.9.3.1 (a), (b), (c), Figure 604.9.5 (c)

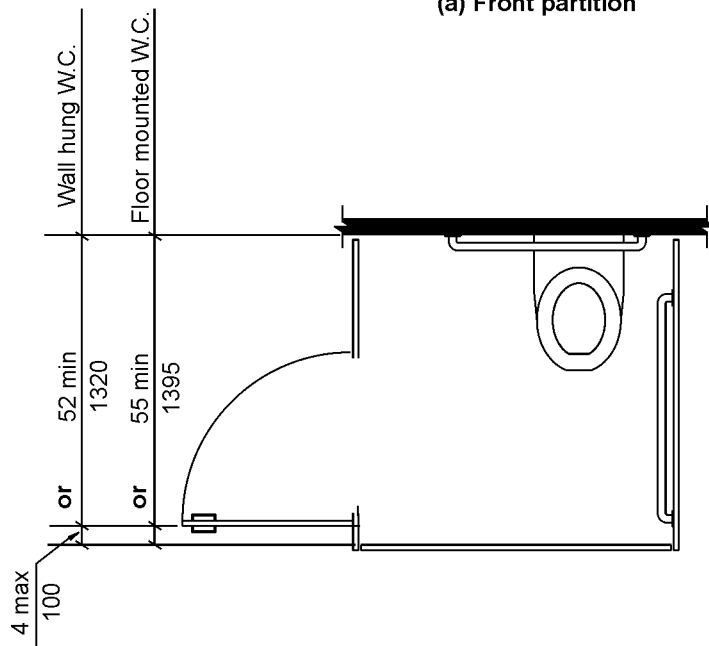
**Proponent:** Anthony Alarid, New Mexico Governor's Commission on Disability (NMGCD)

**Revise as follows:**

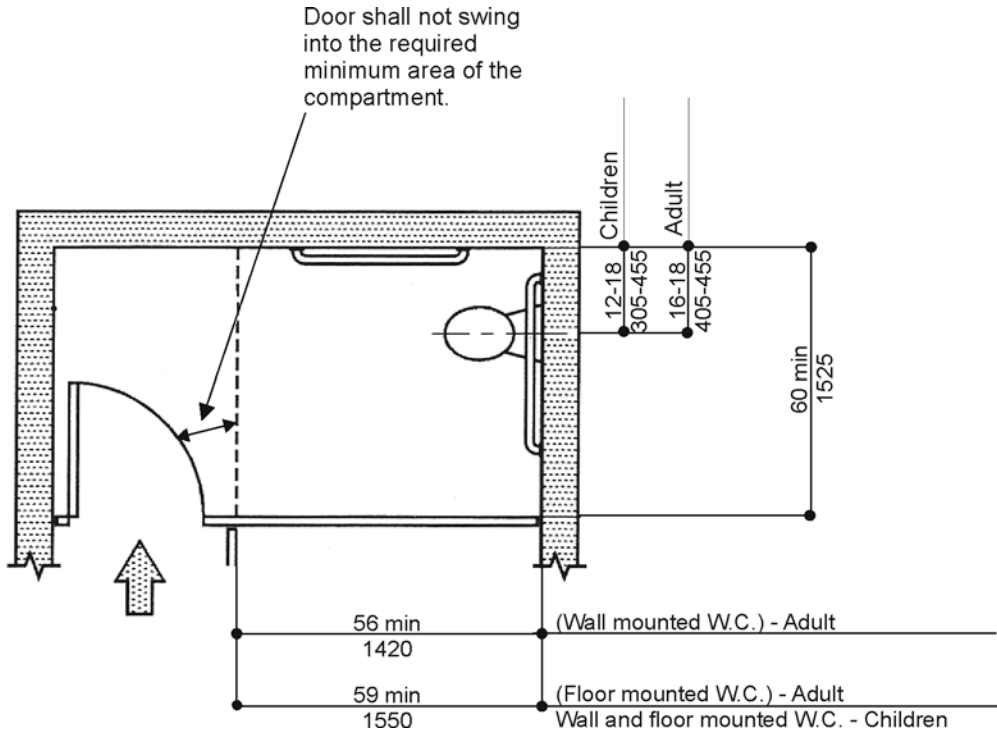
Revise each figure to indicate the placement of the vertical grab bar required for each.



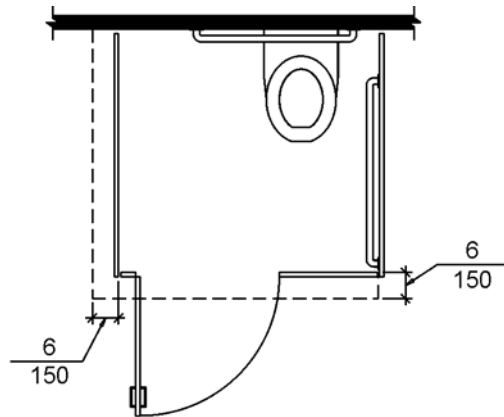
(a) Front partition



(b) Side wall or partition



**Fig 604.9.3.1 (c)**  
**Wheelchair Accessible Compartment Doors – Alternate**



**(c)**  
**Plan**  
**Fig. 604.9.5**  
**Wheelchair Accessible Compartment Toe Clearance**

**Reason:** Figures 604.9.3.1(a), (b), (c) and 604.9.5 (c) do not reflect a vertical grab bar. Though these figures clearly address wheelchair accessible compartment door openings, they should be consistent with other illustrations which address other elements within the compartment yet reflect the vertical grab bar. To maintain consistency among Figures, the vertical grab bar should be reflected in these illustrations. The vertical grab bars are reflected in other figures – for example: Figures 604.9.2 (a), (b) address wall hung and floor mounted water closets yet they reflect a vertical grab bar in the illustrations. Example: Figures 604.9.2 (a), (b) specifically address wall hung and floor mounted water closets yet they reflect a vertical grab bar in the illustrations.

Committee Action: AS AM D

604.9.3.1(Figure)-ALARID.doc

## 6-22 – 12

### 604.9.5, Figure 604.9.5, 609.5.1, 609.5.2

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

**Revise as follows:**

**604.9.5 Toe Clearance at Compartments.** ~~Toe clearance for compartments primarily for children's use shall comply with Section 604.9.5.2. Toe clearance for other wheelchair accessible compartments shall comply with Section 604.9.5.1.~~

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

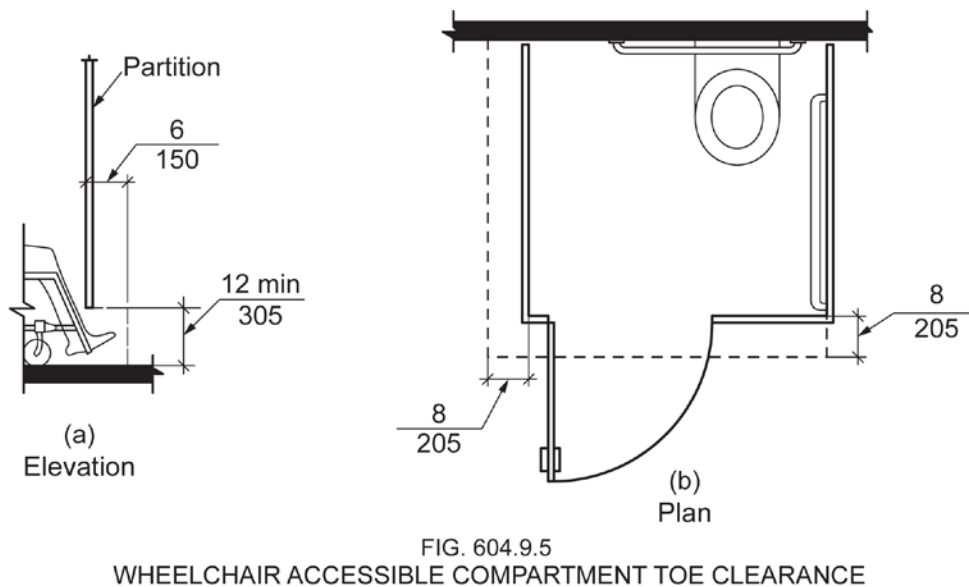
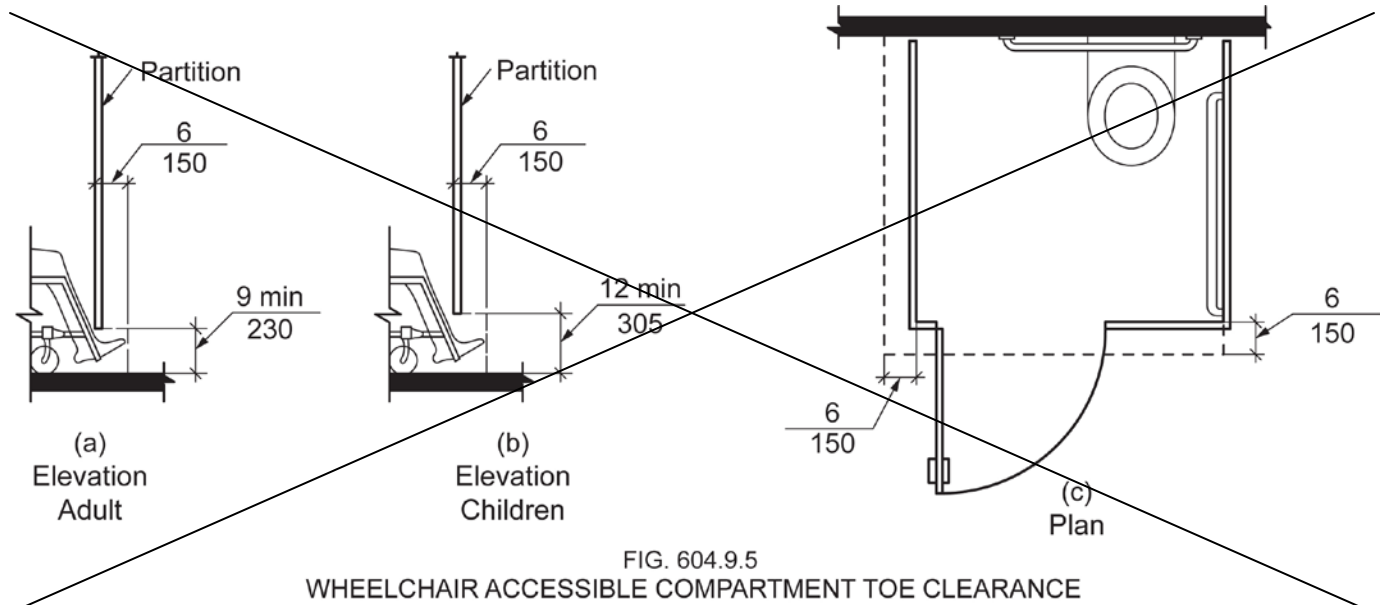
**EXCEPTIONS:**

- ~~1. At compartments not designed for children's use, toe clearance at the front partition is not required in a compartment greater than 62 64 inches (1575 1625 mm) in depth with a wall-hung water closet, or greater than 65 67 inches (1650 1700 mm) in depth with a floor-mounted water closet.~~
- ~~2. At all compartments designed for children's use, toe clearance at the front partition is not required in a compartment greater than 67 inches (1700 mm) in depth.~~
- ~~23. Toe clearance at the side partition is not required in a compartment greater than 66 68 inches (1675 1730 mm) in width.~~

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

**EXCEPTIONS:**

- ~~1. Toe clearance at the front partition is not required in a compartment greater than 65 inches (1650 mm) in depth.~~
- ~~2. Toe clearance at the side partition is not required in a compartment greater than 66 inches (1675 mm) in width.~~



**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 addition to the findings reported in Steinfeld, et al., 2010, the IDeA Center developed a Design Resource entitled, *Knee and Toe Clearances for Wheeled Mobility Users* that provides more detailed information about the study reported in Steinfeld, et al., 2010.

The toe clearance necessary in a toilet compartment is necessarily different from that which is necessary when reaching or using a fixture such as a sink. This is because the objective for providing such clearance in a toilet compartment is to provide sufficient space for a wheeled mobility user to maneuver within the confined space. Hence, the objective is turning, as opposed to moving as close to the wall as possible (as would be the case in reaching).

When a wheeled mobility user is limited by a barrier at the ankle (a toilet compartment partition, for example), the current ANSI height of 9 inches accommodates fewer than 50% of manual wheelchair users. The 6 inches horizontal extension of toe clearance into the adjacent compartment accommodates fewer than 25% of manual wheelchair users. Changing these numbers to 12 inches and 8 inches, respectively, would increase the percentage accommodated to 75%. (D'Souza, et al., 2011, fig. 2)

These figures assume the wheelchair occupant is as far forward to the partition as possible but it does not account for the total occupied length of the device. Based on the existing ANSI standard, we propose that the exceptions be changed accordingly to account for the additional 2 inches of space added for toe clearance. This means that if an adjacent compartment does not have the requisite 8 inches, the accessible compartment must have 2 more inches than previously required in order to be exempted. Further, Steinfeld, et al., 2010 (pg. 95, fig. 4-5) notes that in order to allow 95% of power and manual wheelchair users to perform a 180-degree turn, a 67-inch width is necessary, which is consistent with the proposed change to the exemptions.

There is no research to support changes to the children's figure, thus our proposal of a 12-inch toe clearance height now aligns with the existing children's toe clearance height, therefore we have eliminated the distinction in this proposal.

NOTE: This change necessitates a change to Fig. 604.9.5 to ensure consistency. Thus, the proposed revised figure has been attached, along with the existing figure for comparison purposes.

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

D'Souza, C., White, J., Steinfeld, E., and Paquet, V. (2011). *Knee and Toe Clearances for Wheeled Mobility Users*. 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.

Committee Action:                   AS                   AM                   D

604.9.5-STEINFELD.doc

## 6-23 – 12

### 604.9.5.1, 604.9.5.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**604.9.5.1 Toe Clearance at Compartments.** The front partition and at least one side partition shall provide a toe clearance of 9 inches (230 mm) minimum above the floor ~~and extending that extends 6 inches (150 mm) minimum~~ beyond the compartment side face of the partition, exclusive of partition support members.

#### **EXCEPTIONS:**

1. Toe clearance at the front partition is not required in a compartment greater than 62 inches (1575 mm) in depth with a wall-hung water closet, or greater than 65 inches (1650 mm) in depth with a floor-mounted water closet.
2. Toe clearance at the side partition is not required in a compartment greater than 66 inches (1675 mm) in width.

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

#### **EXCEPTIONS:**

1. Toe clearance at the front partition is not required in a compartment greater than 65 inches (1650 mm) in depth.
2. Toe clearance at the side partition is not required in a compartment greater than 66 inches (1675 mm) in width.

**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 is intended to help clean up a problem that existed in the 2003 edition of the standard and then was partially addressed by the committee in the 2009 edition.

Figure 604.8.5 in the 2003 edition showed the toe space extending "6 Min" [6 inches minimum] beyond the compartment partition. At the committee's July 2006 meeting a decision was made by the committee to issue an errata and delete the word "min" from the figure. While deleting that wording from the figure does coordinate the figure with the actual text shown in the standard (604.9.5.1 in 2009 standard) it also established the 6 inch requirement as an absolute dimension. Since section 104.2 states "Dimensions that are not stated as "maximum" or "minimum" are absolute." it now appears that the open space beneath the partition may not extend beyond the 6 inch depth versus only allowing the 6 inches to count as toe clearance. It cannot be less than 6 inches, and cannot be more than 6 inches. To enforce this provision to the absolute, a barrier would be required to be installed to exactly 6 inches out from the inside portion of the toe clearance to ensure the clearance is maintained at an absolute 6-inch dimension.

Consideration needs to be given to Section 306.2 that outlines the minimum and maximum toe clearances. During the final development work of the 2009 standard the editorial task group looked at this issue and made the following comment and suggestion:

It is more probable that errata should never have been issued to change Figure 604.8.5. It is the text of Section 604.8.5 as shown in the 2003 edition that needs to be revised as follows:

**604.8.5 Toe Clearance.** The front partition and at least one side partition shall provide a toe clearance of 9 inches (230 mm) minimum above the floor ~~and extending that extends 6 inches (150 mm) minimum~~ beyond the compartment side face of the partition, exclusive of partition support members. *(Remainder unchanged)*

Since revising the 6 inch dimension from an absolute requirement to a minimum would have been considered a substantive change the task group was not able to approve this as an editorial revision. This proposal is being brought forward to allow the committee to consider the editorial task group's recommendation and to clarify that the 6 inch toe space is not an absolute dimension but that it may extend beyond the 6 inch depth and coordinate with Section 306.2.4 and allow the additional clearance but simply not count it as toe clearance.



Committee Action:

AS

AM

D

604.9.5.1-PAARLBERG.doc

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## 6-24 – 12

### 604.10.2, 604.11.2, 605.2

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

**Revise as follows:**

**604.10.2 Size.** The minimum area of an ambulatory accessible compartment shall be 60 inches (1525 mm) minimum in depth and a width of 35 inches (890 mm) minimum and 37 inches (940 mm) maximum-36 inches (915 mm) in width.

**Fig. 604.10** Ambulatory Accessible Stall

**Revise figure to be consistent with change to Section 604.10.2 -**

**604.11.2 Location.** The water closet primarily for children's use shall be located with a wall or partition to the rear and to one side. The centerline of the water closet shall be 12 inches (305 mm) minimum and 18 inches (455 mm) maximum from the side wall or partition except that the water closet shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum from the side wall or partition in the ambulatory accessible toilet compartment specified in 604.10.1. Water closets located in ambulatory accessible toilet compartments specified in Section 604.10 shall be located as specified in Section 604.2.

**605.2 Height and Depth.** Urinals shall be of the stall type or shall be of the wall hung type with the rim at 17 inches (430 mm) maximum above the floor. ~~Wall hung Urinals shall be 13 ½ inches (345 mm)~~ minimum in depth measured from the outer face of the urinal rim to the wall.

**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.

This proposal incorporates all identified issues in Chapter 6

**Reason for 604.10.2, 604.11.2, Figure 604.10:** ADA has changed the width of the ambulatory accessible stall from a set 36 inches to a range of 35 to 37. This requires adjusting the A117.1.

**Reason for 605.2:** ADA does not limit the application of this section to just wall hung urinals..

Committee Action:      AS                      AM                      D

604.10.2-ROETHER.doc

## 6-25 – 12

### 604.10.2

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**604.10.2 Size.** The minimum area of an ambulatory accessible compartment shall be 60 inches (1525 mm) minimum in depth and ~~36 inches (915 mm)~~ 35 inches (890 mm) minimum and 37 inches (940 mm) maximum in width.

**Reason:** The 2010 ADA Standards allow a range on the width of the ambulatory stall. For consistency and harmonization between codes and standards, it is recommended that the provision be revised to mirror the Department of Justice's 2010 ADA Standards, which states:

**604.8.2.1 Size.** Ambulatory accessible compartments shall have a depth of 60 inches (1525 mm) minimum and a width of 35 inches (890 mm) minimum and 37 inches (940 mm) maximum.

Committee Action:            AS                    AM                    D

604.10.2-WAI.doc

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## 6-26 – 12

### 604.10.2, Figure 604.10

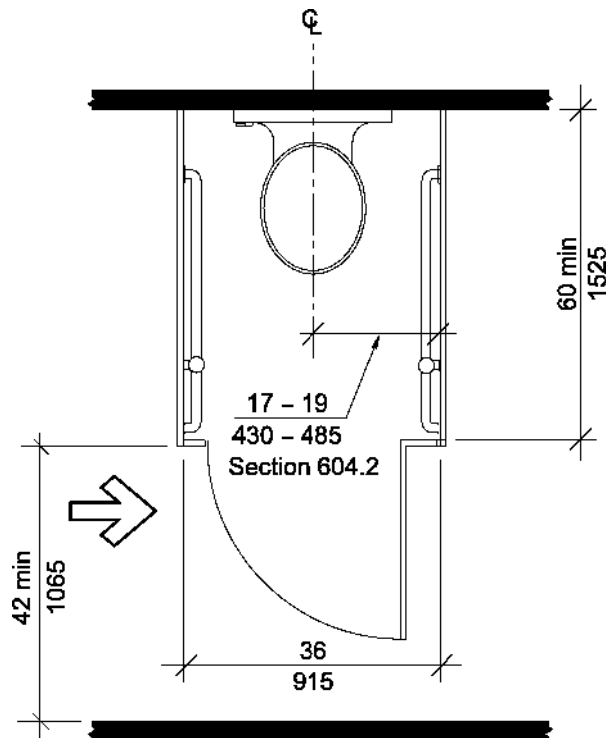
**Proponent:** Alan Gettelman, Bobrick Washroom Equipment, Inc.

**Revise as follows:**

**604.10.2 Size.** The minimum area of an ambulatory accessible compartment shall be 60 inches (1525 mm) minimum in depth and ~~36~~ 40 inches (~~915~~ 1015 mm) in width.

**Revise figure as follows:**

Change the called out dimension for the width of the compartment from ~~36 (915)~~ to 40 inches (1015)



**Fig. 604.10**  
**Ambulatory Accessible Compartment**

**Reason:**

1. A 40" Ambulatory Accessible compartment would allow use of a 3" wide stile on each side of the door opening. The 3" wide stile would provide room for attachment of door hinges and latch keepers. The 3" wide stiles would provide more structural support and rigidity for the side panels and the door hinging and closing than a 1" wide stile or wall post. The 3" wide stile conforms to toilet partition industry standard practice. The 1" wide stile or wall post is not standard.
2. The 36" wide Ambulatory Accessible Compartments have created installation problems for years. Current 36 inch wide ICC A117.1 Ambulatory Accessible Compartment with 32" clear door opening allows for only 1" wide stile or wall post on each side of door opening. The 1" wide stile or wall post is not wide enough for mounting door hinges and latch keepers.
3. It isn't clear that anthropometric or ergonomic data support a 40" dimension in this location.

Committee Action:            AS                    AM                    D

604.10.2-GETTELMAN.doc

## 6-27 – 12

### 604.11.1, Table 604.11.1 (New)

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

**Revise as follows:**

**604.11.1 General.** Accessible water closets and toilet compartments primarily for children's use shall comply with Section 604.11. Table 604.11.1 provides the specifications for water closets for children according to the age group served and reflects the differences in the size, stature, and reach ranges of children ages 3 through 12. The specifications chosen shall correspond to the age of the primary user group. The specifications of one age group shall be applied consistently in the installation of a water closet and related elements.

<b>Table 604.11.1 – Specifications for Water Closets Serving Children Ages 3 through 12</b>			
	<b>Ages 3 and 4</b>	<b>Ages 5 through 8</b>	<b>Ages 9 through 12</b>
<u>Water closet centerline</u>	<u>12 inches (305 MM)</u>	<u>12 to 15 inches (305 to 380 mm)</u>	<u>15 to 18 inches (380 to 455 mm)</u>
<u>Toilet Seat Height</u>	<u>11 to 12 inches (280 to 305 mm)</u>	<u>12 to 15 inches (305 to 380 mm)</u>	<u>15 to 17 inches (380 to 430 mm)</u>
<u>Horizontal Grab Bar Height</u>	<u>18 to 20 inches (455 to 510 mm)</u>	<u>20 to 25 inches (510 to 635 mm)</u>	<u>25 to 27 inches (635 to 685 mm)</u>
<u>Vertical Grab Bar Height at bottom</u>	<u>21 to 30 inches (535 to 760 mm)</u>	<u>21 to 30 inches (535 to 760 mm)</u>	<u>21 to 30 inches (535 to 760 mm)</u>
<u>Vertical Grab Bar Distance to rear wall</u>	<u>34 to 36 inches (865 to 915 mm)</u>	<u>34 to 36 inches (865 to 915 mm)</u>	<u>34 to 36 inches (865 to 915 mm)</u>
<u>Dispenser Height</u>	<u>14 inches (355 mm)</u>	<u>14 to 17 inches (355 to 430 mm)</u>	<u>17 to 19 inches (430 to 485 mm)</u>

**Reason:** This guide provides useful information **within** the A117.1, provides compliance with 2010 ADA Advisory 604.9, and it includes the ANSI vertical grab bar. Standards should be written so they "support" those who are expected to enforce them.

Committee Action:           AS                   AM                   D

604.11.1-REED.doc

## 6-28 – 12

### 604.11.4

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

**Revise as follows:**

**604.11.4 Height.** The height of water closet seats primarily for children’s use shall be 11 inches (280 mm) minimum and 17 inches (430 mm) maximum above the floor, measured to the top of the seat. Seats shall not be sprung to return to a lifted position. The height of water closet seats primarily for children’s use shall not be less than the toe clearance height of any adjacent partition.

**Reason:** Section 604.9.5.2 requires a 12-inch (305 mm) toe clearance under the partition at children’s water closets. The current minimum standard of only 11 inches (280 mm) height could then be visible under the partition. This contradiction would reduce privacy of those using the water closet, particularly in larger restrooms with greater viewing angles and viewers of short stature (such as other children). Since the standard allows a range, this would not *always* pose a privacy problem, but could. Adding the proposed language ensures that any seat within or adjacent to the accessible stall would be high enough to not be visible by any standing person, regardless of room size, or the viewer’s eye height.

Committee Action:           AS                   AM                   D

604.11.4-STEINFELD.doc

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**6-29 – 12**  
**604.11.7**

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

**Revise as follows:**

**604.11.7 Dispensers.** Toilet paper dispensers primarily for children’s use shall comply with Section 309.4. The outlet of dispensers shall be located within an area 24 inches (610 mm) minimum and ~~42~~ 36 inches (~~1065~~ 915 mm) maximum from the rear wall. The outlet of the dispenser shall be 14 inches (355 mm) minimum and 19 inches (485 mm) maximum above the floor. There shall be a clearance of 1½ inches (38 mm) minimum below the grab bar. Dispensers shall not be of a type that control delivery or do not allow continuous paper flow.

**Reason:** For adults the reach range to the dispenser below the grab bar is 42 inches maximum. Provide a standard maximum useable reach range for all children.

Committee Action:           AS                   AM                   D

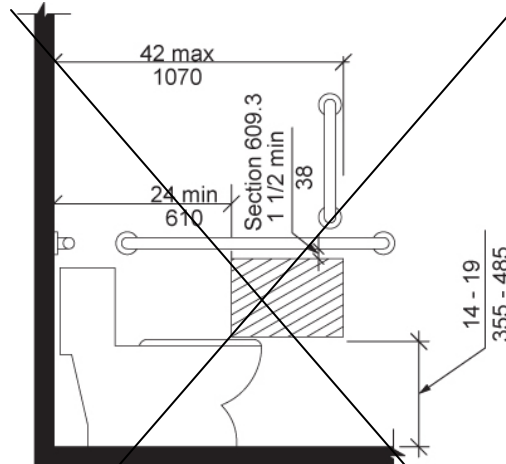
604.11.7-REED.doc

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**6-30 – 12**  
**Figure 604.11.7**

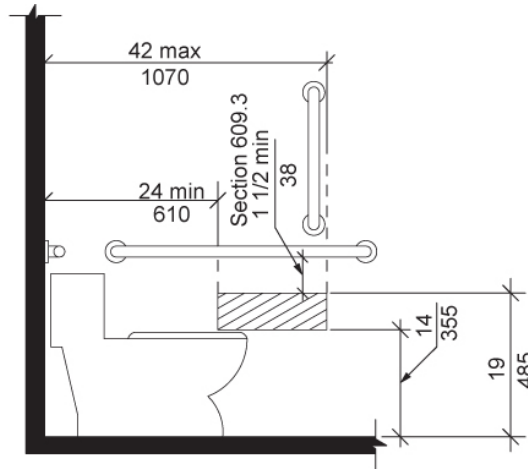
**Proponent:** Edward Steinfeld, IDEA Center, School of Architecture and Planning, University at Buffalo, State University of New York

**Delete and substitute as follows:**



Note: For adult dimensions see Fig. 604.7

FIG. 604.11.7  
 CHILDREN'S DISPENSER OUTLET LOCATION



Note: For adult dimensions see Fig. 604.7

FIG. 604.11.7  
 CHILDREN'S DISPENSER OUTLET LOCATION

**Reason:** Section 604.11.7 requires, "The outlet of the dispenser shall be 14 inches (355 mm) minimum and 19 inches (485 mm) maximum above the floor." However, the existing figure does not accurately depict this condition. The figure depicts the bottom location of the dispenser as being within a range of 14-19 inches, but gives no dimension for the top of the dispenser. The figure should be corrected to more accurately reflect the text. It should label 14 inches to the bottom of the shaded area, and 19 inches to the top of the shaded area. The existing drawing was included above for reference purposes.

Committee Action:            AS                    AM                    D

604.11.7(Figure)-STEINFELD.doc



## 6-31 – 12

604.12 (New), 604.12.1 (New), 604.12.2 (New), Figure 604.12.2 (New), 604.12.3 (New), Figure 604.12.3 (New), 604.12.3.1 (New), 604.12.3.2 (New), 604.12.4 (New), 604.12.5 (New), 604.12.6 (New), 604.12.7 (New)

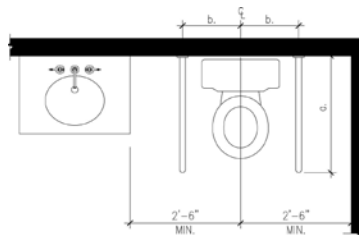
**Proponent:** Terri Stewart, The American Institute of Architects, representing The Task Force on Aging

**Add new text as follows:**

### **604.12 Water Closets and Toilet Compartments for Elder Use.**

**604.12.1 General.** Accessible water closets and toilet compartments primarily for elder use shall comply with Section 604.12.

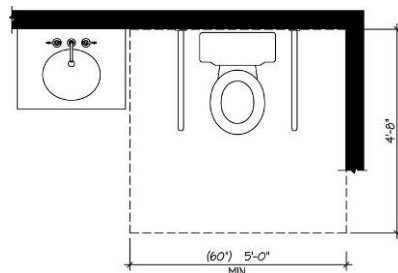
**604.12.2 Location.** The water closet shall be located with a wall or partition to the rear. The centerline of the water closet shall be 30 inches (760 mm) minimum from any side wall, partition or fixture. Water closets located in ambulatory accessible toilet compartments specified in Section 604.9 shall be located as specified in Section 604.2.



**Fig. 604.12.2**  
**Elder Water Closet Location\***

*\* Dimension a. and b will be determined upon research results currently being conducted. (See Chapter 5)*

### **604.12.3 Clearance.**



**Fig. 604.12.3**  
**Elder Size of Clearance for Water Closet**

**604.12.3.1 Size** A clearance around a water closet 60 inches (1525 mm) minimum, measured perpendicular from the sidewall, and 56 inches (1420 mm) minimum, measured perpendicular from the rear wall, shall be provided.

**604.12.3.2 Overlap.** The required clearance around the water closet shall be permitted to overlap the water closet, associated grab bars, paper dispensers, sanitary napkin receptacles, coat hooks, shelves,

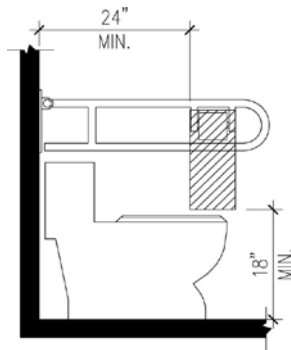
accessible routes, clear floor space at other fixtures and the turning space. No other fixtures or obstructions shall be within the required water closet clearance.

**604.12.4 Height.** The height of water closet seats complying with Section 604.4 shall be provided.

**604.12.5 Grab Bars.** Grab bars for water closets shall comply with Section 604.5.3

**604.12.6 Flush Controls.** Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 309. Flush controls shall be permitted to be located on either side of the water closet.

**604.12.7 Dispensers.** Toilet paper dispensers shall comply with Section 309.4 and shall be located on the fold-up grab bar 3 inches (76 mm) maximum behind the front of the water closet measured to the center line of the dispenser. The outlet of the dispenser shall be 21 inches (533 mm) minimum above the floor. There shall be a clearance of 1 inch (38 mm) minimum below the grab bar. Dispensers shall not be of a type that control delivery or do not allow continuous paper flow.



**Fig. 604.12.7**  
**Dispenser Location**

**Reason:** Increased side wall clearance. Space is needed on both sides of the toilet to accommodate the range of transfer techniques including the front approach normally used in independent sit to stand transfers; caregivers to stand on either or both sides, for one- or two-person assisted transfers as necessary; and for use of a mechanical lifting device.

Dispenser Location for Caregivers. For both independent and assisted toileting, dispensers need to be located for both resident and caregiver, convenience when using fold up grab bars and when the distance from the center of the toilet exceeds 19 inches.

Committee Action:           AS                   AM                   D

604.12 (New)-STEWART.doc

## 6-32 – 12

### 606.2

**Proponent:** Candace Biddle, City of Des Moines, IA

**Revise as follows:**

**606.2 Clear Floor Space.** A clear floor space complying with Section 305.3, positioned for forward approach, shall be provided. The clear floor space shall be centered on the fixture. Knee and toe clearance complying with Section 306 shall be provided. The dip of the overflow shall not be considered in the determining knee and toe clearances.

**EXCEPTIONS:**

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

**Reason:** 2009 IPC currently states the following:

*"A water closet, urinal, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction, or closer than 30 inches (762 mm) center to center between adjacent fixtures"*

People who have mobility issues or who do not have use of one side of their body such as a stroke victim would be unable to reach the controls of a lavatory that is shoved into the corner of a restroom.

Committee Action:                   AS                   AM                   D

606.2-BIDDLE.doc

## 6-33 – 12

### 606.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

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

**EXCEPTIONS:**

1. (unchanged)
2. (unchanged)
3. A knee clearance of 24 inches (610 mm) minimum above the floor shall be permitted at lavatories and sinks used primarily by children ages 6 through 12 where the higher of the rim or counter surface is 31 inches (785 mm) maximum above the floor.
4. (unchanged)
5. (unchanged)
6. (unchanged)

**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 is intended to coordinate with the language which is used in Section 606.3. The phrasing “higher of the rim or counter surface” is used in Section 606.3.

As it is currently written the standard would appear to allow the measurement to be taken to either the rim of the lavatory or the surface of the counter. Given some of the modern lavatory bowls that are available and being installed, it may be helpful to clarify where the measurement is to be taken.

Committee Action:           AS                   AM                   D

606.2-PAARLBERG.doc

## 6-34 – 12

### 606.3, Figure 606.3

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

**Revise as follows:**

**606.3 Height.** The front of lavatories and sinks shall be ~~34~~ 36 inches (~~865~~ 915 mm) maximum above the floor, measured to the higher of the rim or counter surface.

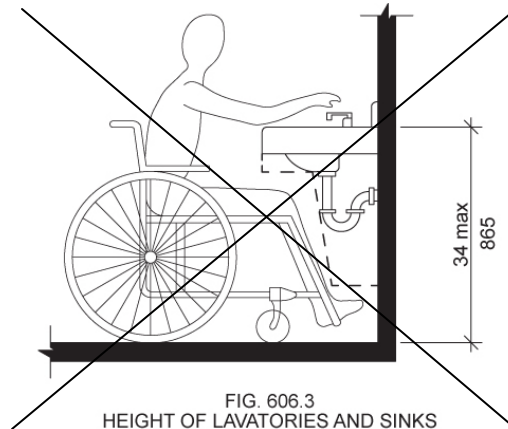


FIG. 606.3  
HEIGHT OF LAVATORIES AND SINKS

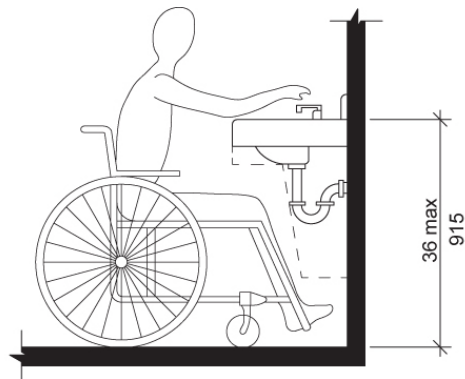


FIG. 606.3  
HEIGHT OF LAVATORIES AND SINKS

**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**

A proposed change to Section 306 would raise the knee clearance height minimum to 29 inches, up from 27 inches, a difference of 2 inches. Changing the maximum rim height by the same 2 inches would allow many existing lavatory products to still comply with the standard by only being mounted 2 inches higher. Steinfeld, et al., 2010 demonstrates that the limiting factor in reaching a target (faucet controls, for example) when using a forward approach is not the height of the obstruction; it is the depth that influences

control reachability for people using wheeled mobility devices. This proposal will allow more wheelchair users to get a forward approach to the lavatory, as is often required for use of the lavatory.

Further, by raising the maximum height to 36 inches, it would now align with the common industry practice of 36-inch height countertops. It is reasonable to assume such a change would not affect other groups of individuals such as those with short stature because the proposed 36 inches is still lower than the current ANSI requirement of 38 inches maximum height for checkout counters.

NOTE: This change necessitates a change to Fig. 606.3 to ensure consistency. Thus, the proposed revised figure has been attached, along with the existing figure for comparison purposes.

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

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:           AS                   AM                   D

606.3-STEINFELD.doc

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## 6-35 – 12

### 606.4

**Proponent:** Len Swatkowski, Plumbing Manufacturers International

**Revise as follows:**

**606.4 Faucets.** Faucets, whether they are side mounted faucets or provisions for approaching the sink from the side if space is available, shall comply with Section 309. Hand-operated metering faucets shall remain open for 10 seconds minimum.

**Reason:** Clarify the use of dual-handles in side sink locations by addressing dual faucet handles in side sink mounting situations to ensure adequate access to both controls. This also needs to address side mounted faucets and provisions for approaching the sink from the side if space is available.

Committee Action:            AS                    AM                    D

606.4-SWATKOWSKI.doc

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## 6-36 – 12

### 606.4, 606.5

**Proponent:** Kim Paarlberg, International Code Council

#### **Revise as follows:**

**606.4 Faucets.** Faucets shall comply with Section 309. Hand-operated metering faucets shall remain open for 10 seconds minimum.

**EXCEPTION:** Automatic faucets are not required to comply with Section 309 provided that the reach depth to activate the faucets and the water flow is 11 inches maximum.

**606.5 Lavatories with Enhanced Reach Range.** Where enhanced reach range is required at lavatories, faucets and soap dispenser controls shall have a reach depth of 11 inches (280 mm) maximum ~~or, if automatic, shall be activated within a reach depth of 11 inches (280 mm) maximum.~~ Water and soap flow shall be provided with a reach depth of 11 inches (280 mm) maximum. The rim of the lavatory shall be 34 inches maximum above the floor, measured to the higher of the rim or counter surface.

#### **EXCEPTIONS:**

1. Enhanced reach range faucets are not required on lavatories provided with automatic faucets where the reach depth to activate the faucets and the water flow has a reach depth 11 inches maximum.
2. Enhanced reach range soap dispensers are not required on lavatories provided with automatic faucets where the reach depth to activate the soap dispensers and the soap flow is 11 inches 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.

There are two different ideas expressed in this proposal.

1) The height of the lavatory with enhanced reach range. The current text does not indicate a height. The 34" is from the enhanced reach Table 603.6. While the standard bathroom lavatory used to be about 28 inches, the current standard is not 34" and some of the lavatories are even higher.

2) Automatic faucets at accessible and enhanced reach range lavatories. While automatic faucets might typically be evaluated as alternative means, the enhanced reach lavatories have criteria for automatic faucets, while the accessible lavatory does not. The exceptions will clarify and make the criteria consistent.

There is the question if a touch faucet would be considered an automatic faucet vs. a motion sensor faucet? Need input from the plumbing industry on correct terminology.

Committee Action:                   AS                   AM                   D

606.4(NEW)-PAARLBERG.doc



## 6-37 – 12

### 606.5 (New)

**Proponent:** Judith K. Pipher, IndependenceFirst

**Add new text as follows:**

**606.5 Basin Location.** The interior edge of the rim of the lavatory basin shall be located 3 inches (75 mm) maximum from the front edge of the fixture or countertop.

**Reason:** Lavatory basins need to be accessible not only regarding reach ranges for faucets but for persons performing hygiene activities such as brushing their teeth or using mouthwash. Quite simply, basins need to be located to allow a person in a wheelchair to move his or her head and mouth over the basin to spit out toothpaste, mouthwash or other waste materials. Particularly where lavatories are dropped into countertops (but also where pedestal lavatories have especially deep horizontal ledges between their leading edges and the bowl) the location of the basin should be within a range that makes it usable to persons in a seated position.

A dimension of  $\pm 3$  inches (75 mm) is typical of kitchen sink locations and should be sufficient to providing this level of access to wheelchair users and persons of short stature at bathroom and toilet room lavatories.

While this issue is greatest in dwelling units, many persons perform hygiene activities in commercial facilities such as office or airport toilet rooms. Because of this, the change in Section 606 is appropriate.

Committee Action:           AS                   AM                   D

606.5 (New)-PIPHER.doc

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## 6-38 – 12

### 606.6

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**606.6 Exposed Pipes and Surfaces.** Water supply and drainpipes under lavatories and sinks shall be ~~insulated~~ padded or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under lavatories and sinks.

**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 are some suppliers that are using the word 'insulated' to interpret that the pipes must meet the same flame spread and smoke development as specified in the building code for pipe insulation. The differing interpretations of the requirement have led to significant competitive actions between various manufacturers. It is not the intent of this language to specify piping insulation.

Committee Action:           AS                   AM                   D

606.6-PAARLBERG.doc

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**6-39 – 12**  
**607.2**

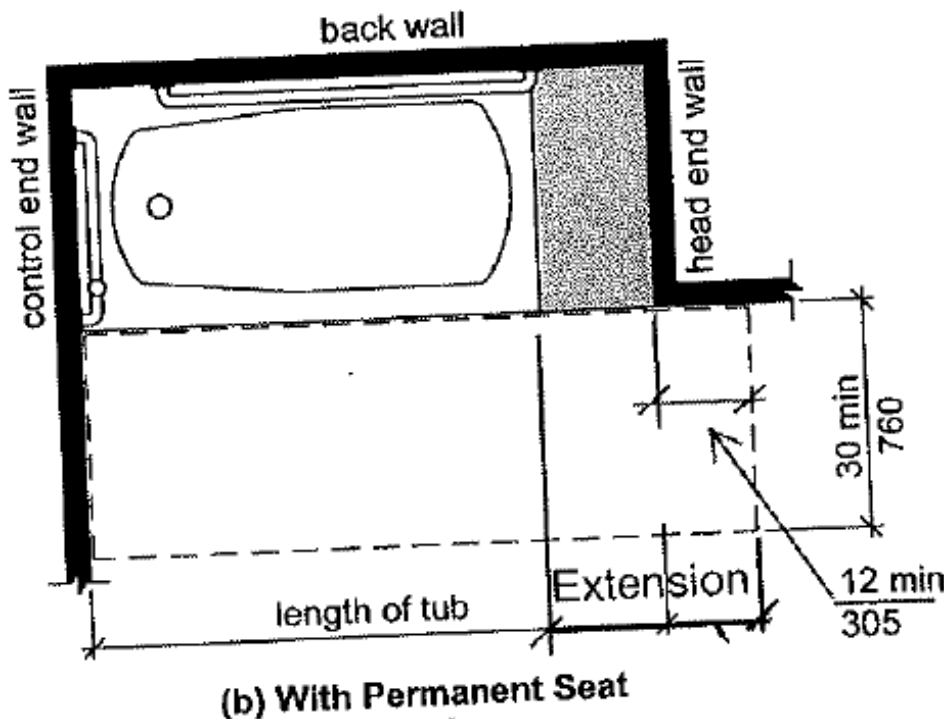
**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**607.2 Clearance.** A clearance in front of bathtubs extending the length of the bathtub and 30 inches (760 mm) minimum in depth shall be provided. Where a permanent seat is provided at the head end of the bathtub, the clearance shall extend the depth of the seat and 12 inches (305 mm) minimum beyond the wall at the head end of the bathtub.

**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.

Section 607.4.1 sets the 'depth' of the seat. The current language skips the piece between the 'length of the tub' and the end of the extension. This is a technical issue that just gives you all the pieces. Please see graphic revision attached.



**FIG. 607.2(b)**  
**CLEARANCE FOR BATHTUBS**

Committee Action: AS AM D

607.2(NEW)-PAARLBERG.doc

## 6-40 – 12

### 607.2, 607.2.1 (New)

**Proponent:** Thomas Hirsch FAIA, Hirsch Group LLC, representing Thomas Hirsch & Henry Kosarzycki

**Revise as follows:**

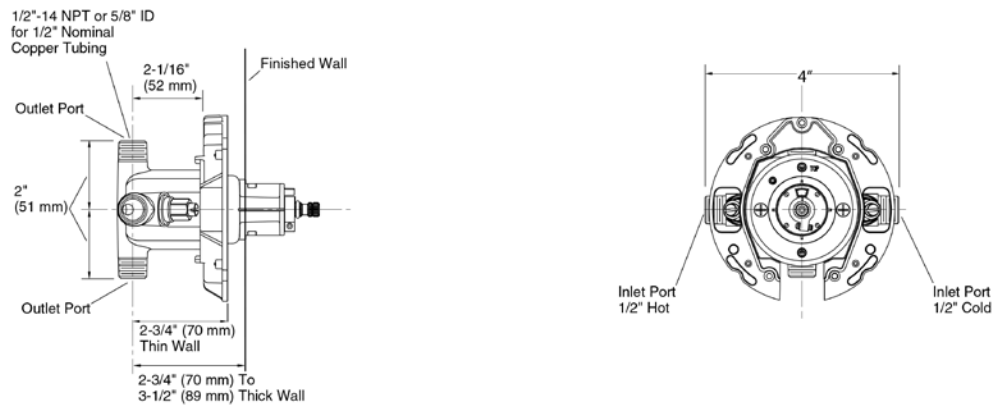
**607.2 Transfer Clearance.** A clearance in front of bathtubs extending the length of the bathtub and 30 inches minimum in depth shall be provided. Where a permanent seat is provided at the head end of the bathtub, the clearance shall extend 12 inches minimum beyond the wall at the head end of the bathtub.

**607.2.1 Control Clearance.** Where the controls are located within 5" from the approach side of the bathtub the clearance shall extend 5 inches minimum beyond the control end wall. Where the controls measured from the approach side of the bathtub are located between 5 and 9 inches from the approach side of the tub the clearance shall extend 9 inches minimum beyond the control end wall.

**Reason:** Current Reach Ranges permit controls which realistically can only be used by 15% of persons with upper body mobility (those likely to bathe without assistance). 2012 Anthropometry of Wheeled Mobility Report, page 105, and elsewhere, indicates side reach is possible for far greater numbers of persons if feet extend beyond plane of the controls ("toe space").

1. Closest valve installation is 5" from approach side to center line, and not higher than 29" AFF to avoid conflict with in-wall blocking for grab bars. (Kohler valve installation diagrams, attached)
2. For toe space at 5" if offset is 5" 58% of sample could reach; if offset is 9" then 45% of sample could reach.
3. For toe space at 9" if offset is 5" then 72% of sample could reach, and if offset is 9" then 65% of sample could reach.

Tub/Shower valve installation diagrams, based on Kohler 304-PS



**KOHLER**

Committee Action:                    AS                    AM                    D

607.2 #2-HIRSCH.doc

## 6-41 – 12

### 607.3 (New)

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

**Add new text as follows:**

**607.3 Height.** The top of the bathtub rim shall be between 17 inches minimum and 19 inches maximum above the floor.

*(Renumber subsequent sections)*

Reason:

1. There is a transfer from the wheelchair.
2. Could be a removable seat across the tub.
3. Could be a removable seat that is inside the tub.
4. Bathtubs come with different rim heights; the bathtub rim needs to be in the established transfer range.

Committee Action:           AS                   AM                   D

607.3 (New)-FALSTAD.doc

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## 6-42 – 12

### 607.3.1

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

**Revise as follows:**

~~607.3~~ **607.3.1 Seat.** A permanent seat at the head end of the bathtub or a removable in-tub seat shall be provided. Seats shall comply with Section 610. Sign on lower right hand corner of mirror indicating how one gets the removable in-tub seat.

Reason:

1. Bench seats “walk” from the property.
2. The 3 leg tub seat chair is in the way, so neither the chair or the bench is in the room; therefore need the sign.

Committee Action:            AS                    AM                    D

607.3.1-FALSTAD updated.doc

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## 6-43 – 12

### 607.4.1.2

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

**Delete and substitute as follows:**

~~**607.4.1.2 Control End Wall.** Control end wall grab bars shall comply with Section 607.4.1.2.~~

~~**EXCEPTION:** An L-shaped continuous grab bar of equivalent dimensions and positioning shall be permitted to serve the function of separated vertical and horizontal grab bars.~~

**607.4.1.2 Control End Wall.** Control end wall grab bar shall be an L-shaped continuous grab bar. The horizontal portion of the grab bar shall be 24 (610 mm) inches minimum in length and shall be provided on the control end wall beginning 4 inches (100 mm) maximum inward from the front edge of the bathtub and extending toward the inside corner of the bathtub. The vertical portion of the grab bar shall be 18 inches (455 mm) minimum in length.

**Reason:**

1. Have a one piece grab bar.
2. Manufacturer will make that L bar.
3. Need one less mounting bracket.
4. Looks neater.

Committee Action:           AS                   AM                   D

607.4.1.2-FALSTAD.doc

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## 6-44 – 12

### 607.4.2.3

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

**Revise as follows:**

**607.4.2.3 Head End Wall.** ~~A horizontal grab bar 12 inches (305 mm) minimum in length shall be provided on the head end wall at the front edge of the bathtub.~~ Head end wall grab bar shall be an L-shaped continuous grab bar. The horizontal portion of the grab bar shall be 12 inches (305 mm) minimum in length and shall be provided on the head end wall beginning 4 inches (100 mm) maximum inward from the front edge of the bathtub. The vertical portion of the grab bar shall be 18 inches (455 mm) minimum in length.

**Reason:**

1. We see bathtub slip and fall cases.
2. Prevent slip and fall.
3. Additional safety.

Committee Action:           AS                   AM                   D

607.4.2.3-FALSTAD.doc

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**6-45 – 12**  
**106.5, 607.6, 608.5**

**Proponent:** Len Swatkowski, Plumbing Manufacturers International

**Revise as follows:**

**106.5 Defined Terms.**

**Hand-held shower.** An accessory to a supply fitting, that can be held or fixed in place for the purpose of spraying water on a bather, and which is connected to a flexible hose.

**607.6 Hand-held Shower.** A hand shower with a hose 59 inches (1500 mm) minimum in length, that can be used as both a fixed shower head and as a hand shower, shall be provided. ~~The hand shower shall have a control with a nonpositive shut-off feature.~~ Where provided, an adjustable-height hand shower mounted on a vertical bar shall be installed so as to not obstruct the use of grab bars.

**608.5 Hand-held Showers.** A hand shower with a hose 59 inches (1500 mm) minimum in length, that can be used both as a fixed shower head and as a hand shower, shall be provided. ~~The hand shower shall have a control with a nonpositive shut-off feature.~~ Where provided, an adjustable-height hand shower mounted on a vertical bar shall be installed so as to not obstruct the use of grab bars.

**EXCEPTION:** In other than Accessible units and Type A units, a fixed shower head located 48 inches (1220 mm) maximum above the shower floor shall be permitted in lieu of a hand shower.

**Reason:** The reference in Hand showers to non-positive shutoffs has created confusion and potential safety issues in the field. Remove the reference to non-positive shutoffs to align with the language in ADAAG, CSA B651, California and Texas.

Also, the term "hand-held shower" is not defined in standard ASME/ICC A117.1 and therefore is being proposed for this standard as it is also being proposed for ASME A112.18.1-2011/CSA B125.1-11.

Committee Action:           AS                   AM                   D

607.6-SWATKOWSKI.doc

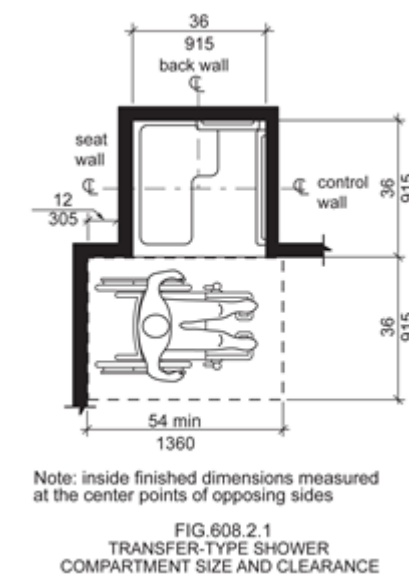
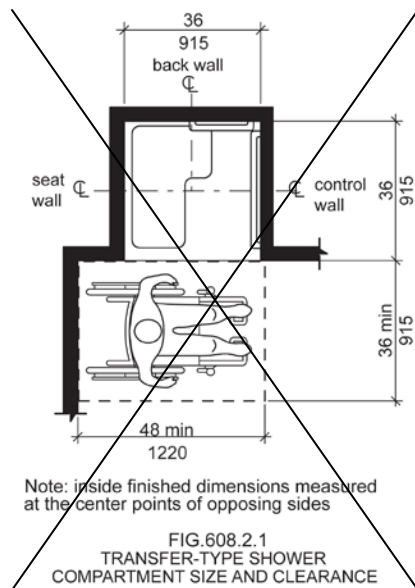
## 6-46 – 12

### 608.2.1.2, Figure 608.2.1

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

**Revise as follows:**

**608.2.1.2 Clearance.** A clearance of ~~48~~ **54** inches (~~1220~~ **1360** mm) minimum in length measured perpendicular from **12** inches beyond the ~~control~~ **seat** wall, and 36 inches (915 mm) minimum in depth shall be provided adjacent to the open face of the compartment.



**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 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 608.2.1.2 Clearance would accommodate an occupied length of 54" while not changing the overall dimensions of the shower facility.**

**Instead, we propose allowing the front of the wheelchair and/or person to extend beyond the control wall by the additional 6" in order to accommodate those with large occupied wheelchair lengths.**

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.

Committee Action:                    AS                    AM                    D

608.2.1.2-STEINFELD.doc

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## 6-47 – 12

### 608.2.1.2, 608.2.1.4(NEW), 608.2.2.2, 608.2.2.4(NEW)

**Proponent:** Thomas Hirsch FAIA, Hirsch Group LLC, representing Thomas Hirsch & Henry Kosarzycki

**Revise as follows:**

**608.2.1.2 Transfer Clearance.** A clearance in front of bathtubs extending the length of the bathtub and 30 inches minimum in depth shall be provided. Where a permanent seat is provided at the head end of the bathtub, the clearance shall extend 12 inches minimum beyond the wall at the head end of the bathtub.

**608.2.1.4 Control Clearance.** Where the controls are located within 5 inches from the approach side of the bathtub the clearance shall extend 5 inches minimum beyond the control end wall. Where the controls measured from the approach side of the bathtub are located between 5 and 9 inches from the approach side of the tub the clearance shall extend 9 inches minimum beyond the control end wall.

**608.2.2.2 Transfer Clearance.** A clearance in front of bathtubs extending the length of the bathtub and 30 inches minimum in depth shall be provided. Where a permanent seat is provided at the head end of the bathtub, the clearance shall extend 12 inches minimum beyond the wall at the head end of the bathtub.

**608.2.2.4 Control Clearance.** Where the controls are located within 5 inches from the approach side of the bathtub the clearance shall extend 5 inches minimum beyond the control end wall. Where the controls measured from the approach side of the bathtub are located between 5 and 9 inches from the approach side of the tub the clearance shall extend 9 inches minimum beyond the control end wall.

**Reason:** Current Reach Ranges permit controls which realistically can only be used by 15% of persons with upper body mobility (those likely to bathe without assistance). 2012 Anthropometry of Wheeled Mobility Report, page 105, and elsewhere, indicates side reach is possible for far greater numbers of persons if feet extend beyond plane of the controls ("toe space").

1. Closest valve installation is 5" from approach side to center line, and not higher than 29" AFF to avoid conflict with in-wall blocking for grab bars. (Kohler valve installation diagrams, attached)
2. For toe space at 5" if offset is 5" 58% of sample could reach; if offset is 9" then 45% of sample could reach.
3. For toe space at 9" if offset is 5" then 72% of sample could reach, and if offset is 9" then 65% of sample could reach.

Committee Action:           AS                   AM                   D

608.2.1.2-HIRSCH.doc

## 6-48 – 12

### 608.2.1.3

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**608.2.1.3 Seat.** A folding or non-folding seat complying with Section 610 shall be provided on the wall opposite the control wall.

~~**EXCEPTION:** A seat is not required to be installed in a shower for a single occupant, accessed only through a private office and not for common use or public use, provided reinforcement has been installed in walls and located so as to permit the installation of a shower seat.~~

**Reason:** The Department of Justice's 2010 ADA Standards do not appear to allow a transfer shower accessed only through a private office and not for common or public use to be exempt from providing a shower seat. As currently written the A117.1 exception does not comply with the 2010 ADA Standards.

For consistency and harmonization, it is recommended that the exception be deleted.

Committee Action:           AS                   AM                   D

608.2.1.3-WAI.doc

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## 6-49 – 12

### 608.2.2.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**608.2.2.2 Clearance.** A clearance of ~~60 inches (1525 mm) minimum in length~~ located adjacent to the 60-inch (1525 mm) width of the full length of the open face of the shower compartment, and with a depth of 30 inches (760 mm) minimum in depth, shall be provided.

**EXCEPTION:** A lavatory complying with Section 606 shall be permitted at the end of the clearance opposite the seat.

**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 is to clarify the exact location of the 30x60 clearance location. Otherwise, the clearance might be parallel to but not align with the shower compartment, thus reducing accessibility into and out of the shower.

This proposal came out of the previous development cycle in response to work that the editorial task group considered. While the task group did understand the suggested wording it was viewed as being a substantive change and therefore ruled to be beyond their assigned task.

This proposed language will provide greater clarity to ensure that the 60 x 30 clear space is not offset from the 60 inch opening. The argument being that 60 x 30 space would still be "adjacent to" the opening even if it was offset some distance.

Providing more precision regarding the relationship of the clearance to the element it serves may call into question the intent of other clearance requirements. The committee may wish to discuss this issue and then determine how to proceed. If a change is made, it could be applied throughout the document. This concern for alignment or limiting offsets has been used in other places within the document (608.2.1.2, 611.2, 804.5.6, etc.)

Committee Action:           AS                   AM                   D

608.2.2.2-PAARLBERG update.doc

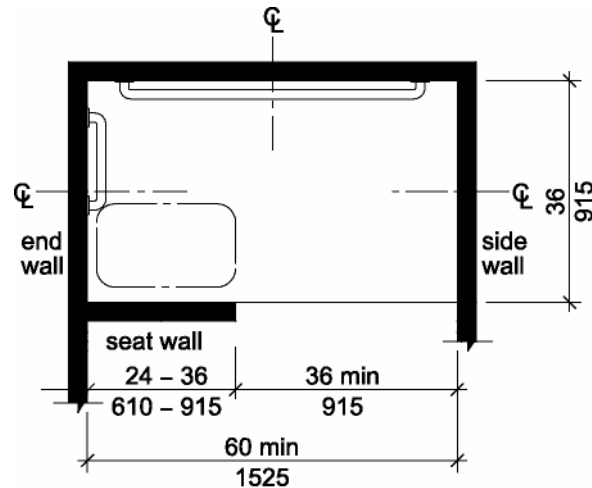
## 6-50 – 12

608.2.3, Figure 608.2.3, 608.2.3.1, 608.3.3, Figure 608.3.3, 608.4.3, Figure 608.4.3, 610.3

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

**608.2.3 Alternate Roll-in-Type Combination Shower Compartments.** Alternate roll-in-type Combination shower compartments shall comply with Section 608.2.3.

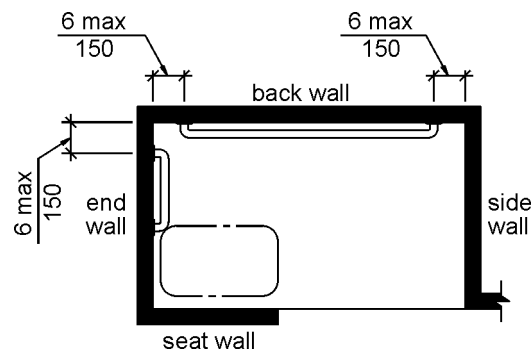


Note: inside finished dimensions measured at the center points of opposing sides

Fig. 608.2.3  
**Alternate Roll-in-Type Combination Shower Compartment  
Size and Clearance**

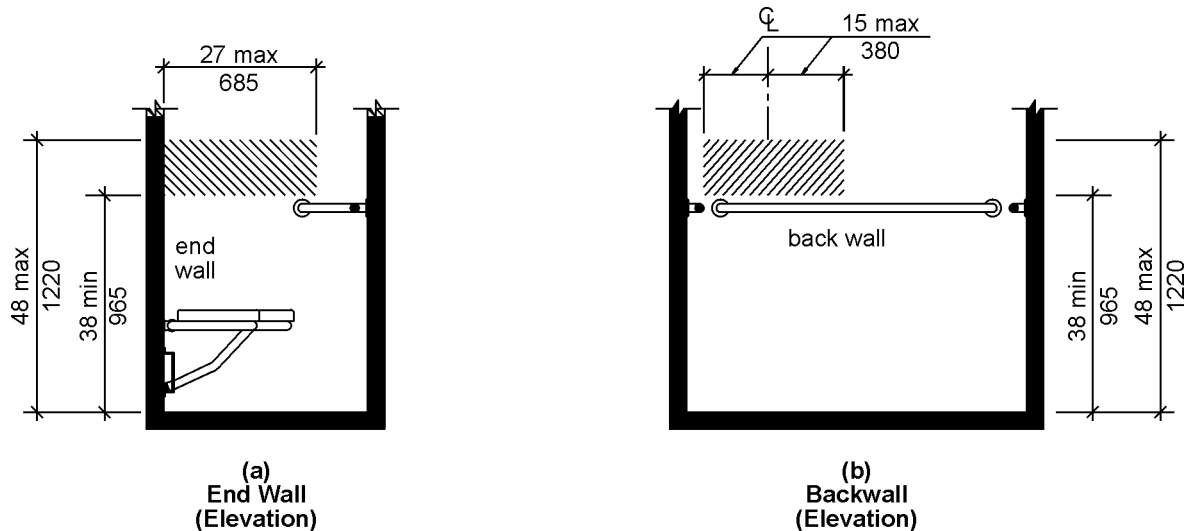
**608.2.3.1 Size.** Alternate roll-in-type Combination shower compartments shall have a clear inside dimension of 60 inches (1525 mm) minimum in width, and 36 inches (915 mm) in depth, measured at the center point of opposing sides. An entry 36 inches (915 mm) minimum in width shall be provided at one end of the 60-inch (1525 mm) width of the compartment. A seat wall, 24 inches (610 mm) minimum and 36 inches (915 mm) maximum in length, shall be provided on the entry side of the compartment.

**608.3.3 Alternate Roll-in-Type Combination Showers.** In alternate roll-in-type combination showers, grab bars shall be provided on the back wall and the end wall adjacent to the seat. Grab bars shall not be provided above the seat. Grab bars shall be 6 inches (150 mm) maximum from the adjacent wall.



**Fig. 608.3.3**  
**Grab Bars in Alternate Roll-in-Type Combination Showers**

**608.4.3 Alternate Roll-in Combination Showers.** In alternate roll-in combination showers, the controls and hand shower shall be located 38 inches (965 mm) minimum and 48 inches (1220 mm) maximum above the shower floor. In alternate roll-in combination showers with controls and hand shower located on the end wall adjacent to the seat, the controls and hand shower shall be 27 inches (685 mm) maximum from the seat wall. In alternate roll-in combination showers with the controls and hand shower located on the back wall opposite the seat, the controls and hand shower shall be located within 15 inches (380 mm), left or right, of the centerline of the seat.



**Fig. 608.4.3**  
**Alternate Roll-in-Type Combination Shower Control and Handshower Location**

**610.3 Shower Compartment Seats.** The height of shower compartment seats shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum above the bathroom floor, measured to the top of the seat. In transfer-type and alternate roll-in-type combination showers, the seat shall extend along the seat wall to a point within 3 inches (75 mm) of the compartment entry. In standard roll-in-type showers, the seat shall extend from the control wall to a point within 3 inches (75 mm) of the compartment entry. Seats shall comply with Section 610.3.1 or 610.3.2.

**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 change (or something similar) may be more appropriate in the scoping documents, but providing the revision in the A117.1 standard will help to clarify that there are truly three separate types of showers within the standard and provide further distinction between a standard roll-in shower and an alternate roll-in shower.

Table 1107.6.1.1 of the *International Building Code* and Table 224.2 of the federal *2010 Standards for Accessible Design* require that a certain number Accessible dwelling or sleeping units be provided with roll-in showers and a certain number units are "without roll-in showers." This leads to the question of whether an alternate roll-in shower is allowed in the units "without roll-in showers" or not. While it may ultimately be better if these scoping documents clarify the types of bathing fixtures that are acceptable in these units "without roll-in showers" the A117 committee has the opportunity to make its position known and show through the technical requirements that the alternate roll-in shower does offer a variety of options which make it different from a standard roll-in shower.

Because the "alternate roll-in shower" does provide the user a choice of options (roll-in or transfer) they should be acceptable in the units required to be "without roll-in showers". Since the real intent of that requirement is to provide some units which have a bathtub or a transfer shower, the alternate roll-in shower should also be acceptable since it may be used in a variety of ways and it will allow for a transfer which is comparable to that of a transfer shower.

I do not hold any strong feelings for the terminology "combination shower" and if the committee can determine a more appropriate term it should feel free to make a change.

I have included a portion of Table 224.2 from the 2010 Standards for Accessible Design so the scoping language can be seen.



Table 224.2 Guest Rooms with Mobility Features

Total Number of Guest Rooms Provided	Minimum Number of Required Rooms Without Roll-in Showers	Minimum Number of Required Rooms With Roll-in Showers	Total Number of Required Rooms
1 to 25	1	0	1
26 to 50	2	0	2
51 to 75	3	1	4
76 to 100	4	1	5

Committee Action:           AS                   AM                   D

608.2.3-PAARLBERG.doc

## 6-51 – 12

### 608.2.4 (New), 608.2.4.1 (New),

**Proponent:** Thomas Hirsch FAIA, Hirsch Group LLC, representing Thomas Hirsch & Henry Kosarzycki

**Add new text as follows:**

**608.2.4 Transfer-Type Shower Compartment for Alterations.** Where an existing bathing room is altered and it is determined to be technically infeasible, a transfer-type shower compartments shall have at least a clear inside dimension of 48 inches in width and 32 inches in depth, measured at the center point of opposing sides. An entry 36 inches minimum in width shall be provided. A clearance of 48 inches minimum in length measured perpendicular from the control wall, and 36 inches minimum in depth shall be provided adjacent to the open face of the compartment.

**608.2.4.1 Transfer-Type Shower Compartment for Alteration Controls.** Where the controls are located within 5 inches from the approach side of the bathtub the clearance shall extend 5 inches minimum beyond the control end wall. Where the controls measured from the approach side of the bathtub are located between 5 and 9 inches from the approach side of the tub the clearance shall extend 9 inches minimum beyond the control end wall.

**Reason:** In rehabilitation of existing Bathrooms conversions from Tub to Showers is often desired. Using the concept of “technical infeasible” to avoid wall removal and replacement, as well as the consequent loss of space in adjoining space, bathing can be provided with little diminution of use-ability in the replacement shower.

Committee Action:                    AS                    AM                    D

608.2.4(NEW)-HIRSCH.doc

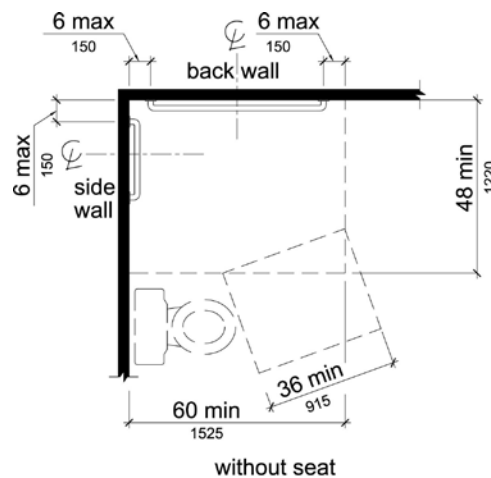
## 6-52 – 12

### 608.2.4 (New), Figure 608.2.4 (New)

**Proponent:** Terri Stewart, The American Institute of Architects, representing The Task Force on Aging

**Add new text as follows:**

**608.2.4 Alternate Roll-In Type Shower Compartments for Elder Use.** Roll-in type shower compartments for elder use shall be 48 inches (1220 mm) wide and 60 inches (1525 mm) deep minimum clear inside dimensions measured at center points of opposing sides. A 36 inch (915 mm) wide minimum entry shall be provided at one end of the long side of the compartment. A grab bar shall be provided on the back wall beginning at 6 inches (150 mm) maximum from the adjacent wall. The back wall grab bar shall extend the length of the wall but shall not be required to exceed 48 inches (1220 mm) in length. A grab bar shall be provided on the side wall. The side wall grab bar shall extend the length of the wall beginning at 6 inches (150 mm) maximum from the adjacent back wall but shall not be required to exceed 30 inches (760 mm) in length.



Note: inside finished dimensions measured at the center points of opposing sides

**Fig. 608.2.4**  
**Alternate Roll-In Shower**  
**Compartment Size and Clearance**

**Reason:** Provides equivalent size and clearance as Section 608.2.3 without seat and front wall for assistance in bathing. Also provides shower overlap for toilet clearance. Also, see White Paper of April 22, 2012.

Committee Action: AS AM D

608.2.4 (New)-STEWART.doc

**6-53 – 12**  
**608.3.1**

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

**Revise as follows:**

**608.3.1 Transfer-Type Showers.** Grab bars for transfer type showers shall comply with Section 608.3.1.

**EXCEPTION:** An L-shaped continuous grab bar of equivalent dimensions and positioning shall be permitted to serve the function of separate vertical and horizontal grab bars.

**Reason:** Prevent slip and fall.

Committee Action:           AS                   AM                   D

608.3.1 #1-FALSTAD.doc

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## 6-54 – 12

### 608.3.1.2

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

**Revise as follows:**

**608.3.1.2 Vertical Grab Bar.** Vertical grab bar 18 inches (455 mm) minimum in length shall be provided on the ~~control end seat wall~~; 3 inches (75 mm) minimum and 6 inches (150 mm) maximum above the horizontal grab bar, and 4 inches (100 mm) maximum inward from the front edge of the shower.

Reason:

1. Now there is a vertical bar on both sides of the transfer shower.
2. Improved safety in making the transfer

Committee Action:           AS                   AM                   D

608.3.1.2 FALSTAD Update.doc

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## 6-55 – 12

### 608.3.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**608.3.2 Standard Roll-in-Type Showers.** In standard roll-in type showers, a grab bar shall be provided on the back wall beginning at the edge of the seat. The grab bars shall not be provided above the seat. The back wall grab bar shall extend the length of the wall to within 6 inches (150 mm) of the side wall but shall not be required to exceed 48 inches (1220 mm) in length. Where a side wall is provided opposite the seat within 72 inches (1830 mm) of the seat wall, a grab bar shall be provided on the side wall opposite the seat. The side wall grab bar shall extend the length of the wall but shall not be required to exceed 30 inches (760 mm) in length. Grab bars on the side wall shall be 6 inches (150 mm) maximum from the adjacent back wall.

**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 address a problem within the standard which occurs in gang showers or in a standard roll-in shower which exceeds the minimum size requirements.

Look at the two highlighted sentences below. If the back wall grab bar is only 48" in length in a long (exceeding min. dimension) shower, how can it also be no more than 6" from the intersecting wall opposite the seat?

**608.3.2 Standard Roll-in-Type Showers.** In standard roll-in type showers, a grab bar shall be provided on the back wall beginning at the edge of the seat. The grab bars shall not be provided above the seat. The back wall grab bar shall extend the length of the wall but shall not be required to exceed 48 inches (1220 mm) in length. Where a side wall is provided opposite the seat within 72 inches (1830 mm) of the seat wall, a grab bar shall be provided on the side wall opposite the seat. The side wall grab bar shall extend the length of the wall but shall not be required to exceed 30 inches (760 mm) in length. Grab bars shall be 6 inches (150 mm) maximum from the adjacent wall.

The initial proposal above is intended to recognize that when the shower exceeds the minimum size that a 48 inch long grab bar may not extend within 6 inches of the side wall. In a minimum size shower the first part of the paragraph adequately addresses the location, position and length of the back wall grab bar. Therefore the last sentence can be modified so it only addresses the side wall grab bar location. Where the shower exceeds the minimum sizes, the first part again adequately locates the back wall grab bar so it is usable on the seat or in the seat location. On these larger showers it is important that the side wall grab bar (if provided) is located near the corner of the shower so it is in a usable position. That is why the 6 inch location from the adjacent wall intersection is important.

Another option (but a bit more complex revision) would be to divide the requirements into separate sections which deal with the back wall and side wall grab bars separately. The primary difference between the proposed Sections 608.3.2.1 and 608.3.2.2 below is seen in the exceptions. The back wall grab bar which is of the 48 inch maximum required length is not required to extend within 6 inches of the side wall. Whereas the side wall grab bar which is of the 30 inch maximum required length is required to extend with 6 inches of the adjacent back wall.

The committee can accept or modify the following alternate proposal if they prefer this format or concept.

**608.3.2 Standard Roll-in-Type Showers.** Grab bars in standard roll-in showers shall comply with Section 608.3.2.

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

**Exceptions:**

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

**608.3.2.2 Side wall grab bars.** Where a side wall is provided opposite the seat within 72 inches (1830 mm) of the seat wall, a grab bar shall be provided on the side wall opposite the seat. The side wall grab bar shall extend the length of the wall and extend within 6 inches (150 mm) maximum from the adjacent back wall.

**Exception:** The side wall grab bar but shall not be required to exceed 30 inches (760 mm) in length. Grab bars shall be 6 inches (150 mm) maximum from the adjacent wall.

Committee Action:                    AS                    AM                    D

608.3.2 #2-PAARLBERG.doc

## 6-56 – 12

### 608.3.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**608.3.2 Standard Roll-in-Type Showers.** In standard roll-in type showers, a grab bar shall be provided on the back wall beginning at the edge of the seat. The grab bars shall not be provided above the seat. The back wall grab bar shall extend the length of the wall but shall not be required to exceed 48 inches (1220 mm) in length. Where a side wall is provided opposite the seat within 72 inches (1830 mm) of the seat wall, a grab bar shall be provided on the side wall opposite the seat. The side wall grab bar shall extend the length of the wall but shall not be required to exceed 30 inches (760 mm) in length. Grab bars shall be 6 inches (150 mm) maximum from the adjacent wall.

#### **EXCEPTIONS:**

1. Grab bars on the back wall shall not be required to begin within 6 inches (150 mm) from the adjacent wall in the following locations:
  - 1.1. Where the grab bar would need to extend above the seat in order to meet the 6 inch (150 mm) requirement.
  - 1.2. Where the length of the grab bar would be required to exceed 48 inches (1220 mm) in length in order to meet the 6 inch (150 mm) requirement.
2. Grab bars on the end walls shall not be required to begin within 6 inches (150 mm) from the adjacent wall in the following locations:
  - 2.1 Where the grab bar would need to extend above the seat in order to meet the 6 inch (150 mm) requirement.
  - 2.2 Where the length of the grab bar would be required to exceed 30 inches (760 mm) in length in order to meet the 6 inch (150 mm) requirement.

**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.

Due to revisions that were made in the 2009 standard, the size of the grab bars in larger showers do not need to exceed 48 inches if located on the back wall or 30 inches if located on an end wall. That text which was added in the last cycle does not work well with the last sentence which says the grab bars are required to start 6 inches maximum from the adjacent wall. It also does not provide any type of exception where the 6 inch requirement would place the bar above the seat.

The proposed exceptions are intended to address the conflicts that the current text creates. These conflicts are: (a) that the larger showers would not require the bar to extend within 6 inches of the wall, and (b) that the existing text does not address the fact that by prohibiting the bar above the seat will mean the bar won't be within 6 inches of the adjacent wall when it terminates at the edge of the seat.

The committee could decide that the 6 inch requirement found in the last sentence needs to be tied to a standard size shower and not to showers larger than the minimum, or the requirement needs to go away or be modified in some other manner. One aspect that the current text and this new proposal do not address is whether in a shower that exceeds the minimum size if it is better for the grab bars to be located towards the opening, centered on the wall, or towards the corner of the shower.

For reference, here are the revisions that were made in the 2009 standard which began to address larger showers and limited the length of the required grab bars.

~~608.3.2 Standard Roll-in-Type Showers. In standard roll-in type showers, grab bars shall be provided on three walls of showers without seats. Where a seat is provided in a standard roll-in type shower, a grab bars shall be provided on the back wall and on the wall opposite beginning at the edge of the seat. The grab bars shall not be provided above the seat. The back wall grab bar shall extend the length of the wall but shall not be required to exceed 48 inches (1220 mm) in length. Where a side wall is provided opposite the seat within 72 inches (1830 mm) of the seat wall, a grab bar shall be provided on the side wall opposite the seat. The side wall grab bar shall extend the length of the wall but shall not be required to exceed 30 inches (760 mm) in length. Grab bars shall be 6 inches (150 mm) maximum from the adjacent wall.~~

Committee Action:           AS                   AM                   D

608.3.2-PAARLBERG.doc

## 6-57 – 12

### 608.3.2

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

**Revise as follows:**

**608.3.2 Standard Roll-in-Type Showers.** In standard roll-in type showers, a grab bar shall be provided on the back wall beginning at the edge of the seat. The grab bars shall not be provided above the seat. The back wall grab bar shall extend the length of the wall but shall not be required to exceed 48 inches (1220 mm) in length. Where a side wall is provided opposite the seat within 72 inches (1830 mm) of the seat wall, a grab bar shall be provided on the side wall opposite the seat. The side wall grab bar shall extend the length of the wall but shall not be required to exceed 30 inches (760 mm) in length. Grab bars shall be 6 inches (150 mm) maximum from the adjacent wall.

A vertical grab bar 18 inches minimum in length shall be provided on the side wall opposite of the seat 3 inches (75 mm) minimum and 6 inches (150 mm) maximum above the horizontal grab bar, and 4 inches (100 mm) maximum inward from the front edge of the shower.

**Reason:** Prevent slip and fall.

Committee Action:           AS                   AM                   D

608.3.2 #1-FALSTAD.doc

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## 6-58 – 12

### 608.3.2

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

**Revise as follows:**

**608.3.2 Standard Roll-in-Type Showers.** ~~In standard roll in type showers, a grab bar shall be provided on the back wall beginning at the edge of the seat. The grab bars shall not be provided above the seat. The back wall grab bar shall extend the length of the wall but shall not be required to exceed 48 inches (1220 mm) in length. Where a side wall is provided opposite the seat within 72 inches (1830 mm) of the seat wall, a grab bar shall be provided on the side wall opposite the seat. The side wall grab bar shall extend the length of the wall but shall not be required to exceed 30 inches (760 mm) in length. Grab bars shall be 6 inches (150 mm) maximum from the adjacent wall. In the standard roll-in type showers, an L-shaped grab bar shall be provided on the back wall beginning at the edge of the seat with an 18 inches minimum vertical grab bar. The grab bars shall not be provided above the seat. The back wall horizontal grab bar shall extend the length of the wall but shall not be required to exceed 48 inches in length. The (“END” note Figure 608.3.2 has two end walls) side wall L-shaped grab bar opposite the seat wall shall extend horizontally the length of the wall and then turn up 90 degrees for a distance of 18 inches minimum. That vertical grab bar shall be 4 inches maximum inward from the front edge of the shower.~~

**Reason:**

1. Safety for someone standing, the 18 inches vertical bar on the end wall.
2. Safety for someone making the transfer to the seat, the 18 inches vertical bar on the back wall adjacent to the seat.

Committee Action:           AS                   AM                   D

608.3.2 #2-FALSTAD.doc

## 6-59 – 12

### 608.3.3

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

**Revise as follows:**

**608.3.3 Alternate 2-Standard Roll-in-Type Showers.** In standard alternate roll-in type showers, a grab bar an L-shaped continuous grab bar with an 18 inch (455 mm) vertical shall be provided on the back end wall beginning at the edge of the seat. The Grab bars shall not be provided above the seat. ~~The back wall grab bar shall extend the length of the wall but shall not be required to exceed 48 inches (1220 mm) in length. Where a side wall is provided opposite the seat within 72 inches (1830 mm) of the seat wall, a grab bar shall be provided on the side wall opposite the seat. The side wall grab bar shall extend the length of the wall but shall not be required to exceed 30 inches (760 mm) in length.~~ On the seat wall an 18 inch vertical (455 mm) minimum in length grab bar shall be installed 4 inches – 6 inches above the top of the horizontal grab bars and 4 inches maximum from the entrance into the shower. Grab bars shall be 6 inches (150 mm) maximum from the adjacent wall.

**Reason:** Prevent slip and fall.

Committee Action:           AS                   AM                   D

608.3.3-FALSTAD.doc

## 6-60 – 12

### 608.4.1, 608.4.2, 608.4.3, 608.5

**Proponent:** Kim Paarlberg, International Code Council

#### Revise as follows:

**608.4.1 Transfer-Type Showers.** In transfer-type showers, the controls and hand shower shall be located:

1. On the control wall opposite the seat,
2. At a height above the grab bar and of 38 inches (965 mm) minimum and 48 inches (1220 mm) maximum above the shower floor, and
3. 15 inches (380 mm) maximum, from the centerline of the control wall toward the shower opening.

**608.4.2 Standard Roll-in Showers.** In standard roll-in showers, the controls and hand shower shall be located:

1. On the back wall,
2. At a height above the grab bar and 48 inches (1220 mm) maximum above the shower floor, and
3. 16 inches (405 mm) minimum and 27 inches (685 mm) maximum from the end wall behind the seat.

**608.4.3 Alternate Roll-in Showers.** In alternate roll-in showers, the controls and hand shower shall be located:

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

**608.5 Hand Showers.** A hand shower with a hose 59 inches (1500 mm) minimum in length, that can be used both as a fixed shower head and as a hand shower, shall be provided. The hand shower shall have a control with a nonpositive shut-off feature. Where provided, an adjustable-height hand shower mounted on a vertical bar shall be installed so as to not obstruct the use of grab bars.

#### EXCEPTIONS:

1. Redundant shower head mounts shall be permitted to be installed above 48 inches above the shower floor.
2. The vertical bar for adjustable-height shower head mounts shall be permitted to extend above 48 inches maximum above the shower floor.
3. In other than Accessible units and Type A units, a fixed shower head located 48 inches (1220 mm) maximum above the shower floor shall be permitted in lieu of a hand shower.

**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.

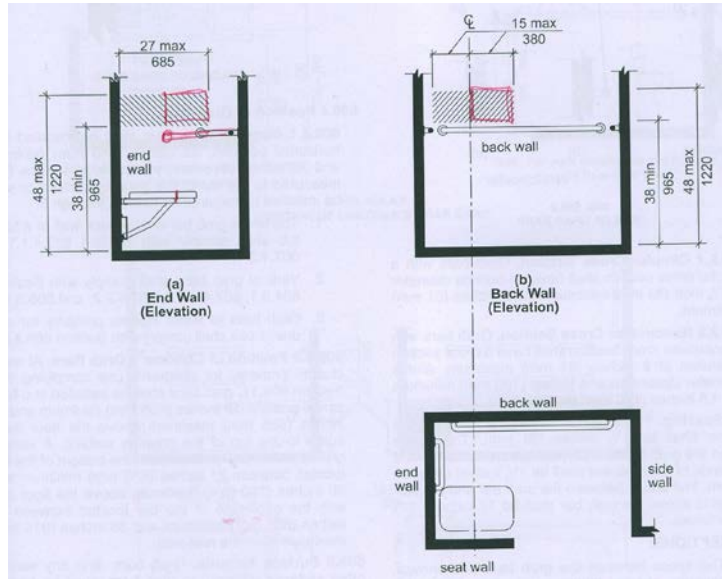
There are multiple reasons for this proposal.

1) To make the format of the controls for all three types of showers the same

2) Last cycle 608.4.2 has taken out the 38" minimum height as part of an ADA coordination item. The requirement to be 1-1/2 inches above the grab bar (Section 609.3 Exception 1) would set a lower height depending on what elevation the grab bar was located (33-36 height). 608.4.1 and 608.4.3 should be addressed the same.

3) Section 608.4.3 allows for alternate roll-in shower to locate controls over the seat (which is in conflict with the roll-in shower) or away from the transfer location (which is in conflict with the transfer shower). This proposal would match the other showers for control locations.

4) Section 608.4 says the hand showers have to comply with 608.4 (location) and (608.5) which says the hand showers have to work as both a fixed head and hand shower. This really means either a mount post on the wall, or a vertical bar with an adjustable mount. Many standing persons cannot shower with a head at 48 inches. For family members or for persons with mobility impairments that are standing, the shower head should be able to work for everyone. The additional exceptions would allow for redundant heights.



Committee Action:

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608.4.1(NEW)-PAARLBERG.doc

## 6-61 – 12

### 608.4.2

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

**Revise as follows:**

**608.4.2 Standard Roll-in Showers.** In standard roll-in showers, the controls and hand shower shall be located on the back wall above the grab bar, 48 inches (1220 mm) maximum above the shower floor and 16 inches (405 mm) minimum and 27 inches (685 mm) maximum from the end wall behind the seat.

**EXCEPTION:** Additional controls and hand shower shall be permitted on the end wall opposite the seat wall of a standard roll-in shower.

**Reason:** The roll-in-type shower needs to be usable by able-bodied, ambulatory, and disabled individuals. Many people prefer the walk-in shower and grab bars to maintain a safe balance. Most able-bodied people and many ambulatory people prefer to stand when showering. Requiring the hand shower to be installed on the back wall makes it more difficult to contain water within the shower area.

The additional hand shower will allow more flexibility and usability for a greater number of people.

Committee Action:           AS                   AM                   D

608.4.2-REED.doc

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## 6-62 – 12

### 608.4.3, Figure 608.4.3

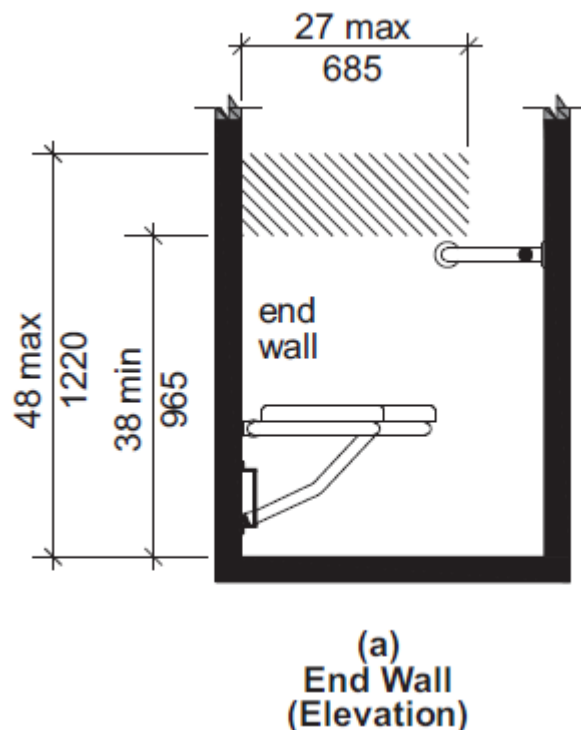
**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**608.4.3 Alternate Roll-in Showers.** In alternate roll-in showers, the controls and hand shower shall be located 38 inches (965 mm) minimum and 48 inches (1220 mm) maximum above the shower floor. In alternate roll-in showers with controls and hand shower located on the end wall adjacent to the seat, the controls and hand shower shall be 16 inches (405 mm) minimum and 27 inches (685 mm) maximum from the seat wall. In alternate roll-in showers with the controls and hand shower located on the back wall opposite the seat, the controls and hand shower shall be located within 15 inches (380 mm), left or right, of the centerline of the seat.

**Revise Figure 608.4.3 as follows:**

Modify figure to show a 16 inch minimum requirement to go along with the existing 27 inch maximum dimension to create a range for controls to be located and measured from seat wall.



**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.

In the 2009 edition of the standard, Section 608.4.2 dealing with a standard roll-in shower was modified to create this 16 to 27 inch range for the controls. The purpose behind that change was to ensure the controls were not located over the seat and did not require a person using the seat to reach beside or behind them to operate the controls. It seems appropriate to make the alternate roll-in shower requirement consistent and also keep the controls forward where they will be more usable.

Although this will reduce the possible location for the controls on this end wall by creating a more limited range, the alternate roll-in shower has the option to place the controls on the back wall opposite the seat. It seems that additional alternative of being able to use the back wall should make up for the reduced size range on the end wall.

Committee Action:

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608.4.3-PAARLBERG.doc

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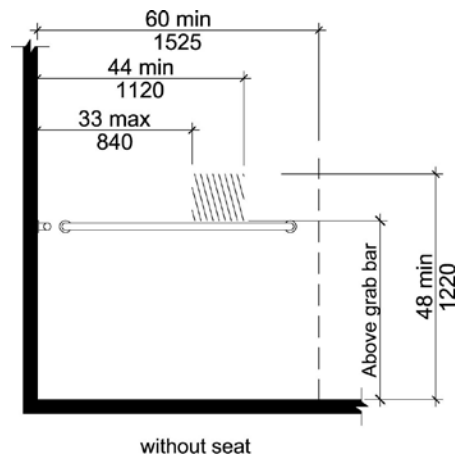
## 6-63 – 12

### 608.4.4 (New), Figure 608.4.4 (New)

**Proponent:** Terri Stewart, The American Institute of Architects, representing The Task Force on Aging

**Add new text as follows:**

**608.4.4 Alternate Roll-In Type Shower Compartments for Elder Use.** The controls and hand shower provided in a roll-in type shower compartment for elder use shall be located on the back wall above the grab bar, 48 inches (1220 mm) maximum above the shower floor and 16 inches (405 mm) minimum and 44 inches (1120 mm) maximum 33 inches (840 mm) from the side wall.



**Fig. 608.4.4**  
**Alternate Roll-In Shower**  
**Compartment for Elder Use**  
**Control and Hand Shower Location**

**Reason:** Provides location for assistance in bathing. See , also White Paper, dated April 22, 2012

Committee Action: AS AM D

608.4.4 (New)-STEWART.doc



## 6-64 – 12

### 608.5

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

**Delete and substitute as follows:**

~~**608.5 Hand Showers.** A hand shower with a hose 59 inches (150 mm) minimum in length, that can be used both as a fixed shower head and as a hand shower, shall be provided. The hand shower shall have a control with a non-positive shut-off feature. Where provided, an adjustable height hand shower mounted on a vertical bar shall be installed so as to not obstruct the use of grab bars.~~

~~**EXCEPTION:** In other than Accessible units and Type A units, a fixed shower head located 48 inches (1220 mm) maximum above the shower floor shall be permitted in lieu of a hand shower.~~

**608.5 Hand Showers.** A hand shower with a hose 59 inches (150 mm) minimum in length that can be used as a hand shower shall be provided. The hand shower shall have a separate central with a non-positive shut-off feature. The hand shower shall be located adjacent to the seat; at a height of 40 inches (1015 mm) maximum above the finish floor.

**Reason:** More functional, get side of slide bar.

Committee Action:           AS                   AM                   D

608.5-FALSTAD.doc

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## 6-65 – 12

### 608.5

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

**Revise as follows:**

**608.5 Hand Showers.** A hand shower with a hose 59 inches long (1500 mm) minimum in length, that can be used both as a fixed shower head and as a hand shower, shall be provided. The hand shower shall have a control with a nonpositive shut-off feature. Where provided, an adjustable-height hand shower mounted on a vertical bar shall be installed so as to not obstruct the use of grab bars. A hook, to hold the hand shower wand, while water is running, shall be provided above the grab bar.

**EXCEPTIONS:** In other than Accessible units and Type A units, a fixed shower head located 48 inches (1220 mm) maximum above the shower floor shall be permitted in lieu of a hand shower.

**Reason:** Many people with disabilities have to get the hotel staff to come up and unhook the hand shower. Then the hand shower hangs down. Depending on water pressure, kinks in the hose, and similar the hand shower can be difficult to grab and keep from spraying outside the shower when adjusting temperatures.

Some hotels have several hooking places at the bottom of the vertical bar or a hook on the wall to hang the hand shower wand. This keeps the hand shower at a convenient location and allows the spray to be directed back into the shower while adjusting temperatures and soaping up.

Committee Action:           AS                   AM                   D

608.5-REED.doc

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## 6-66 – 12

### 609.3

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**609.3 Spacing.** The space between the wall and the grab bar shall be 11/2 inches (38 mm). The space between the grab bar and projecting objects below and at the ends of the grab bar shall be 11/2 inches (38 mm) minimum. The space between the grab bar and projecting objects above the grab bar shall be 12 inches (305 mm) minimum.

**EXCEPTIONS:**

- 1- The space between the grab bars and shower controls, shower fittings, and other grab bars above the grab bar shall be permitted to be 11/2 inches (38 mm) minimum.
- 2- ~~Recessed dispensers projecting from the wall 1/4 inch (6.4 mm) maximum measured from the face of the dispenser and complying with Section 604.7 shall be permitted within the 12 inch (305 mm) space above and the 11/2 inch (38 mm) spaces below and at the ends of the grab bar.~~

**Reason:** ADAAG Advisory information explains that tolerances include field conditions and those that are a consequence of a particular manufacturing process. The choice of a product that would protrude into the required clearance is a design choice not a consequence of the manufacturing process or construction field condition. There are other products that would comply without having to encroach into the 12 inch space above or the 1-1/2 inches below the grab bar.

Dispenser mounted per exception #2 may be found not in compliance with the 2010 ADA Standards.

For harmonization with the 2010 ADA Standards, only exception #1 should be allowed.

Committee Action:            AS                    AM                    D

609.3-WAI.doc

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**6-67 – 12**  
**609.8.1 (New)**

**Proponent:** Thomas Hirsch FAIA, Hirsch Group LLC, representing Thomas Hirsch & Henry Kosarzycki

**Revise as follows:**

**609.8 Structural Strength.** Allowable stresses shall not be exceeded for materials used where a vertical or horizontal force of 250 pounds is applied at any point on the grab bar, fastener mounting device, or supporting structure.

**609.8.1 Bathtub and Shower Modules.** Where a bathtub or shower module is installed additional blocking shall be installed between the module and supporting structure.

**Reason:** My experience in architectural practice is that in-wall blocking is not sufficient. In-wall blocking is useful alongside toilets and showers that are site-built, that is, have their grab bars mounted directly on the wall surfaces. However, where pre-manufactured tub or shower modules are used, however, the bars will mount on the module surface and typically there is a substantial gap between the module and the wall or wall framing behind it. The screws for the bars, therefore, have substantial unsupported length in that gap and because the modules have flexibility will tend to rock cracking the surface finish of the module and/or causing the screw to break.

Committee Action:           AS                   AM                   D

608.2.4(NEW)-HIRSCH.doc

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## 6-68 – 12

### 610.2, Figure 610.2, 610.3

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

**Revise as follows:**

**610.2 Bathtub Seats.** The height of bathtub seats shall be 17 inches (430 mm) minimum and ~~19~~ 20 inches (~~485~~ 510 mm) maximum above the bathroom floor, measured to the top of the seat. Removable in-tub seats shall be 15 inches (380 mm) minimum and 16 inches (405 mm) maximum in depth. Removable in-tub seats shall be capable of secure placement. Permanent seats shall be 15 inches (380 mm) minimum in depth and shall extend from the back wall to or beyond the outer edge of the bathtub. Permanent seats shall be positioned at the head end of the bathtub.

**EXCEPTION:** An accessible seat which is adjustable in height is permitted to provide adjustability within a range of 15 inches (380 mm) minimum to 25 inches (635 mm) maximum, provided that at least one adjustment setting provides a seat within the range specified in Section 610.2.

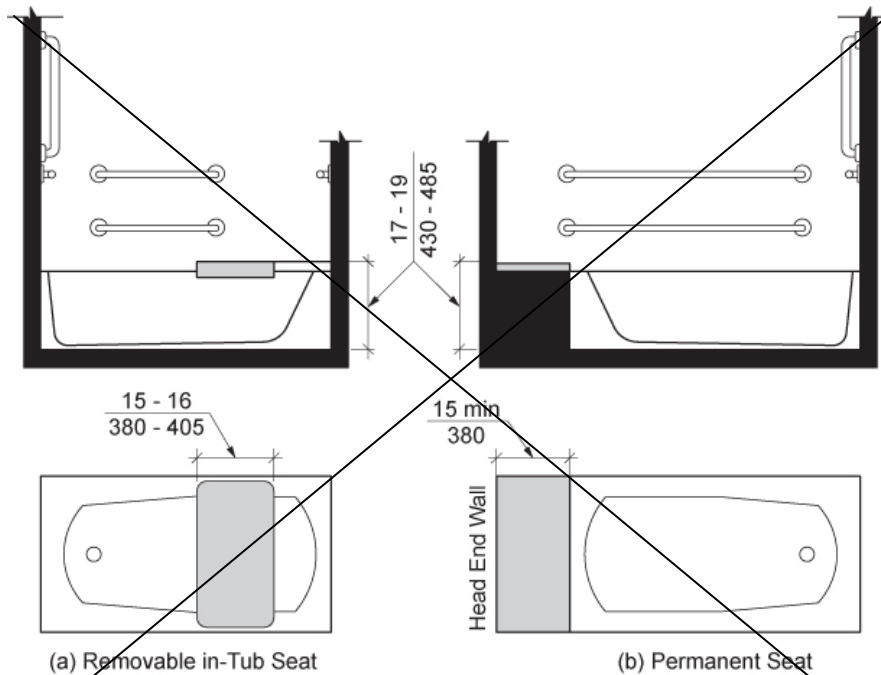


FIG. 610.2  
BATHTUB SEATS

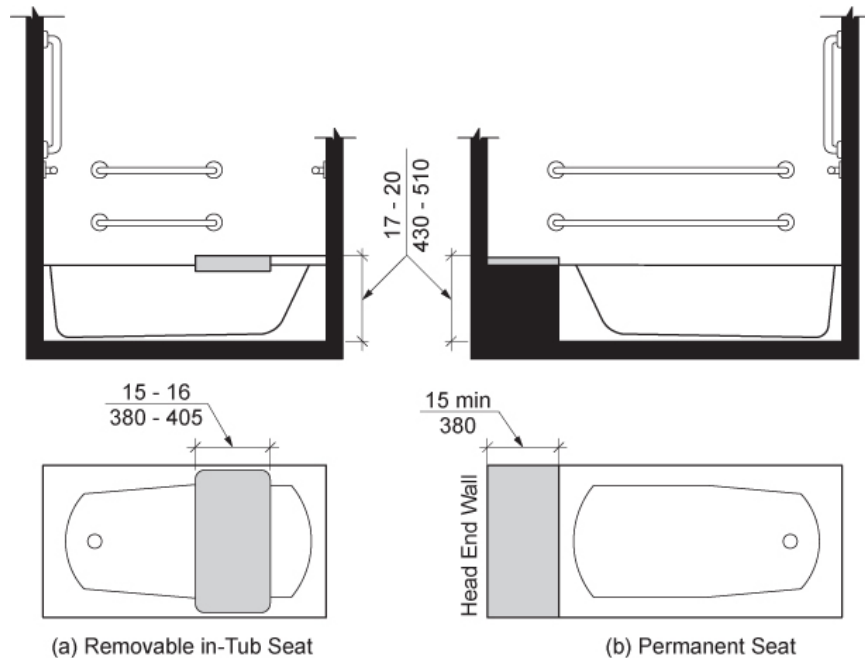


FIG. 610.2  
BATHTUB SEATS

**610.3 Shower Compartment Seats.** The height of shower compartment seats shall be 17 inches (430 mm) minimum and ~~19~~ 20 inches (485 ~~510~~ mm) maximum above the bathroom floor, measured to the top of the seat. In transfer-type and alternate roll-in-type showers, the seat shall extend along the seat wall to a point within 3 inches (75 mm) of the compartment entry. In standard roll-in-type showers, the seat shall extend from the control wall to a point within 3 inches (75 mm) of the compartment entry. Seats shall comply with Section 610.3.1 or 610.3.2.

**EXCEPTION:** An accessible seat which is adjustable in height is permitted to provide adjustability within a range of 15 inches (380 mm) minimum to 25 inches (635 mm) maximum, provided that at least one adjustment setting provides a seat within the range specified in Section 610.2.

**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 addition to the findings reported in Steinfeld, et al., 2010, the IDeA Center developed a Design Resource entitled, *Analysis of Seat Height for Wheeled Mobility Devices* that provides more detailed information about the study reported in Steinfeld, et al., 2010. *Analysis of Seat Height for Wheeled Mobility Devices* indicates that the current maximum height of 19 inches (485 mm) accommodates 51% of female manual wheelchair users, 30% of manual wheelchair users, and fewer than 20% of power and scooter users. The report indicates a seat height of 25 inches (635 mm) would accommodate over 95% of all wheeled mobility device users (D'Souza and Steinfeld, 2011, pg. 5).

Increasing the maximum seat height to 20 inches (510 mm) would allow 75% of female manual wheelchair and 53% of male manual wheelchair users (D'Souza and Steinfeld, 2011, pg. 5) to transfer comfortably. Comfort in this case is determined by how closely the height of the transfer surface matches the height of a wheelchair seat. Steinfeld, et. Al., 2010 (pg. 85) report that "keeping the height of a transfer surface close to the height of a wheelchair seat reduces the effort necessary to transfer and provides a safer environment, especially in bathing and toilet rooms."

However, a fixed seat any higher than 20 inches (510 mm) would likely disadvantage people of short stature, particularly if it was the *only* seat. Encouraging innovation would help to accommodate a greater number of wheeled mobility users without disadvantaging people of short stature. Adjustability is the best option to accommodate the widest population but in the meantime, the upper limit should be raised to 20 inches (Steinfeld, et al., 2010, pgs. 85-86).

NOTE: This change necessitates a change to Fig. 610.2 to ensure consistency. Thus, the proposed revised figure has been attached, along with the existing figure for comparison purposes.

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

D'Souza, C. and Steinfeld, E. (2011). *Analysis of Seat Height for Wheeled Mobility Devices*. 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.

Committee Action:                   AS                   AM                   D

610.2-STEINFELD.doc

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# 6-69 – 12

## 611.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**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).

**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.

You let the door for the top loader be at 36" high, but you literally do not allow for the operable parts to be located over the unit.



Committee Action:           AS                   AM                   D

611.3 (revised)-PAARLBERG.doc



## 6-70 – 12

### 612.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

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

**EXCEPTION:** Where the room is for individual use and a clear floor space complying with Section 305.3 is provided within the room beyond the arc of the door swing, the door shall not be required to comply with Section 612.2.

**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 is intended to coordinate with other sections of the standard which do allow a door to swing into a room or floor space if there is adequate space to maneuver away from the swing of the door. This proposed exception was copied from the toilet and bathing room requirements of Section 603.2.2 (with the section reference being revised to be Section 612.2).

If the user can maneuver away from the door, it should not be a problem for the door to swing into the space. If the committee was feeling more generous, the proposal could be modified to coordinate with the door swing requirements for dressing, fitting and locker rooms in Section 803.3. That section also allows for a door to swing into the room but it does not contain the limitation of the space being "for an individual user."

Committee Action:           AS                   AM                   D

612.2-PAARLBERG.doc

## 7-1– 12

**504.5.1, 701.1.2 (NEW), 703.2.1.1 (New), 703.2.1.2 (New), 703.5.3.1 (New), 703.5.3.2 (New), 703.6.3.1 (New), 703.6.3.2 (New), 705.3**

**Proponent:** Sharon Toji, Access Communication, representing self

**Add the following new section**

**701.1.2 Contrast and Light Reflectance Value.** The contrast of surfaces shall be determined in accordance with Equation 7-1.

Contrast =  $[(B1-B2)/B1] \times 100$  percent **Equation 7-1**

Where

B1 = light reflectance value (LRV) of the lighter surface,  
B2 = light reflectance value (LRV) of the darker surface.

Light Reflectance Value (LRV) shall be determined in accordance with British Standard BS 8493:2008 + A1: 2010 "Light reflectance value (LRV) of a surface. Method of Test."

**Revise as follows**

**703.2.1 General.** Visual characters shall comply with the following:

*(Balance of section is not changed)*

**703.2.1.1 Nonglare Finish.** Gloss on the finish of characters and their background shall not exceed 19 as measured on a 45-degree gloss meter.

**703.2.1.2 Contrast.** The Light Reflectance Value (LRV) of characters and their background shall contrast 70 percent minimum as determined in accordance with Equation 7-1. The lighter surface shall have a LRV of not less than 45.

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

**703.5.3.1 Nonglare Finish.** Gloss on the finish of pictograms and their fields shall not exceed 19 as measured on a 45-degree gloss meter.

**703.5.3.2 Contrast.** The Light Reflectance Value (LRV) of pictograms and their fields shall contrast 70 percent minimum as determined in accordance with Equation 7-1. The lighter surface shall have a LRV of not less than 45.

**703.6.2 Finish and Contrast.** Symbols of accessibility and their backgrounds shall have non-glare finish. Symbols of accessibility shall contrast with their backgrounds with either a light symbol on a dark background or a dark symbol on a light background.

**703.6.3.1 Nonglare Finish.** Gloss on the finish of symbols of accessibility and their backgrounds shall not exceed 19 as measured on a 45-degree gloss meter.

**703.6.3.2 Contrast.** The Light Reflectance Value (LRV) of symbols of accessibility and their backgrounds shall contrast 70 percent minimum, as determined in accordance with Equation 7-1. The lighter surface shall have a LRV of not less than 45.

**705.3 Contrast.** Detectable warning surfaces shall contrast visually with adjacent surfaces, either light-on-dark or dark-on-light.

The Light Reflectance Value (LRV) of the surfaces shall contrast 70 percent minimum, as determined in accordance with Equation 7-1r. The lighter surface shall have a LRV of not less than 45.

**504.5.1 Visual Contrast.** The leading 2 inches (51 mm) of the tread shall have visual contrast of dark-on-light or light-on-dark from the remainder of the tread.

The Light Reflectance Value (LRV) of the 2-inch stripe and tread shall contrast 70 percent minimum, as determined in accordance with Equation 7-1. The lighter surface shall have a LRV of not less than 45.

**Reason: Glare:** Glare is a very important issue to many people with vision impairments. It is a particular problem to older people, who are often developing cataracts, and who form a very large group of persons with age related vision impairments, in addition to others with vision impairments developed at a much younger age. Glare on sign surfaces makes them virtually unreadable in many cases. Because brushed metals are such a popular architectural material, and there is no measurable standard for glare or gloss, they are used frequently for signs. Unfortunately, such surfaces are almost never non-glare according to the standard previously given in the ADAAG Appendix.

The original ADAAG did have an appendix item that gave a measurement for what is called, technically, in paints, "eggshell" finish, which was one of the suggested terms for non-glare finishes. That finish is measured with a gloss meter, and measures between 9 and 19.

The ANSI Sign Committee, working on the 1998 changes, decided to abandon the term "eggshell" because it is also the name of a color, and usually applies only to paint finishes. It had been confusing to some graphic designers. However, the maximum amount of allowed gloss, 19, is an appropriate limit for gloss or glare for all sign finishes that must be accessible. Manufacturers of various materials and finishes can easily supply the gloss meter reading of their materials, and these readings tend to be made by manufacturers, because they are required for many architectural purposes. Therefore, architects, designers and fabricators can obtain the gloss reading for materials they are specifying, and submit them with their plans.

I am therefore proposing that ANSI add a measurable standard for glare or gloss to standards that have to do with sign surfaces. Because I am proposing a maximum amount of glare, and not tying it to "eggshell" paint, I have omitted the lower number, because I do not believe it is relevant to many sign surfaces, including some non-glare paint finishes.

**Contrast:** During the last ANSI cycle, a subcommittee composed of individuals, some of whom were acknowledged vision or color experts, worked for a substantial period of time on a specific measurement proposal for contrast. This is a contentious topic, because many designers understandably worry that they will be denied the opportunity to choose from a large array of colors. However, the ANSI A117.1 standard as it now reads, as well as the ADA Standard for Accessible Design, make it very clear that "color," (known more scientifically as "hue,") is not the issue when we are dealing with vision impairment. The reason that only "dark" and "light" are to be considered is that many people with an entire range of vision impairments do not see color, or see only limited colors. Even those individuals that we speak of as "red-green color blind" — perhaps as many as 10 percent of the male population — become visually impaired when they are confronted with black or green contrasted with red or brown, or many shades of those colors in between. These colors appear to them as barely contrasting shades of gray. Older people also often find various colors more difficult to discern as their vision deteriorates. For anyone with impaired color vision — and that is a large percentage of people who are defined as legally blind, and therefore disabled — colors with similar "darkness" or "lightness," often make signs unreadable.

The contrast standard introduced in the last cycle suffered from the fact that we did not have a recognizable method of measurement that was effective for various material finishes. This was a major objection on the part of the SEGD and ISA. They were concerned about being able to use wood finishes, for instance, since the measurement standard was very limited as to surface type. However, that has now changed, and I think it provides us with the scientific support we need to reintroduce a measurable standard for contrast with a way to measure it uniformly.

The British Standards Institute has done the work we need, and has developed a standard for the measurement of the Light Reflective Values (LRVs) of a variety of architectural finishes. This standard is actually used by another ANSI Committee's standards, and is available in the ANSI Standards Store, so it is part of an accepted ANSI standard. The standard was developed to use for all kinds of architectural elements where contrast is an issue.

In the United Kingdom, there was been much more research on the needs of vision impaired individuals for dark/light contrast in the environment, than has taken place in this country. An important study called the "Rainbow Project" determined that many architectural elements, such as door handles, and doors on buses and trains, needed to contrast with their surrounding materials.

Just as we proposed in the last cycle, the British Standards uses Light Reflectance Value, or LRV, as the standard of measurement. They turned the 70 percent standard that is normally used, into a requirement for a difference in LRV numbers of 30. I have attached a paper written by an industry member about the standard, and its development.

However, just as with the 70 percent formula, there is an unfortunate flaw caused by the fact that the distances between the points on the scale of 100, used for LRV measurements, are not equal. The “visual” difference between a finish with an LRV of 4 and one of 8 is quite noticeable, whereas the difference between a finish with an LRV of 90 and 94 is barely noticeable. Therefore, if you use the formula and compare two dark finishes, they will show a large percentage of difference, whereas two lighter colors, even though far apart numerically, will fail the percentage test.

Nevertheless, there appears to be general agreement that the LRV is the proper measurement to use if one is comparing darkness and lightness of various surface colors, since it is independent of hue. It remains only to determine a reasonable minimum that will allow the use of a reasonable choice of colors, and still meet the needs of a large group of people who have impaired, though usable vision. Seventy percent minimum contrast appears to be well established, and already is used in some building codes in the United States, including for detectable warning surfaces and the Cleaner Air Symbol, in California.

Our committee agreed with the conclusion drawn by the individuals who prepared a study on contrast in detectable warning surfaces prepared for the Access Board, and cited in the last cycle’s attempt, that the formula included in the original ADAAG Appendix, and some building codes, could only be used successfully if a minimum LRV was established for the lighter of the two numbers. A scientist working at NIST on the light and dark comparison of colored electrical wires for aircraft came to the same conclusion. Accordingly, after much studying of color graphs and formulas, the contrast committee determined on a minimum number of 45.

The contention of the color specialist who spoke on behalf of the SEGD and ISA against the proposed standard during one of the final meetings of the last cycle, that the standard is meaningless without a reference to hue, goes against the entire intent of the accessibility standards not only in the United States, but also other countries that adopt contrast standards for the built environment, and accept the LRV as the standard unit of measurement.

A bright red and white sign was circulated as a sample of a sign that would fail the percentage formula the committee proposed. This was understandably disturbing to committee members. However, it appeared that assessment was actually based on a completely different measurement standard, one that included hue, which would produce different numbers. During the recess, the sign was checked with a Spectrometer that measures LRV and the reading showed a contrast, using the formula, significantly greater than 70 percent. The vote was called before this could be demonstrated to the Committee. Color is admittedly a complicated issue, and it is indeed difficult, particularly among people with adequate color vision, to separate the concept of hue out from the other attributes that make up what we refer to collectively as “color.” I am attaching a document that gives a clear explanation of color terminology.

In preparation for resubmitting a measurable standard for contrast, I went to a single swatch book of just one popular paint manufacturer, Dunn Edwards, and sorted all the colors by LRV. I am attaching the list. I then counted the number of swatches that measure the most extreme, or minimum (darkest) “light” color, LRV 45, and found there were 10 of them. I found that, in order to get a minimum percentage of 70, I needed to choose a dark color with an LRV of 13. There were actually 199 swatches that ranged from 4 (black) up to various shades that measured 13. That means that using the least possible contrast range, and only matching colors in this one swatch book, the designer has 1990 different colors or shades of hues with which to work. It is difficult to imagine the designer who could not be creative within that range. Of course, as lighter colors with higher LRVs are used, different choices are available. If you choose DE “white,” which has an LRV of 93, you can use all the shades with an LRV of 27 or less for the darker color. Note that there are decimals for the LRV measurements, so using the exact numbers, not rounded, may give you slightly different choices.

Unfortunately, I did not have a budget to purchase the actual British Standard, but am attaching the abstract. It should be readily available through ANSI. I believe the abstract along with the discussion in the attached document about the standard makes it clear that it is the appropriate one.

I urge the ANSI A117.1 Committee to give us another opportunity to pass a measurable standard. Code officials do not feel secure in checking contrast and glare, because they have no definition at all of what these terms mean. In some cases, we see signs with “dark” that is only a shade or two darker than “light.”

Contrast may possibly be the issue that affects the largest group of persons with a variety of vision disabilities. Admittedly, we do not yet have a scientific instrument that would be affordable and convenient for every inspector to carry onto a site. However, there are many elements of construction that are important, such as certification of hidden welds or the composition of concretes and adhesives, that are certified by the designer and required to be stated for plan checkers. There is no way for inspectors to check them on site, even though they are vital to the building structure. There is no reason why the measurements for gloss (glare) and dark/light contrast — items with no structural importance — cannot be listed in the specifications and plans by designers. Then, if there appear to be signs during the actual site check that have too much glare or insufficient contrast, swatches of the materials used can be requested and checked to be sure that they have been provided in compliance with those specifications and plans. I have no doubt that it is only a matter of time before a device can be invented that will measure those attributes on site.

I plan to submit additional materials to support the standard as I am able to gather them. Several people, such as a professor I met who does research on light, have recently expressed interest in the topic. It may even be possible to get some focus groups together of individuals with impaired color vision, who can look at some of the combinations from specific distances to determine if they are visible. Attachments will be provided as separate pdf documents.

Committee Action:           AS                   AM                   D

703.2.1.1(New)-TOJI.doc

## 7-2 – 12

### 702.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**702.1 General.** Accessible audible and visible alarms and notification appliances that are part of a building fire alarm system shall be installed in accordance with NFPA 72 listed in Section 105.2.2, be powered by a commercial light and power source, be permanently connected to the wiring of the premises electric system, and be permanently installed.

**EXCEPTION:** Audible and visible notification appliances provided within dwelling or sleeping units shall comply with Section 1006.2 through 1006.4.4.

#### **1006 Units with Accessible Communication Features.**

**1006.1 General.** Units required to have accessible communication features shall comply with Section 1006.

**1006.2 Unit Smoke Detection.** Where provided, unit smoke detection shall include audible notification complying with NFPA 72 listed in Section 105.2.2.

**1006.3 Building Fire Alarm System.** Where a building fire alarm system is provided, the system wiring shall be extended to a point within the unit in the vicinity of the unit smoke detection system.

**1006.4 Visible Notification Appliances.** Visible notification appliances, where provided within the unit as part of the unit smoke detection system or the building fire alarm system, shall comply with Section 1006.4.

**1006.4.1 Appliances.** Visible notification appliances shall comply with Section 702.

**1006.4.2 Activation.** All visible notification appliances provided within the unit for smoke detection notification shall be activated upon smoke detection. All visible notification appliances provided within the unit for building fire alarm notification shall be activated upon activation of the building fire alarm in the portion of the building containing the unit.

**1006.4.3 Interconnection.** The same visible notification appliances shall be permitted to provide notification of unit smoke detection and building fire alarm activation.

**1006.4.4 Prohibited Use.** Visible notification appliances used to indicate unit smoke detection or building fire alarm activation shall not be used for any other purpose within the unit.

**Reason:** There continues to be the mis-interpretation that all apartments are required to have full blown visible alarms within every dwelling unit. The intent of this proposal is to indicate to the alarm designer that within some dwelling or sleeping units, the smoke detectors can also serve as part of the building alarm system. If there are specific sections of NFPA 72 that can be referenced, that information should also be included.

Committee Action:           AS                   AM                   D

702.1(NEW)-PAARLBERG.doc

## 7-3 – 12

### 702.2 (NEW)

**Proponent:** Hansel Bauman, Architect, representing National Association of the Deaf

**Add new text as follows:**

**702.2 Alarm Location.** Visual alarms and notification appliances shall be located where view of the appliances is unobstructed from anywhere in the space served by the appliance. The appliance shall not be located where exposed to high levels of illumination generated by natural or artificial sources.

**Reason:** This text is added to mitigate situations where high levels of light fall directly upon strobe lights thus reducing their visual impact. And to further direct designers to carefully select visual alarm locations within rooms to ensure the highest degree of visual impact.

Committee Action:           AS                   AM                   D

702.2 (NEW)-BAUMAN.doc

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## 7-4 – 12

### 703.2.4

**Proponent:** Sapna Budev, International Sign Association

**Revise as follows:**

**703.2.4 Character Height for the Primary Message in a sign.** The uppercase letter “I” shall be used to determine the allowable height of all characters of a font. The uppercase letter “I” of the font shall have a minimum height complying with Table 703.2.4. In addition, to the maximum extent practicable, secondary or support messages shall comply with 703.2.4.

**Reason:** Minimum character heights in Table 703.2.4 are not practical for many common signs. Variation in character height helps convey relative importance of different parts of the sign message, and improves communication. The minimum character heights for visual characters do not allow for message hierarchies.

Committee Action:           AS                   AM                   D

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703.2.4-BUDEV.doc

## 7-5 – 12

### 703.2.4

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**703.2.4 Character Height.** The uppercase letter “I” shall be used to determine the allowable height of all characters of a font. The uppercase letter “I” of the font shall have a minimum height complying with Table 703.2.4. Viewing distance shall be measured as the horizontal distance between the character and an obstruction preventing further approach towards the sign.

~~**EXCEPTION:** In assembly seating where the maximum viewing distance is 100 feet (30.5 m) or greater, the height of the uppercase “I” of fonts shall be permitted to be 1 inch (25 mm) for every 30 feet (9145 mm) of viewing distance, provided the character height is 8 inches (205 mm) minimum. Viewing distance shall be measured as the horizontal distance between the character and where someone is expected to view the sign.~~

**Reason:** The 2010 ADA Standards do not appear to have an exception similar to 703.2.4 in A117.1, for signs located in assembly areas. Signs designed to the exception in 703.2.4 may be found not in compliance with the 2010 ADA Standards. For harmonization with the 2010 ADA Standards, the exception should be deleted.

Committee Action:            AS                    AM                    D

703.2.4-WAI.doc

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## 7-6 – 12

### Table 703.2.4, Table 703.7.4

Proponent: Kim Paarlberg, International Code Council

Revise as follows:

**TABLE 703.2.4—VISUAL CHARACTER HEIGHT**

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

1. The vertical height is measured from the floor of the viewing position to the baseline of the highest line of characters.
2. The horizontal viewing distance shall be measured as the horizontal distance between the character and an obstruction preventing further approach towards the sign or where applicable, as stated in the exception to Section 703.2.4.

**TABLE 703.7.4—LOW RESOLUTION VMS CHARACTER HEIGHT**

Height above Floor to Baseline of	Horizontal Viewing Distance <sup>2</sup>	Minimum Character Height
40 inches (1015 mm) to less than or equal to 70 inches (1780 mm)	Less than 10 feet (3050 mm)	2 inches (51 mm)
	10 feet (3050 mm) and greater	2 inches (51 mm), plus 1/5 inch (5.1 mm) per foot (305 mm) of viewing distance above 10 feet (3050 mm)
Greater than 70 inches (1780 mm) to less than or equal to 120 inches (3050 mm)	Less than 15 feet (4570 mm)	3 inches (75 mm)
	15 feet (4570 mm) and greater	3 inches (75 mm), plus 1/5 inch (5.1 mm) per foot (305 mm) of viewing distance above 15 feet (4570 mm)
Greater than 120 inches (3050 mm)	Less than 20 feet (6095 mm)	4 inches (100 mm)
	20 feet (6095 mm) and greater	4 inches (100 mm), plus 1/5 inch (5.1 mm) per foot (305 mm) of viewing distance above 20 feet

1. The vertical height is measured from the floor of the viewing position to the baseline of the highest line of characters.
2. The horizontal viewing distance shall be measured as the horizontal distance between the character and an obstruction preventing further approach towards the sign or where applicable, as stated in the exception to Section 703.7.4.

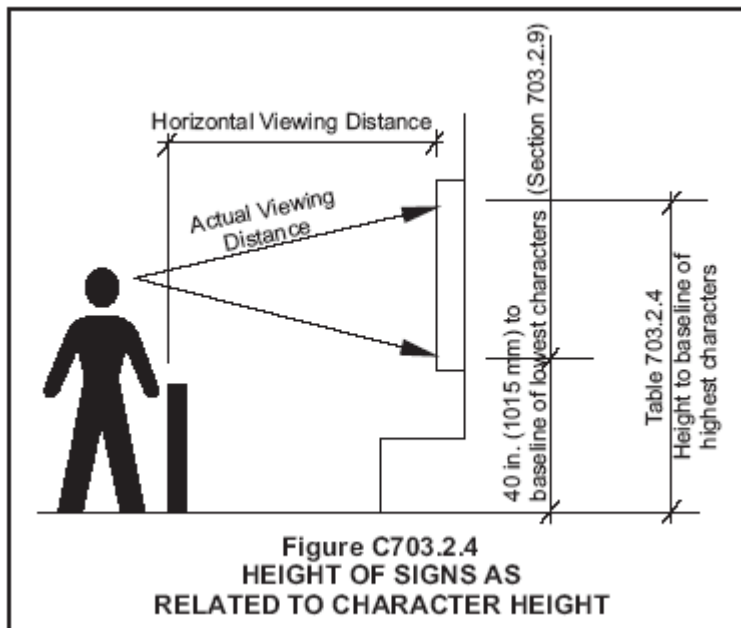
**Reason:** The quantity of change proposals submitted by International Code Council is reflective of three elements of our work: 1. ICC is the Secretariat for the Standard and some changes reflect inconsistencies or improvements suggested by staff; 2. ICC develops and publishes a Commentary on the standard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

**(Table 703.2.4)** This proposal will clarify how the provisions are to be applied. Primarily the major revision needed is shown in footnote 1 of the table. If the committee desired, this footnote could be removed and the heading of the first column could be revised to read "Height above floor to baseline of characters on the highest line". Section 703.2.9 states that the minimum 40 inch height is "measured to the baseline of the character." That is acceptable since it is a minimum height requirement. That text does not however explain whether the ranges in the table (40 to 70, 70 to 120, or >120) is for the highest, lowest, average or each individual line of text. Therefore footnote 1 will clarify how the measurement is to be made and completes the information that is needed to comply with Section 703.2.9 which indicates "Heights shall comply with Table 703.2.4, based on the size of the characters on the sign". (Section 703.2.9 measures the minimum height to the lowest line of characters while Table 703.2.4 is measuring to the highest line of information when determining the minimum character heights.)

The second footnote is not as important since Section 703.2.4 clearly describes how the horizontal distance is to be measured. However, if footnote 1 is added to address the vertical distance then footnote 2 should be included for the clarity.

See corresponding change that has been submitted for Table 703.7.4.

The following figure from the A117.1 commentary will help explain the intent of the change. It should also be noted that the commentary explaining Table 703.2.4 indicates the vertical height measurement to be used for determining the character height is taken "to the baseline of the highest line of the characters."

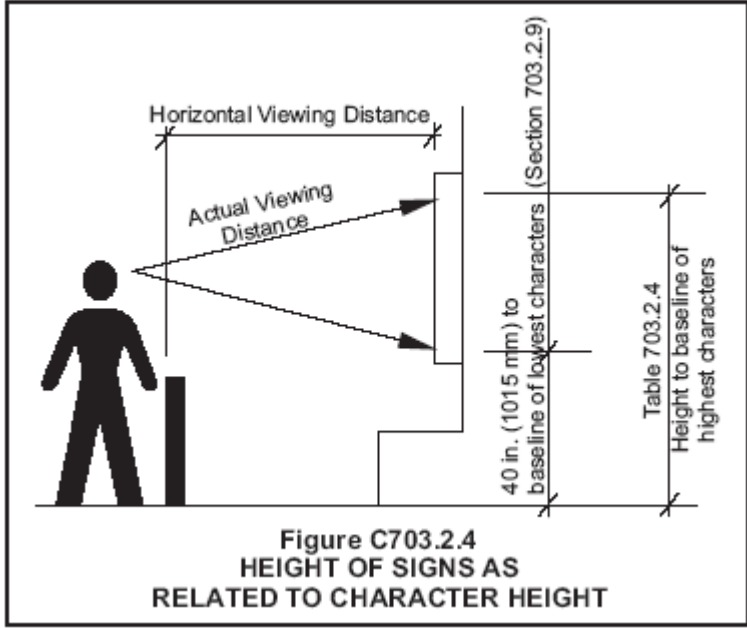


**(Table 703.7.4)** This proposal will clarify how the provisions are to be applied. Primarily the major revision needed is shown in footnote 1 of the table. If the committee desired, this footnote could be removed and the heading of the first column could be revised to read "Height above floor to baseline of characters on the highest line". Section 703.7.9 states that the minimum 40 inch height is "measured to the baseline of the character." That is acceptable since it is a minimum height requirement. That text does not however explain whether the ranges in the table (40 to 70, 70 to 120, or >120) is for the highest, lowest, average or each individual line of text. Therefore footnote 1 will clarify how the measurement is to be made and completes the information that is needed to comply with Section 703.7.9 which indicates "Heights of low resolution variable message signs characters shall comply with Table 703.7.4, based on the size of the characters on the sign". (Section 703.7.9 measures the minimum height to the lowest line of characters while Table 703.2.4 is measuring to the highest line of information when determining the minimum character heights.)

The second footnote is not as important since Section 703.7.4 clearly describes how the horizontal distance is to be measured. However, if footnote 1 is added to address the vertical distance then footnote 2 should be included for the clarity.

See corresponding change that has been submitted for Table 703.2.4.

The following figure from the A117.1 commentary will help explain the intent of the change. It should also be noted that the commentary explaining Table 703.2.4 indicates the vertical height measurement to be used for determining the character height is taken "to the baseline of the highest line of the characters."



Committee Action:            AS                    AM                    D

703.2.4(TABLE)-PAARLBERG.doc

## 7-7 – 12

### 703.2.8

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**703.2.8 Line Spacing.** Spacing between the baselines of separate lines of characters within a message shall be 135 percent minimum and 170 percent maximum of the character height.

~~**EXCEPTION:** In assembly seating where the maximum viewing distance is 100 feet (30.5 m) or greater, the spacing between the baselines of separate lines of characters within a message shall be permitted to be 120 percent minimum and 170 percent maximum of the character height.~~

**Reason:** The 2010 ADA Standards do not appear to have an exception similar to 703.2.8 in A117.1, for signs located in assembly areas. Signs designed to the exception in 703.2.8 may be found not in compliance with the 2010 ADA Standards. For harmonization with the 2010 ADA Standards, the exception should be deleted.

Committee Action:           AS                   AM                   D

703.2.8-WAI.doc

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## 7-8 – 12

### 703.2.10

**Proponent:** Eugene Lozano, Jr, representing California Council of the Blind

#### Revise as follows:

**703.2.10 Finish and Contrast.** Characters and their background shall have a non-glare finish. Characters shall have at least a 70 percent contrast with their background, with either light characters on a dark background, or dark characters on a light background.

An eggshell finish (11 to 19 degree gloss on 60 degree glossimeter) shall be used.. Contrast in percent shall be determined by:

Contrast = [(B1-B2/B1)]

°— 100 percent where B1 = light reflectance value (LRV) of the lighter area,

which shall be no less than 45 LRV, and B2 = light reflectance value (LRV) of the darker area.

**Reason:** The CCB requests that the ANSI A117.1 standards committee consider updating Section 703.2.10 Finish and Contrast. The Council's position is that the current Section 703.2.10 Finish and Contrast is deficient in that it does not address a formula for glare, a measurable standard for contrast nor does it take into consideration differences in color and hue values.

We recommend at a minimum the inclusion of a modified version of the text from the 1992 Americans with Disabilities Act Accessibility Guidelines Appendix A4.30.5 Finish and Contrast be used as a replacement standard for ANSI Section 703.2.10 Finish and Contrast.

The Council has introduced in the proposed text an updated formula provided to us by Sharon Toji, Access Communications, for a measurable standard for contrast.

The Council has received the rationale from Sharon Toji for the use of the formula found in our substitute text which follows:

"The ANSI Committee has been considering such a standard, and at the previous meetings, the figure that has received approval, either as a part of the standard itself, or as an Appendix item, is 45 LRV for the lighter of the two colors. This number, slightly below the numerical halfway point on the scale between 0 (pure black) and 100 (pure white) makes allowance for the fact that the distance between the LRV points is greater toward the higher end of the scale. It provides a balance between the UK method of merely requiring an interval of 30 points, and the ADAAG formula. If we use the lowest possible LRV for the lighter color, 45, and subtract 30, to contrast it with an LRV of 15, we get close to the required 70 percent at 67 percent. We need to only go a few points higher with the lighter color, or lower with the darker color to achieve 70 percent. At the same time, by requiring a fairly light color, we are ensuring that we will not get a "false positive" for two dark colors. For instance, we can use an LRV of 45 with a darker color measuring LRV 13.5 and achieve a minimum percentage of 70. We can find a lighter color with an LRV of 50, and get the minimum percentage with a darker color with an LRV of 15. This is a conservative standard which will provide hundreds of choices for designers and owners, but also provide better contrast for many persons with vision impairments, including older persons with age related vision impairments, and persons with common color blindness.

Samples with the light LRV of 45 and a 70 percent contrast, and other LRV samples were shown to about 30 persons who are legally blind at national and state conventions in Minneapolis and California. Persons who were legally blind but did read visually had to move close to the sign when the contrast was only 70 percent, but when the lighter of the two colors fell into the lighter end of the spectrum, they were able to distinguish the letters, something that they could not do with contrasts of 70 percent or even more when two dark colors (both in the lower part of the LRV spectrum) were used."

Note that in any application both white and black are never absolute; thus, B1 never equals 100 and B2 is always greater than 0. The greatest readability is usually achieved through the use of light-colored characters or symbols on a dark background.

We suggest that the ANSI A117.1 committee look at contrast formulas that are under development in other countries such as the United Kingdom and Japan.

As far back as the early 1970s, researchers have investigated the question of color combinations and percentage of contrast that are particularly suitable for letters and backgrounds for persons with low vision.

Research indicates that signs are more legible for persons with low vision when characters contrast with their background by at least 70 percent.

One study that supports the at least 70% contrast, "Information Transfer Problems of the Partially Sighted: Recent Results and Project Summary," the Rand Corporation, R-1770-HEW, June 1975, was conducted as part of a broad program on information transfer problems of persons with low vision sponsored by the Rehabilitation Services Administration of the U.S. Department of Health, Education and Welfare. They found:

1. That more than 70 percent of the time persons with low vision prefer to view white symbols on a black background over black symbols on a white background. The reasons for this were (a) that light came to the pathological eye via the information carrying alphanumeric symbols rather than from the matrix in which the symbols were imbedded and (b) that, in general, the alphanumeric symbols occupied a smaller portion of a sign than the matrix in which they were imbedded and hence produced less glare and less light scattering.

2. Through the use of a very sophisticated pseudo color generator that could produce more than 16.7 million two color combinations it was found that persons with low vision preferred very light colored alphanumeric symbols on very dark backgrounds. For example, they felt that they could see very clearly white or yellow characters on a black, dark red, dark brown, dark green, or dark blue background. They found red on blue, blue on red, blue on brown, brown on blue, and green on blue and blue on green to be particularly difficult to distinguish.

In another study "Information Systems for Low Vision Persons" conducted by Peter Muller-Munk Associates, Division of Wilbur Smith and Associates, Consultants: Pennsylvania College of Optometry, American Foundation for the Blind, William R. DeL'aune, Ph.D, and Shelly Marmion Miles, PH.D. November 28, 1986, found:

Should MGRAD require the following, regarding contrast of characters and background on visual signs: Characters and symbols shall contrast with their background-either light characters on dark background or dark characters on light background. Light characters on dark background are preferred. It is recommended that characters contrast with their background by at least 70%....

Further we refer ANSI committee members to look into additional color contrast research sponsored by the International Lighthouse for the Blind by Aries Ardit, PhD, **Designing for People with Partial Sight and Color Deficiencies** <http://www.lighthouse.org/accessibility/design/accessible-print-design/effective-color-contrast> and **Investigations of Color Vision in Low Vision** Arlene Gordon Research Institute, <http://www.lighthouse.org/research/archived-studies/investigations/> .

In closing, we ask that ours and other's recommendations for updating ANSI Section 703.2.10 Finish and Contrast be given serious consideration.

Committee Action:                   AS                   AM                   D

703.2.10-LOZANO.doc

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## 7-9 – 12

### 703.3.8

**Proponent:** Sapna Budev, International Sign Association

**Revise as follows:**

**703.3.8 Character Spacing.** Character spacing shall be measured between the two closest points of adjacent raised characters within a message, excluding word spaces. Spacing between individual raised characters shall be ~~1/8 inch (3.2 mm)~~ 15 percent minimum and 35 percent maximum of the character height, ~~measured at the top of the surface of the characters, 1/16 inch (1.6 mm) minimum measured at the base of the characters, and four times the raised character stroke width maximum.~~ Characters shall be separated from raised borders and decorative elements 3/8 inch (9.5 mm) minimum.

**Reason:** Uniform spacing between character pairs is not recommended because it impairs legibility. Correct spacing between characters varies with their shapes, for example there should be more space between AC than CO. Character spacing should be proportional to character height.

Reference to measuring spacing at the base of the characters is deleted because characters are read at their top surface. Additional text is confusing and unnecessary.

Committee Action:           AS                   AM                   D

703.3.8-BUDEV.doc

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## 7-10 – 12

### 703.3.11

**Proponent:** Carroll Lee Pruitt, FAIA, APA, representing Accessibility Professionals Association

**Revise as follows:**

**703.3.11 Location.** Where a sign containing raised characters and braille is provided at a door, the sign shall be alongside the door at the latch side. Where a sign containing raised characters and braille is provided at double doors with one active leaf, the sign shall be located on the inactive leaf. Where a sign containing raised characters and braille is provided at double doors with two active leaves, the sign shall be to the right of the right-hand door. The edge of the sign closest to the arc of the door shall be located 9 inches maximum from the edge of the door. Where there is no wall space on the latch side of a single door, or to the right side of double doors, signs shall be on the nearest adjacent wall. Signs containing raised characters and braille shall be located so that a clear floor area 18 inches (455 mm) minimum by 18 inches (455 mm) minimum, centered on the raised characters is provided beyond the arc of any door swing between the closed position and 45 degree open position.

**EXCEPTION:** Signs containing raised characters and braille shall be permitted on the push side of doors with closers and without hold-open devices.

**Reason:** Alongside the door is a vague unenforceable term. The current language could allow the sign to be mounted several inches to several feet from the door. This change sets a maximum distance the sign can be mounted from the door's edge. Similar requirements were used in Texas from 1994 to 2012 (1994 Texas Accessibility Standards 4.30.6, Figure 43(e)).

Committee Action:           AS                   AM                   D

703.3.11-PRUITT.doc



# 7-11 – 12

## 703.4.4

**Proponent:** Sapna Budev, International Sign Association

**Revise as follows:**

**703.4.4 Position.** Braille shall be below the corresponding text. If text is multi-lined, Braille shall be placed below entire text. Braille shall be separated 3/8-inch (9.5 mm) minimum from any other tactile characters and 3/8-inch (9.5 mm) minimum from raised borders and decorative elements. Braille provided on elevator car controls shall be separated 3/16-inch (4.8 mm) minimum either directly below or adjacent to the corresponding raised characters or symbols. Braille provided on number signs shall be separated 3/8-inch (9.5 mm) minimum either directly below or directly to the right of the corresponding raised characters.

**Reason:** This proposal is intended to apply only to tactile room number signs. In the standard, Braille is required below the corresponding raised copy for all signs except those that identify elevator car controls.

123  
Braille

The result is that the shape of the sign takes on a vertical or portrait format, to allow for proper spacing above the raised number, between the number and the Braille and both and below the tactile portions of the sign. The vertical dimension is furthered increased when the top margin is enlarged to visually balance the area below the raised number with the Braille.

123 Braille

There are many conditions in interior architecture where a horizontal or landscape format is more appropriate. There are situations where permitting a landscape format, allows for a sign that, otherwise, would not fit in the available space above wainscoting, within a side light, or below a decorative object. The A117.1 Committee recognized one of those conditions with the exception for elevator car controls.

Allowing adjacent placement for Braille on room number signs only, permits accessible signage where otherwise, there would be none.

Committee Action:                    AS                    AM                    D

703.4.4-BUDEV.doc

## 7-12 – 12

### 703.4.5

**Proponent:** Sapna Budev, International Sign Association

**Revise as follows:**

**703.4.5 Mounting Height.** Braille shall be ~~48~~ 46 inches (~~1220~~ 1168 mm) minimum and ~~60~~ 59 3/8 inches (~~1525~~ 1508 mm) maximum above the floor, measured to the baseline of the Braille cells.

**Reason:** In 703.4.4, Braille is required to be below the corresponding text. In 703.3.10, the height of raised characters is defined as 48" minimum and 60" maximum above the floor, measured to the baselines of the characters. Revision is recommended so that Braille can be placed below the raised characters. FIG. 703.4.5 requires updating as it conflicts with FIG. 703.3.10.

Committee Action:            AS                    AM                    D

703.4.5-BUDEV.doc

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## 7-13 – 12

### 703.6.3.1

**Proponent:** Sapna Budev, International Sign Association

**Revise as follows:**

**703.6.3.1 International Symbol of Accessibility.** The International Symbol of Accessibility shall comply with the basic format of Figure 703.6.3.1.

**Reason:** Allowing minor stylistic variations in the ISA will not dilute the meaning of the symbol but will project a more progressive and contemporary aesthetic to identify accessible features. This is particularly critical in Colleges and Universities.

Committee Action:           AS                   AM                   D

703.6.3.1-BUDEV.doc

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# 7-14 – 12

## 704.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

### 704 Telephones.

**704.1 General.** Accessible public telephones shall comply with Section 704.

**704.2 Wheelchair Accessible Telephones.** Wheelchair accessible public telephones shall comply with Section 704.2.

**EXCEPTION:** Drive up only public telephones are not required to be provided with a clear floor space complying to comply with Section 704.2.1.

**704.2.1 Clear Floor Space.** A clear floor space complying with Section 305 shall be provided. The clear floor space shall not be obstructed by bases, enclosures, or seats.

**704.2.1.1 Parallel Approach.** Where a parallel approach is provided, the distance from the edge of the telephone enclosure to the face of the telephone shall be 10 inches (255 mm) maximum.

**704.2.1.2 Forward Approach.** Where a forward approach is provided, the distance from the front edge of a counter within the enclosure to the face of the telephone shall be 20 inches (510 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.

This proposal is really being submitted to allow the committee a chance to discuss what items from this section should appropriately be exempted and which items should still be required for a public telephone. For example should the hearing-aid compatibility, volume-control, or cord length be exempted simply because the phone is a drive up phone or would those features also be appropriate for a drive-up public telephone?

As currently written, the exception in Section 704.2 would exempt a drive-up telephone from all of the requirements of Section 704.2. While it seems as if only Sections 704.2.1, and perhaps the height aspects of Sections 704.2.2, 704.2.3, and 704.5 should be exempt from compliance.

The A117.1 standard does currently match the federal 2010 ADA Standards for Accessible Design. Therefore, the committee may decide matching the federal requirements makes sense even though it would exempt a drive-up telephone from all of the provisions including hearing-aid compatibility and volume-control.

As currently written the exception would only remove the clear floor space provisions of Section 704.2.1 even though I personally feel that certain other aspects should be exempted or modified. Specifically I believe the height aspects are inappropriate for a drive-up telephone. Unfortunately as this section of the standard is currently written, it tries to address both mobility (wheelchair) and hearing aspects in a single section and therefore where the mobility provisions are deemed to be inappropriate, the hearing assistance items are also lost. One possible solution may be to modify Section 704 to address telephones in general in one section and then as a separate subsection address "wheelchair accessible telephones" and the clear floor space and reach range items that are appropriate for those users. Another solution would be to add a new subsection to address drive-up telephones and the features that are appropriate for them.

Committee Action:           AS                   AM                   D

704.2-PAARLBERG.doc

## 7-15 – 12

### 704.2.5, 704.7

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

**Revise as follows:**

~~**704.2.5 Hearing-Aid Compatibility.** Telephones shall be hearing aid compatible.~~

~~**704.7 Protruding Objects. Telephones, enclosures, and related equipment shall comply with Section 307.**~~

**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 for 704.2.5:** ADA does not have this text found in the A117.1 Standard. Federal law now requires such capability for all phones. There is no longer a need for the standard to state the requirement.

**Reason for 704.7:** The text is not found in ADA. It is simply a reminder that these things need to be treated as protruding objects. In a way the text is redundant.

Committee Action:      AS                      AM                      D

704.2.5-ROETHER.doc

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## 7-16 – 12

### 704.8 (NEW), 704.8.1 (NEW), 704.8.2 (NEW)

**Proponent:** Hansel Bauman, Architect, representing National Association of the Deaf

**Add new text as follows:**

**704.8 Visual Relay Service.** Where accessible public telephones are required, provide a minimum of one Visual Relay Service interface.

**704.8.1 Equipment.** Each Visual Relay Service interface shall accommodate one user with seating, a visual monitor, control device, lighting to illuminate sign language privacy enclosure with a muted color back drop for clear visual communication.

**704.8.2 Booth Accessibility.** Each booth shall be fully accessible in compliance with all applicable dimensions as stipulated in Sections 304, 305, 306, 308 and 309.

**Reason:** This recommendation is made to provide individuals visiting deaf and hard of hearing people with a means to visually announce their arrival. Such visual doorbells are particularly useful in place of temporary accommodation such as hotels and resorts where housekeeping staff and even emergency providers need to announce their arrival in unplanned situations.

Committee Action:           AS                   AM                   D

704.8-BAUMAN.doc

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## 7-17 – 12

### 705.5.2

**Proponent:** Kim Clawson, Clawson Consultants, representing self

**Revise as follows:**

**705.5.2 Height.** Truncated domes shall have a height of 0.2 inch (5.1 mm) between 0.125 inch (3 mm) minimum and 0.375 inch (9 mm) maximum.

**Reason:** Construction and manufacturing tolerance has been acknowledged in nearly all other areas of accessibility codes and standards, except for this provision. Even the subsection immediately preceding this (705.5.1 Size) acknowledges that need. The current criteria in Section 705.5.2 of mandating a single dimension results in criteria for something that is essentially impossible to build or manufacture, and certainly impossible maintain. It is zero tolerance criteria, making it impossible to achieve compliance.

In addition, un-necessarily tight criteria impose costs on projects without any justifiable return on the expense. The criteria need to be broadened and be based on both the science of manufacturing, and the science of human perception (using a cane in this case).

Dimensions should be based on careful scientific experimentation that strives to accommodate the construction tolerances of the broadest range of materials, including plastics, metals concrete, precast concrete, brick and similar fired clay products, stones, and hardwoods. The requirements should not restrain trade by imposing criteria that restrict certain materials by manufacturing and construction tolerances; rather than proven need.

All research regarding the human perception research utilized to regulate the height, size spacing and configuration of truncated domes should be made readily available on the website for A117.1, for public review and evaluation.

Committee Action:            AS                    AM                    D

705.5.2-CLAWSON.doc

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## 7-18 – 12

### 705.5.4

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

**Revise as follows:**

**705.5.4 Alignment.** Truncated domes shall be aligned in a square or radial grid pattern.

**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 for 705.5.4:** The published draft of the ADA standards applicable to rights of way has included the text to allow a radial pattern of the truncated domes.

Committee Action:      AS                      AM                      D

705.5.4 ROETHER.doc

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## 7-19 – 12

### 706.1, 706.3 (New)

**Proponent:** Sharon Toji, Access Communications, representing Hearing Loss Association of America

**Revise as follows:**

**706.1 General.** Accessible assistive listening systems ~~in assembly areas, where provided,~~ shall comply with Section 706.

**706.3 Inductive Loop Systems.** Where inductive loop systems are provided, they shall comply with the following international standard: IEC-60118-4.

**(Note:** Where existing standards in ANSI A117, 706.4, 5 or 6 conflict or do not comply with the IEC Standard for Inductive Loop Systems, an exception shall be added as follows:)

**Exception:** Inductive loop systems, where provided, shall comply with 706.3.

**Reason:** 1. Revision to 706.1: Since accessibility codes in some states require assistive listening systems in occupancies other than assembly areas, the standard should apply to all such systems, in whatever type of occupancy they are installed.

2. Revision to 706.3: Although there are several types of assistive listening systems, and no particular system is required by the ADA Design Standards, the Induction Loop (or T-Coil) System can be used automatically by anyone who has a hearing aid fitted with the technology. We understand that 50 percent or more of the hearing aids sold in the United States have this technology. Also, people who have cochlear implants can use the T-Coil technology. Therefore, so that the many facilities that choose to install an Induction Loop System will install one that will perform satisfactorily for the most users, we recommend that the international performance standard for such systems, the IEC-60118.4, as revised in 2007, be added to the ANSI Standard. This standard is widely adopted internationally, and is recognized by quality manufacturers of these systems, sold both in the United States and abroad. One of the values of the IEC Standard, is that it is applicable to any size room and system.

3. ANSI already adopts this standard for use in AS 60118.4-2007: "Hearing aids – Magnetic field strength in audio-frequency induction loops for hearing aids operating with an induction pickup coil."

4. IEC, the International Electrotechnical Commission, is a nonprofit organization that develops and publishes standards concerning electrical technologies.

**Here is the Abstract for the IEC Standard, as it appears on the ANSI Standards Store site, where it may be purchased:**

**Electroacoustics - Hearing aids - Part 4: Induction loop systems for hearing aid purposes - Magnetic field strength**

"Applies to audio-frequency induction loop systems producing an alternating magnetic field at audio frequencies and intended to provide an input signal for hearing aids operating with an induction pick-up coil. The standard specifies requirements for the field strength in audio-frequency induction loops for hearing aid purposes, which will give adequate signal-to-noise ratio without overloading the hearing aid. The standard also specifies the minimum frequency response requirements for acceptable intelligibility. Methods for measuring the magnetic field strength are specified, and information is given on appropriate measuring equipment (see Annex B), information that should be provided to the operator and users of the system (see Annex C), and other important considerations."

The following is from a document prepared by a British manufacturer of induction loop systems describing the revised IEC Standard.

#### **New Requirements for Audio Induction Loops in 2007**

A major revision of the Audio Induction Loop performance standard means better hearing assistance systems for the hearing impaired. It also changes the way that loop systems are specified, designed, commissioned and maintained.

Providing hearing assistance is a vital way for many organizations to help their customers and staff. With over 10% of the population suffering significant hearing loss, the benefit of hearing assistance systems can be very significant for both the provider and for those who suffer from hearing loss.

However, simply installing a system is not sufficient; a hearing assistance system such as an Audio Induction Loop must provide a genuine benefit to the hearing aid user. A poorly designed or installed hearing assistance system is unlikely to meet legislative requirements as the provider is not giving assistance to the hearing impaired. Standards can provide performance benchmarks that will ensure that systems provide a genuine benefit.

The international standard for audio induction loop systems — IEC60118-4 — sets out requirements and test methods for any loop system. As hearing assistance is increasingly mandated by equal access legislation around the world, IEC60118-4 has become the reference for all loop systems, often appearing in specifications and tenders or directly in hearing assistance legislation.

IEC60118-4 has been revised and republished in 2007. The revised standard is more complex but also sets a clearer performance standard for loops. There are four main requirements:

**Field Strength:** Sets the output level for the system, ensuring sufficient signal is delivered to the hearing aid to provide enough volume but no distortion.

#### **Test:**

- Capable of 400mA/m RMS with 1kHz sine
- Variation  $\leq$  +/-3dB over the required volume of use

**Frequency:** Sets the requirement for flat frequency response to give good speech intelligibility, the most critical requirement for loop system and the most frequently failed.

**Test:** Field strength variation  $\leq \pm 3\text{dB}$  from 100Hz to 5kHz over the required volume of use (reference to the level at 1KHz)

**Background Noise:** Sets a requirement for a maximum acceptable level of background noise. Suppression of background noise is essential to give the intelligibility required by the hearing impaired.

**Test:** • A-weighted background noise to be  $< 32\text{dB}$  relative to the signal (400mA/m RMS)

• Ideally  $< 47\text{dB}$  where possible.

**Subjective Test:** To ensure the system provides an undistorted clear signal to hearing aid users using the actual system sources (microphones etc.)

**Test:**

• Ideally hearing aid users will validate the system performance

• If not, someone from the service provider must assess the system with suitable receiving equipment.

Here is a document about the new standard submitted by company in the United States

Basic Review of IEE 60118-4 as Revised

The original IEE 60118-4 document was written to establish a standard for the installation of AFIL systems defining required signal levels and installation standards. The required signal strength was chosen to be high enough to produce an acceptable signal to noise ratio over background magnetic noise and yet not so high as to cause overloading of the hearing aid.

In many countries throughout Europe AFILS systems were thought to be required by law. The bad part – many venues installed what was felt to be the minimum system required and much was left up to interpretation. One manufacturer stated that at first they sold only their smallest induction loop drivers and felt many venues had installed marginal systems. In reality some studies indicated that fewer than 50% of the systems in Europe worked properly and often the users were not satisfied with the benefits of AFIL systems. Many of the revisions were meant to better define terms and clarify procedures like commissioning a new system. The desire was to have systems installed where any user could walk into any hearing loop system, sit anywhere and receive a good signal.

#### Basic points of the revised specification

1. Defines two different types of AFIL systems: large loop or small loop and gives different parameters for each. The small loop is a counter loop, tv loop or cushion loop. In this document we will be dealing with the large loop side of this document.
2. The 0 dB level has now been defined as a 400mA/meter as created by a 1KHz sine wave signal.
3. The useful magnetic field volume now defines the height dimension in detail (the perpendicular distance between the hearing aid pick up coil and the plane of the loop).
4. Suitability of the site is now defined by three items: the magnetic background noise level, the influence of materials in the structure and the presence of other induction loop systems in the area.
5. Background noise levels should be read using an A weighted meter with a .125 sec averaging of the RMS value. In a perfect environment the signal to noise ratio should be 47dB. In other words a noise level reading  $-47\text{dBA}$  or lower is preferred, however if the actual signal to noise ratio is less than 32dB - it should be analyzed to determine if it is comprised of any undesirable tones and this information shall be reported.
6. The test signals were defined in more detail especially the pink noise signal, which is used often. Sinusoidal signals of 100Hz, 1KHz and 5KHz were defined as the three minimum test frequencies for testing amplifier characteristics and system response.
7. Induction loop system measurements should be taken under conditions deemed to be normal use including other powered sources such as lighting. Once the system has been commissioned it recommends that multiple users evaluate the system as a final test.
8. Typical values for the maximum field strengths (peak)(400mA/m) produced by a test signal will vary depending upon the test signal and whether the amplifier uses peak detecting AGC. For a 1KHz sine it would be 400mA/m or 0dB, for pink noise it would be 200mA/m or  $-6\text{dB}$  and for male simulated speech 225mA/m or  $-5\text{dB}$ . Readings should be taken over at least 60s and the maximum indication read.
9. Commissioning the system requires that the signal levels shall be within  $\pm 3\text{dB}$  of the level as indicated in #8 and performed at 100Hz, 1KHz and 5KHz throughout the useful magnetic field volume.
10. Pink noise should be bandwidth limited in a manner similar to speech.
11. Information which should be provided to the hearing aid user and system operators include: signage, instructions on how to use the system, a plan showing the useful magnetic field volume, name and position of the person responsible for proper operation, documented field strength levels, how to monitor the AFIL level and operation, any special audio microphones or other equipment required for proper operation.
12. Appendix E gives a very good overview of induction loop system theory. One major point is the need for a constant loop plane and to keep the loop plane distance from the listening plane consistent and generally in the range of .12 to .16 times the loop width. Also the worst location for the loop plane is at ear height and going up and over doorways should be avoided. It was noted that loops have both resistance and inductance - therefore the amplifier should have sufficient voltage to drive the required current through the loop - especially at the higher frequencies.

We are also sending a letter of support from Listen Technologies, a United States Company that supplies Assistive Listening Systems in the United States.

June 28, 2012

TO WHOM IT MAY CONCERN:

Listen Technologies Corporation is a leading supplier of assistive listening systems in North America. As such we support the Hearing Loss Association of America (HLAA) efforts in establishing guidelines and recommendations for induction loops.

We believe that the current version of the IEC-60118-4 standard is the best choice as a referenced standard for the following reasons:

- The product standards included in the IEC-60118-4 standard are comprehensive and have been vetted over many years of use in Europe.
- They are clear and concise and provide a performance standard that applies non-discriminatorily to either large or small venues.
- Induction Loops products are inexpensive enough to be used in facilities such as colleges or movie theaters and houses of worship.
- Induction Loop products are readily available around the world.

Best regards,

LISTEN TECHNOLOGIES CORPORATION



Keldon A. Paxman  
VP-Operations.

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June 29, 2012

SWBR Architects  
 387 East Main Street  
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To: To Whom It May Concern:

Re: ANSI 117.1, Section 706 Assistive Listening Systems

I am a practicing Architect with SWBR Architects & Engineering, P.C., which is one of the top 250 Architectural firms (Architectural Record, June 2012), directly responsible for the design of Induction Loop Systems for variety of public, educational, and private projects.

I wear (2) behind the ear digital hearing aids that include T-Coil Programs. I am currently the Board President of the Hearing Loss Association of America - Rochester Chapter, and have presented workshops on Induction Loop Systems based on IEC-60118-4.

I prepare Induction Loop Design and Specification Documents for small and large areas based on IEC-60118-4 (IEC) and endorse the following proposed adoption of IEC-60118-4 standards:

1. Conformance with the IEC is beneficial because conformance provides a constant field strength level to everyone (within a +/- 3dB level), within the Induction Loop Space.
2. IEC establishes 0 dB as a standard basis, (defined as 400mA/meter created by a 1 kHz sine wave signal), allowing a standard metric and development of measuring equipment.
3. IEC provides performance and commissioning requirements for small or large Induction Loop installations with parameters for each, ensuring that operators have the ability to provide and maintain proper system operation.
4. IEC defines "useful magnetic field volume" level and height dimension beneficial for hearing aid or headphone with pick up T-Coil users.
5. IEC defines (pre-design) area suitability requirements: magnetic background noise level, structure material influence and presence of other induction loops.

Respectfully submitted,

Donald W. Baraffe, AIA, CCS  
 Architect / Specification Writer

DWB:jmd

PERFECT BALANCE

Committee Action: AS AM D

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June 29, 2012

SWBR Architects  
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To: To Whom It May Concern:

Re: ANSI 117.1, Section 706 Assistive Listening Systems

I am a practicing Architect with SWBR Architects & Engineering, P.C., which is one of the top 250 Architectural firms (Architectural Record, June 2012), directly responsible for the design of Induction Loop Systems for variety of public, educational, and private projects.

I wear (2) behind the ear digital hearing aids that include T-Coil Programs. I am currently the Board President of the Hearing Loss Association of America – Rochester Chapter, and have presented workshops on Induction Loop Systems based on IEC-60118-4.

I prepare Induction Loop Design and Specification Documents for small and large areas based on IEC-60118-4 (IEC) and endorse the following proposed adoption of IEC-60118-4 standards:

1. Conformance with the IEC is beneficial because conformance provides a constant field strength level to everyone (within a +/- 3dB level), within the Induction Loop Space.
2. IEC establishes 0 dB as a standard basis, (defined as 400mA/meter created by a 1 kHz sine wave signal), allowing a standard metric and development of measuring equipment.
3. IEC provides performance and commissioning requirements for small or large Induction Loop installations with parameters for each, ensuring that operators have the ability to provide and maintain proper system operation.
4. IEC defines 'useful magnetic field volume' level and height dimension beneficial for hearing aid or headphone with pick up T-Coil users.
5. IEC defines (pre-design) area suitability requirements; magnetic background noise level, structure material influence and presence of other induction loops.

Respectfully submitted,

Donald W. Bataille, AIA, CCS  
Architect / Specification Writer

DWB:jmd

## 7-20 – 12

### 706.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**706.2 Receiver Jacks.** Receivers required for use with an assistive listening system shall include a  $\frac{1}{8}$  inch (3.2 mm) standard ~~mono~~ monaural (monophonic) jack.

**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 purpose of this proposal is to provide better guidance than the current “mono” wording. Without the additional clarification a user cannot determine if the term mono is intended to imply a single plug jack as compared to a plug with two prongs which is common on airplanes, or if the intent is to imply that you could not have a stereo (stereophonic) jack plug for the assistive listening device.

The intent of the requirement for receiver jacks is to ensure compatibility with standard headphones or earbuds. With the increased popularity and ownership of headphones and earbuds, the existing requirement can create a bit of confusion and difference in sound quality for an assistive listening system (ALS). While the intent of the provision is to ensure that users can plug in their own headphones to the system, the fact that the standard specifies a “mono” jack will result in the users hearing the sound differently than what is typically being heard through the remainder of the audio system. Monaural or monophonic sound (mono) is created by an amplifier transmitting a single signal where as a stereophonic (stereo) sound is produced by transmitting two independent signals through two separate channels. Stereo systems are the most common today and are best used to replicate the sensation of hearing an orchestra or band performance since the independent signals allow for different sounds or instruments in the right and left channels reproducing the sound of individual instruments or performers being located in different areas of the auditorium. The mono system tends to work best for speeches or panel discussions and will produce the exact same sound level in each speaker of the headphone since it is receiving a single signal channel. While a mono system may not produce the depth or location sensation that stereo can provide, it remains the standard for various communication systems including assistive listening devices.

I have kept this proposal consistent with what I believe is the current intent (that it is referencing a monophonic connector versus a single plug connection). If the committee desires to expand the options the proposal could be revised by deleting the current word “mono” or replacing it with “audio”. Such a revision would allow a venue to determine whether a monophonic or stereophonic assistive listening system would be used. While that may make the assistive listening system more consistent with the general sound system, it may reduce the overall effectiveness of the ALS, which as mentioned previously is typically done in monophonic since it works best for the spoken word and for people that have differences in hearing on their left or right side.

I would suggest that the committee stick with the monaural or monophonic wording at this point and not change to accepting mono or stereo unless additional information is available or one of the committee members has the expertise to address the differences/benefits between the two systems for an assistive listening system.

Simply as a side note, the standard single plug connector in the audio industry is known as a 3.5 mm connection as opposed to the  $\frac{1}{8}$  inch or 3.2 mm size that is shown in the standard. People will know what you are talking about if you use the standard’s dimensions but it does not match exactly with the terminology in the audio industry.

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706.2-PAARLBERG.doc

## 7-21 – 12

### Table 707.6.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**


**TABLE 707.6.1—RAISED SYMBOLS**

Key Function	Description of Raised Symbol	Raised Symbol
Enter or Proceed:	CIRCLE	○
Clear or Correct:	LEFT ARROW	← <u>or</u> ≤
Cancel:	“X”	X
Add Value:	PLUS SIGN	+
Decreased Value:	MINUS SIGN	-

**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 is a clarification that was requested based upon an interpretation request that I received. On the whole this seems to have been a fairly isolated incident but if this revision can help clarify the requirement in the future I am willing to suggest it.

Compare the 2010 ADA Standard to the A117 for the “left arrow”. The A117 provides a specific symbol while the federal requirement simply states “raised left arrow”.

The A117 shows  Other sources and books show <

Is either one acceptable? Are they really both requiring separate/unique symbols that are not permitted/accepted by the other standard?

I did some checking and noticed that the table with the symbols just came into the A117 standard in the 2003 edition. So there is not a lengthy history of this item. I have not dug back into the code change enough to know if Table 707.6.1 was submitted with the proposal or if it was simply added during the process or by an editorial revision as if it was a figure.

It may be easiest to add the text from Section 707.6.3.2 of the federal requirements and then simply rely on the graphic as we do any other figure in the standard - that it is there for informational purposes and is not considered part of the standard (Section 104.3).

For informational purposes, the text from the ADA standard is as follows:

**707.6.3.2 Tactile Symbols.** Function key surfaces shall have tactile symbols as follows: Enter or Proceed key: raised circle; Clear or Correct key: raised left arrow; Cancel key: raised letter ex; Add Value key: raised plus sign; Decrease Value key: raised minus sign.

However, if the committee elects to use the ADA text, I would suggest on the cancel key showing the text as raised letter “X” instead of “ex”

Committee Action: AS AM D

707.6.1(TABLE)-PAARLBERG.doc

## 8-1 – 12

### 802.1, 802.8.2, 802.10.4.1, 802.10.4.2

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

**Revise as follows:**

**802.1 General.** Wheelchair spaces and wheel chair space locations in assembly areas with spectator seating shall comply with Section 802. Team and player seating shall comply with Sections 802.2 through ~~802.6~~ 802.7.

**802.8.2 Identification.** Each designated aisle seat shall be identified by ~~the International Symbol of Accessibility~~ a sign or marker.

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

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

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

**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 for 802.1:** Provides consistency with ADA regulation of team and player seating.

**Reason for 802.8.2:** ADA allows more flexibility for identification of designated aisle seats. In this case the task group felt that the flexibility should be included in the A117.

**Reason for 802.10.4.1:** ADA provisions provide clear allowance for located the wheelchair space locations on risers and cross aisles. A117.1 is not as specific.

**Reason for 802.10.4.2:** ADA provides two options for determining distance to the screen. A117.1 currently only has one of these two..

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802.1-ROETHER.doc



## 8-2 – 12

### 802.1, 802.7.2

**Proponent:** Kim Paarlberg, International Code Council

#### **Revise as follows:**

**802.1 General.** Wheelchair spaces and wheel chair space locations in assembly areas with spectator seating shall comply with Section 802. Where tiered seating includes dining surfaces or work surfaces, wheelchair spaces and wheelchair space locations shall comply with Section 802.6, 802.7, 802.9, 802.10 and 902. Team and player seating shall comply with Sections 802.2 through 802.6.

**802.7 Companion Seat.** A companion seat, complying with Section 802.7, shall be provided beside each wheelchair space.

**802.7.1 Companion Seat Type.** The companion seat shall be equivalent in size, quality, comfort and amenities to the seats in the immediate area to the wheelchair space location. Companion seats shall be permitted to be moveable.

**802.7.2 Companion Seat Alignment.** In row seating, the companion seat shall be located to provide shoulder alignment with the wheelchair space occupant. The shoulder of the wheelchair space occupant shall be measured either 36 inches (915 mm) from the front or 12 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.

**EXCEPTION:** Companion seat alignment is not required in tiered seating includes dining surfaces or work surfaces.

**802.10 Wheelchair Space Dispersion.** The minimum number of wheelchair space locations shall be in accordance with Table 802.10. Wheelchair space locations shall be dispersed in accordance with Sections 802.10.1, 802.10.2 and 802.10.3. In addition, wheelchair space locations shall be dispersed in accordance with Section 802.10.4 in spaces utilized primarily for viewing motion picture projection. Once the required number of wheelchair space locations has been met, further dispersion is not required.

**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 address dinner theaters or tiered classrooms with tables. Scoping criteria for dining or work surfaces is 5%. Most dining and works areas are level, so distribution throughout is appropriate. However, where combined with tiered levels to view an event, there should be allowances to use the same distribution and line of site as the seating in sports arenas of theaters. Should alignment with the companion seat is not required since the intent is really to address the dining or work surface for both the person using wheelchair and their companion. Since the scoping is higher than typical tiered assembly seating, it seems that the 5% would address both wheelchair and designated aisle seat requirements. Also, in dinner theaters, what constitutes the aisle would be difficult to interpret at best.



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802.1(NEW)-PAARLBERG.doc

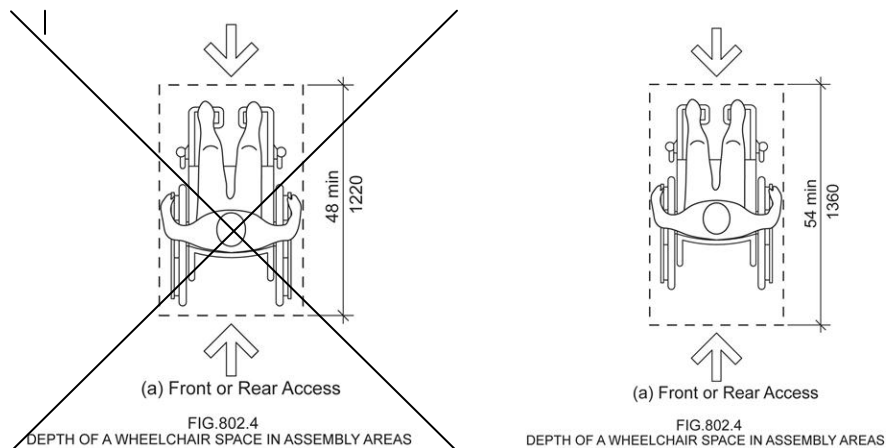
## 8-3 – 12

### 802.4, Figure 802.4

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

**Revise as follows:**

**802.4 Depth.** Where a wheelchair space can be entered from the front or rear, the wheelchair space shall be ~~48~~ <sup>54</sup> inches (1220 <sup>1360</sup> mm) minimum in depth. Where a wheelchair space can only be entered from the side, the wheelchair space shall be 60 inches (1525 mm) minimum in depth.



**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 section 802 Assembly Areas reflect the 6-inch adjustment in occupied wheelchair length needed to accommodate over 90% of the manual and powered wheelchair user population.**

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.

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802.4-STEINFELD.doc

## 8-4 – 12

### 802.10.1

**Proponent:** Ed Roether, ADA/A117.1 Harmonization Task Group

**Revise as follows:**

**802.10.1 Horizontal Dispersion.** Wheelchair space locations shall be dispersed horizontally to provide viewing options. Where seating encircles the stage or field, in whole or in part, horizontal dispersion shall include the entire seating area. Two wheelchair spaces shall be permitted to be located side-by-side.

**EXCEPTION:** Horizontal dispersion shall not be required in assembly areas with 300 or fewer seats if the wheelchair space locations are located within the 2<sup>nd</sup> and 3<sup>rd</sup> quartile of the row length. Intermediate aisles shall be included in determining the total row length. If the row length in the 2<sup>nd</sup> and 3<sup>rd</sup> quartile of the row is insufficient to accommodate the required number of companion seats and wheelchair spaces, the additional companion seats and wheelchair spaces shall be permitted to extend into the 1<sup>st</sup> and 4<sup>th</sup> quartile of the row.

**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.

DOJ regulations

35.151 (g) and 36.406 (f) Assembly areas. (2) Assembly areas that are required to horizontally disperse wheelchair spaces and companion seats by section 221.2.3.1 of the 2010 Standards and have seating encircling, in whole or in part, a field of play or performance area shall disperse wheelchair spaces and companion seats around that field of play or performance area;

The intent of this proposal is to coordinate how ICC A117.1 would be interpreted if the seating was U-shaped or circular rather than just straight.

Committee Action:            AS                    AM                    D

802.10.1-Roether.doc

## 8-5 – 12

### 802.10.3.1 (New), 906.1 (New), 906.2 (New), 906.3 (New)

**Proponent:** Dominic Marinelli, representing United Spinal Association

**Add new text as follows:**

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

#### **906 Charging Stations.**

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

**906.2 Clear Floor Space.** A clear floor space complying with Section 305 shall be provided.

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

**Reason:** Today's Wheelchairs and assistive technology equipment require re-charging. At places of assembly people often gather for extended periods of time and their mobility device and/or assistive technology equipment may require recharging. Section 906.1 clarifies that a charging station consists of a grounded duplex outlet.

The Exception to 802.10.3.1 recognizes that in smaller assembly venues, the electrical wiring may not extend to each wheelchair space location.

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802.10.3.1(NEW)-MARINELLI.doc

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**8-6 – 12**  
**802.11 (NEW)**

**Proponent:** Hansel Bauman, Architect, representing National Association of the Deaf

**Revise as follows:**

**802.11 Assembly Room Presentation Lighting.** Room lighting shall be provided which will illuminate a presentation area in the foreground of each assembly space. The illuminated presentation area shall be 10 square feet minimum and shall be illuminated between 3 feet minimum and 6 feet maximum above the finish floor. The illumination shall be 10 footcandles minimum.

**Reason:** This recommendation addresses the visual conflict that arises when sign language is used during visual slide/powerpoint presentations. One the one hand the room is darkened to better view the visual presentation yet the darkened conditions make it difficult to see sign language by either the presenter or by interpreters. Thus obstructing access to communication.

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## 8-7 – 12

### 802.12 (NEW), 802.12.1 (NEW), 802.12.2 (NEW)

**Proponent:** Hansel Bauman, Architect, representing National Association of the Deaf

**Add new text as follows:**

**802.12 Visual communication in Meeting Rooms.** Meeting rooms with an occupant load of more than 6 shall be designed to comply with this section.

**802.12.1 Arrangement of Space.** Table and seating in meeting rooms shall be arranged in a radius configuration to enable direct lines of visual communication in sign language between all occupants. The arrangement shall include a clear aisle of 36 inches minimum behind each seated occupant.

**802.12.2 Lighting.** Lighting shall comply with Section 802.11. The lighting for the presentation are shall be on a separate circuit so that it can remain illuminated when other areas of the room are darkened.

**Reason:** These recommendations address the visual needs of deaf and hard of hearing individuals who communicate visually through sign language in group meeting situations.

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802.12 (NEW)-BAUMAN.doc

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## 8-8 – 12

### 804.2, 804.2.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**804.2 Clearance.** Where a pass-through kitchen is provided, clearances shall comply with Section 804.2.1.

Where a ~~U-shaped~~ kitchen is ~~provided~~ enclosed on three contiguous sides, clearances shall comply with Section 804.2.2.

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

**804.2.1 Pass-through Kitchens.** In pass-through kitchens where counters, appliances or cabinets are on two opposing sides, or where counters, appliances or cabinets are opposite a parallel wall, clearance between all opposing base cabinets, counter tops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum. Pass-through kitchens shall have two entries.

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

**Exception:** In kitchens with counters, appliances or cabinets on only one wall or two opposing walls, the clearance between all opposing base cabinets, counter tops, and appliances, or walls within the kitchen work area is permitted to be 40 inches (1015 mm) minimum where the kitchen includes a turning space complying with Section 304.3.2 and 305.7.2 is provided under either the accessible sink or the accessible work surface.

**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 change for terminology from U-shaped kitchen to enclosed kitchen is for two reasons. 1) The term is confusing and not commonly used to represent the kitchens intended. Most people do not consider a kitchen with a wall at the end (see Figure 804.2.2) or a kitchen with walls on two sides a U-shaped kitchen. 2) The language should be revised for consistency with Type A and Type B. The U-shaped kitchens in the dwelling units means cabinets on three sided.

If a kitchen is not within a dwelling unit, literally a turning space is not required. By adding the turning space requirement to kitchens, the space under the sink or work surface would have to be 36" wide in order to accommodate a T-turn, rather than both at 30". There would be no impact on typical U-shaped kitchens since they have 60" between counters already. While this is intended for access to appliances and work surfaces consistent with alcove provisions, this still gets you a turning space.

The galley kitchen would have knee and to clearance under the sink or work surface for a turning space. A 60" width between counters is not justified. This also shoots the efficiency of the kitchen for other family members that do not use wheelchairs.

**Type A kitchens read as follows:**

**1003.12.1 Clearance.** Clearance complying with Section 1003.12.1 shall be provided.

**1003.12.1.1 Minimum Clearance.** Clearance between all opposing base cabinets, counter tops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum.

**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 inches (1525 mm) minimum

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## 8-9 – 12

### 804.2, 804.2.2, 1003.12.1.2, 1004.12.1.1

**Proponent:** Kim Paarlberg, International Code Council

#### **Revise as follows:**

**804.2 Clearance.** Where a pass-through kitchen is provided, clearances shall comply with Section 804.2.1.

Where a ~~U-shaped~~ kitchen is ~~provided~~ enclosed on three contiguous sides, clearances shall comply with Section 804.2.2.

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

**804.2.1 Pass-through Kitchens.** In pass-through kitchens where counters, appliances or cabinets are on two opposing sides, or where counters, appliances or cabinets are opposite a parallel wall, clearance between all opposing base cabinets, counter tops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum. Pass-through kitchens shall have two entries.

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

**EXCEPTION:** In kitchens with islands, the clearance between all opposing base cabinets, counter tops, and appliances, or walls within the kitchen work area is permitted to be 40 inches (1015 mm) minimum where the kitchen includes a turning space complying with Section 304.3.2 and 305.7.2 is provided under either the accessible sink or the accessible work surface.

**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 inches (1525 mm) minimum.

**EXCEPTION:** In kitchens with islands, the clearance between all opposing base cabinets, counter tops, and appliances, or walls within the kitchen work area is permitted to be 40 inches (1015 mm) minimum.

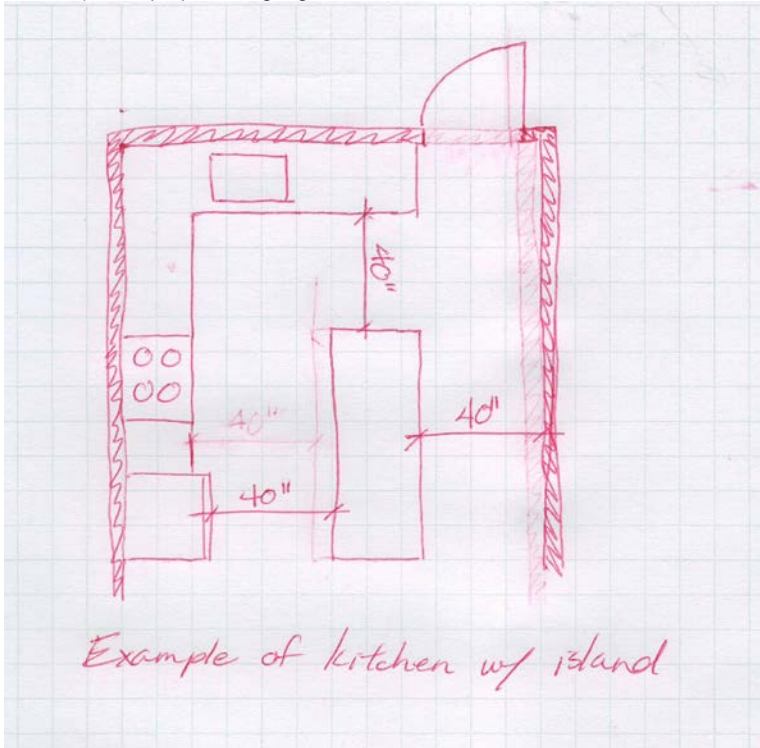
**1004.12.1.2 U-Shaped Kitchens.** In kitchens with counters, appliances, or cabinets on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum.

**EXCEPTION:** In kitchens with islands, the clearance between all opposing base cabinets, counter tops, and appliances, or walls within the kitchen work area is permitted to be 40 inches (1015 mm) minimum.

**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 change for terminology from U-shaped kitchen to enclosed kitchen is for two reasons. 1) The term is confusing and not commonly used to represent the kitchens intended. Most people do not consider a kitchen with a wall at the end (see Figure 804.2.2) or a kitchen with walls on two sides a U-shaped kitchen. 2) The language should be revised for consistency with Type A and Type B. The U-shaped kitchens in the dwelling units means cabinets on three sided.

The current terminology does not deal with kitchens with islands, which is the prevalent design at this time (at least in the Midwest). The propose language would deal with this issue for all three levels of accessibility.



Committee Action: AS AM D

804.2 #2-PAARLBERG.doc

## 8-10 – 12

### 804.3, 1002.12, 1003.12.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**804.3 Work Surface.** At least one work surface shall be provided in accordance with Section 902. At least one accessible work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3.

**EXCEPTION:** Spaces that do not provide a cooktop or conventional range shall not be required to provide an accessible work surface.

**1002.12 Kitchens** and kitchenettes. Kitchens and kitchenettes shall comply with Section 804. ~~At least one work surface, 30 inches (760 mm) minimum in length, shall comply with Section 902.~~

~~**EXCEPTION:** Spaces that do not provide a cooktop or conventional range shall not be required to provide an accessible work surface.~~

**1003.12.3 Work Surface.** At least one section of counter shall provide a work surface 30 inches (760 mm) minimum in length complying with Section 1003.12.3.

**EXCEPTION:** Spaces that do not provide a cooktop or conventional range shall not be required to provide an accessible work surface.

**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 current language for the work surface being next to the oven is hidden. Other revisions are for consistency between the levels of accessibility and kitchenettes.

Committee Action:           AS                   AM                   D

804.3 (revised)-PAARLBERG.doc

## 8-11 – 12

### 804.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**804.3 Work Surface.** At least one work surface, 30 inches minimum in length shall be provided in accordance with Section 902.

**EXCEPTION:** Spaces that do not provide a cooktop or conventional range shall not be required to provide an accessible work surface.

**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 is being submitted in response to a question which is received on a frequent basis. The question is how much work surface is required in an employee break room or other space where the general kitchen requirements are applicable. This question is important to answer the typical follow-up question regarding how much of the counter top must be at the 34 inch height and how much can be at the standard height. The 30 inch minimum length was selected from the dwelling unit provisions of Sections 1002.12 and 1003.12.3. While the exception does help for spaces that do not provide a cooktop or conventional range, if the break room does include a cooktop (regardless of how small) the exception is not applicable.

It seems strange that in dwelling units only a small amount of work space is required and when you go to dining or food service lines or service counters we are typically given a specific length or percentage of the elements which must comply. However, when we get to this issue in the general kitchen requirements and look at spaces such as an employee break room, we don't have a maximum limit or specify a minimum length or percentage. Where the exception in Section 804.3 is not applicable the kitchen seems to be stuck with a requirement for 100 percent of the counter/work surface to be kept at the 34 inch maximum height. In a small break room with 20 feet of counter is it really necessary that all 20 feet of counter be at the lower height and that standard height cabinets cannot be used? And if it is set up as a galley kitchen with 10 feet of cabinets on both sides, do both counters have to comply with the work surface requirements?

This revision is also needed to ensure that the work surface is of an adequate size to be useful. If the standard does not specify a minimum length, then a designer could argue a 6 inch work surface is adequate. Therefore while the revision may be viewed as reducing an existing requirement (from possibly 100% of the counter down to 30 inches minimum) it will also ensure that the work surface is adequate and usable.

While this may ultimately be a scoping issue that should be addressed in the scoping document, it seems as if adding a minimum length is consistent with other locations of the standard and will assist users in determining how to properly apply the standard.

Because the standard cabinet/counter is 24 inches in depth, if the committee decided to make the work space requirement 36 inches minimum in length to match the alcove requirements of Section 305.7.2 that would seem reasonable.

Committee Action:           AS                   AM                   D

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## 8-12 – 12

**804.5.1, 804.5.3, 804.5.1, 804.5.5.1, 804.5.6.1 (New), 1003.12.5.1 (New), 1003.12.5.2, 1003.12.5.3, 1003.12.5.4.1, 1003.12.5.5.1, 1003.12.5.6.1**

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**804.5.1 Clear Floor Space.** A clear floor space complying with Sections 804.5 and 305 shall be provided at each kitchen appliance.

**804.5.3 Dishwasher.** ~~A clear floor space positioned adjacent to the dishwasher door, shall be provided.~~ The dishwasher door in the open position shall not obstruct the clear floor space for the dishwasher or an adjacent sink.

**804.5.4.1 Approach.** ~~A clear floor space, positioned for a parallel or forward approach to the cooktop, shall be provided.~~

**804.5.5.1 Clear floor space.** ~~A clear floor space shall be provided.~~ The oven door in the open position shall not obstruct the clear floor space for the oven.

**804.5.6.1 Clear floor space.** ~~A clear floor space, positioned for a parallel approach to~~ for the refrigerator/ freezer, shall be provided positioned for a parallel approach. The centerline of the clear floor space shall be offset 24 inches (610 mm) maximum from the centerline of the appliance.

**1003.12.5.1 ~~1003.12.5.2~~ Clear Floor Space.** A clear floor space, ~~positioned for a parallel or forward approach~~ complying with Sections 1003.12.5 and 305, shall be provided at each kitchen appliance.

**1003.12.5.2 ~~1003.12.5.4~~ Operable Parts.** All appliance controls shall comply with Section 1003.9.

### EXCEPTIONS:

1. Appliance doors and door latching devices shall not be required to comply with Section 309.4.
2. Bottom-hinged appliance doors, when in the open position, shall not be required to comply with Section 309.3.

**1003.12.5.3 Dishwasher.** ~~A clear floor space, positioned adjacent to the dishwasher door, shall be provided.~~ The dishwasher door in the open position shall not obstruct the clear floor space for the dishwasher or an adjacent sink.

**1003.12.5.4.1 Approach.** ~~A clear floor space, positioned for a parallel or forward approach to the cooktop, shall be provided.~~

**1003.12.5.5.1 Clear floor space.** ~~A clear floor space shall be provided.~~ The oven door in the open position shall not obstruct the clear floor space for the oven.

**1003.12.5.6.1 Clear floor space.** ~~A clear floor space, positioned for a parallel approach to~~ for the refrigerator/ freezer, shall be provided positioned for a parallel approach. The centerline of the clear floor space shall be offset 24 inches (610 mm) maximum from the centerline of the appliance.

**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 purpose of this change is to reduce redundant language. If the clear floor space is required at each appliance at the beginning, it need not be repeated unless additional specifics are required.

Committee Action:           AS                   AM                   D

804.5 (Revised)-PAARLBERG.doc

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## 8-13 – 12

### 606.2, 804.2, 804.2.3 (New), 1002.12, 1003.12.1.1, 1004.12.1.1

**Proponent:** Kim Paarlberg, International Code Council

#### Revise as follows:

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

#### EXCEPTIONS:

1. Where a turning space is provided in the room, a parallel approach complying with Section 305 and centered on the sink, shall be permitted to a kitchen sink in a kitchenette, a space where a cook top or conventional range is not provided.

*(portions of section not shown remain unchanged)*

**804.2 Clearance.** Where a pass-through kitchen is provided, clearances shall comply with Section 804.2.1. Where a U-shaped kitchen is provided, clearances shall comply with Section 804.2.2. Kitchenettes shall comply with Section 804.2.3.

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

**804.2.3 Kitchenettes.** Kitchenettes, spaces that do not provide a cooktop or conventional range shall provided a 40-inch (1015 mm) minimum clearance between all opposing base cabinets, counter tops, appliances, or walls within work areas. A turning space shall be provided within the room and shall be permitted to use the knee and toe clearance under the sink.

**1002.12 Kitchens** and kitchenettes. Kitchens and kitchenettes shall comply with Section 804. At least one work surface, 30 inches (760 mm) minimum in length, shall comply with Section 902.

**EXCEPTION:** Kitchenettes, spaces that do not provide a cooktop or conventional range shall not be required to provide an accessible work surface.

**1003.12.1.1 Minimum Clearance.** In kitchens and kitchenettes, clearance between all opposing base cabinets, counter tops, appliances, or walls within kitchen work areas shall be 40 inches (1015mm) minimum. A turning space provided within the room and shall be permitted to use the knee and toe clearance under the sink.

**1004.12.1.1 Minimum Clearance.** In kitchens and kitchenettes, clearance between all opposing base cabinets, counter tops, appliances, or walls within kitchen work areas shall be 40 inches (1015mm) minimum.

**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.

Clarify when clearances are required in kitchenettes. Otherwise, there is an argument that a kitchenette only has to have a 36" route between the counter and a wall. Also, include exception for work surface and parallel approach to sink, otherwise, Type A and Type B units could have a higher requirement than an Accessible unit.



In Accessible units and Type A units have to have a turning circle within the room. If there is a kitchenette, which currently does not require a work area and allows a side approach sink, is the intent to allow there to be a pull-in back-out scenario, or would the turning space over ride? If you have to have a turning space in the room, how about letting them use space under the sink?

Possible define kitchenette, and then get rid of the redundant language in the exceptions.

**106 Definitions**

Kitchenette: A kitchen or break room area where at least a counter and sink are provided, but a cooktop or conventional range is not provided.

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## 8-14 – 12

### 805.4, 805.6, 805.6.3

**Proponent:** Kim Paarlberg, International Code Council

#### Revise as follows:

**805.4 Bus Signs.** Bus route identification signs shall have visual characters complying with Sections 703.2.2, 703.2.3, and 703.2.5 through 703.2.8. In addition, bus route identification numbers shall be visual characters complying with Section 703.2.4.

#### EXCEPTIONS:

1. Bus schedules, timetables and maps that are posted at the bus stop or bus bay shall not be required to comply with Section 805.4.
2. Bus route identification signage shall be permitted to comply with Section 703.7.

**805.6 Rail Station Signs.** Rail station signs shall comply with Section 805.6.

#### EXCEPTIONS:

1. Signs shall not be required to comply with Sections 805.6.1 and 805.6.2 where audible signs are remotely transmitted to hand-held receivers, or are user- or proximity-actuated.
2. Bus route identification signage shall be permitted to comply with Section 703.7.

**805.6.3 Station Names.** Stations covered by this section shall have identification signs with visual characters complying with Section 703.2. The signs shall be clearly visible and within the sight lines of a standing or sitting passenger from within the vehicle on both sides when not obstructed by another vehicle.

**EXCEPTION:** Station identification signage shall be permitted to comply with Section 703.7.

**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.

Bus signs and rail station signs should be able to use variable message signage. This is not an option in ADA because they do not have requirements for these types of signs. However, it is logical to allow this option since variable message signage effectively meets visual signage requirement.



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## 8-15 – 12

### 808 (New), 809 (New)

**Proponent:** Neil A. Snyder, American Speech-Language-Hearing Association

#### **Add new text as follows:**

**808.** Add the text of ANSI/ASA S12.60-2010/Parts 1 & 2, American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 1: Permanent Schools; Part 2: Relocatable Classroom Factors at the end of A117.1, Chapter 8, Special Rooms and Spaces, as a new section 808 and 809 respectively.

**809.** Add the text of ANSI/ASA S12.60-2010/Parts 1 & 2, American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 1: Permanent Schools; Part 2: Relocatable Classroom Factors at the end of A117.1, Chapter 8, Special Rooms and Spaces, as a new section 808 and 809 respectively.

**Reason:** The American Speech-Language-Hearing Association (ASHA) recommends an appropriate acoustical environment for all students in educational settings. Therefore, ASHA endorses ANSI S12.60-2010 Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools (ANSI S12.60-2010) as the national building and design standards for classroom acoustics. It is well recognized that the acoustical environment in a classroom or other educational environment is a critical variable in the academic, psychoeducational, and psychosocial development of children with normal hearing as well as children with hearing loss and/or other disabilities (e.g., auditory processing disorders, learning disabilities, attention deficit disorders). Inappropriate levels of reverberation and/or noise can deleteriously affect speech perception, reading/spelling ability, classroom behavior, attention, concentration, and educational achievement. In addition to compromising student function, poor classroom acoustics may also negatively affect teacher performance and increase vocal pathologies and absenteeism. Thus, all educational settings have an incentive to develop acoustical conditions that meet national standards. For children with hearing loss and/or other disabilities, the acoustics of the proposed educational setting(s) should be considered and addressed during the determination of a child's educational needs and placement.

Acoustical factors in a classroom include: (1) the level of the background (ambient) noise in the room; (2) the relative intensity of the information carrying components of the speech signal to the non-information carrying signal or noise (i.e., signal-to-noise ratio [SNR]); and (3) the reverberant characteristics of the environment.

It is important to note that these acoustical criteria are essentially identical to the recently approved ANSI Standard on classroom acoustics. Additionally, ANSI S12.60-2010 provides acoustic guidelines for learning spaces greater than 20,000 ft<sup>3</sup>.

It is imperative that all new construction adhere to the acoustical criteria indicated above and stipulated in ANSI S12.60-2010. The fundamental strategy for improving acoustics within existing classrooms is acoustical modification of that environment. Acoustical measurement and/or modifications of educational settings should be multidisciplinary in nature and conducted by trained qualified professionals, such as audiologists, architects, and acoustical engineers. It is important to realize that these acoustical criteria are considered minimal. Some students, for example those with hearing loss, may require further signal enhancement technology. For additional information on acoustical criteria and hearing assistive technology, see ASHA's Acoustics in Educational Settings: Technical Report and Guidelines for Addressing Acoustics in Educational Settings. <http://www.asha.org/docs/html/TR2005-00042.html>

#### **Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools,**

##### **Part 1: Permanent Schools**

##### **1 Scope and purpose**

##### **1.1 Scope**

1.1.1 Part 1 of ANSI/ASA S12.60 is applicable to core learning spaces and classrooms with interior volumes not exceeding 566 m<sup>3</sup> (20 000 ft<sup>3</sup>) and to ancillary learning spaces of any volume. Learning spaces with volumes larger than 566 m<sup>3</sup> (20 000 ft<sup>3</sup>) are considered ancillary learning spaces for purposes of this standard. Annex A provides testing procedures when optional tests are performed to determine conformance with the source background noise requirements and the noise isolation requirements of this standard. Annex B provides commentary information on various paragraphs of this standard. Annex C provides guidelines for controlling reverberation in classrooms and other learning spaces.

This Part does not apply for natatoria, auditoria, music performance spaces, teleconferencing rooms, or special education rooms such as those for severely acoustically challenged students, which all require special acoustical design and treatment that is not within the scope of this standard. This Part does not apply to relocatable classrooms or relocatable modular learning spaces, which are covered by Part 2 of ANSI/ASA S12.60.

1.1.2 Acoustical performance criteria are specified in this standard by limits on the greatest one-hour average A-weighted and C-weighted background noise levels and by limits on reverberation times when students are expected to be present.

1.1.3 The control of background noise levels in this standard is achieved, in part, by specifying the minimum outdoor-to-indoor transmission class (OITC) ratings and sound transmission class (STC) ratings, depending upon the sound source, to reduce noise that intrudes into the classroom or learning space from sources outside of the building envelope, and specifying minimum STC ratings for walls and floor-ceiling assemblies where noise that originates within the school building intrudes into the classroom

through classroom walls and floor/ceiling assemblies. The control of noise from footsteps or other impacts on a floor above is achieved by specifying an impact insulation class (IIC) rating for the floor/ceiling assembly.

1.1.4 This standard applies to siting and building-design-dependent sources of intrusive noise in learning spaces in schools, including noise produced by heating, ventilating, and air-conditioning (HVAC) systems; building services; and exterior sound sources such as vehicular traffic and aircraft overflights. This standard applies to the design and performance of unoccupied spaces and does not apply to sound generated within a classroom by its occupants including voices and the sounds of classroom activities such as the moving of chairs, nor does it apply to the sound from portable or permanent built-in equipment used during the course of instruction, such as computers, as long as the equipment can be turned off in the room.

## **1.2 Purpose**

This standard is intended to provide a minimum set of requirements, based on the best scientific evidence available at the time of publication, that can be adopted by reference to this standard and enforced by an authority having jurisdiction. This standard, in conjunction with the information provided in the annexes, is intended to help school planners and designers provide good acoustical characteristics for classrooms and other learning spaces in which speech communication is an important part of the learning process.

## **2 Normative references**

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ANSI S1.1, American National Standard Acoustical Terminology

ANSI/ASA S1.13, American National Standard Measurement of Sound Pressure Levels in Air

ANSI/ASA S12.9-1992/Part 2 (R2008), American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, Part 2: Measurement of Long-Term Wide-Area Sound

ANSI/ASA S12.9-1993/Part 3 (R2008), American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, Part 3: Short-Term Measurements with an Observer Present

ASTM E90-09, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

ASTM E336-09, Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings

ASTM E41 3-04 (2009), Classification for Rating Sound Insulation

ASTM E966-04, Standard Guide for Field Measurements of Airborne Sound Insulation of Building Façades and Façade Elements

ASTM E1 007-04e1, Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission through Floor-Ceiling Assemblies and Associated Support Structures

ASTM E1 332-90(2003), Standard Classification for Determination of Outdoor-Indoor Transmission Class

IEC 61672-1, Electroacoustics — Sound level meters — Part 1: Specifications ANSI/Infocomm 1 M-2009, Audio Coverage Uniformity in Enclosed Listener Areas

## **3 Definitions**

For the purposes of this standard, the terms and definitions given in ANSI S1.1 and the following apply. The definitions of acoustical terms given here are consistent with those given in ANSI S1.1 but may be simplified for the purposes of this document.

### **3.1 General terms**

3.1.1 classrooms and other learning spaces. Locations within school buildings where students assemble for educational purposes.

3.1.1.1 core learning spaces. Spaces for educational activities where the primary functions are teaching and learning and where good speech communication is critical to a student's academic achievement. These spaces include, but are not limited to, classrooms (enclosed or open plan), instructional pods or activity areas, group instruction rooms, libraries, offices used for educational purposes, therapy rooms, and music rooms for instruction or practice.

3.1.1.2 ancillary learning spaces. Spaces where good communication is important to a student's educational progress but for which the primary educational functions are informal learning, social interaction, or similar activity other than formal instruction. For purposes of this part, ancillary learning spaces include corridors, cafeterias, and gymnasias but do not include natatoria, auditoria, music performance spaces, teleconferencing rooms, or special education rooms such as those for severely acoustically challenged students.

3.1.1.3 relocatable classroom. Educational classroom structure that utilizes factory-built modular construction methods that can be efficiently, repeatedly transported over public roads without the removal of the floor, roof, or other significant structural modification, and that typically consists of one or two modules (units, boxes, floors), but can consist of multiple units. Relocatable classrooms are frequently called portable classrooms, temporary classrooms, mobile classrooms, or learning cottages.

3.1.2 acoustical privacy. The acoustical attenuation between spaces that is needed to prevent conversation in one space from being understood in an adjacent space.

### **3.2 Terms relating to acoustical performance and design**

3.2.1 noise level or sound level. Terms employed interchangeably throughout this standard to represent the overall frequency-weighted sound pressure level of an airborne sound. This descriptor is used to express the strength of a sound in a manner related to how the ear perceives it. Noise level or sound level is expressed in decibels, unit symbol dB.

3.2.1.1 A-weighted sound level. Sound pressure level measured with a conventional frequency weighting that roughly approximates how the human ear hears different frequency components of sounds at typical listening levels for speech. The A-weighting (see IEC 61672-1) attenuates the low-frequency (or low-pitch) content of a sound. A-weighted sound level is expressed in decibels, unit symbol dB.

3.2.1.2 C-weighted sound level. Sound pressure level measured with a conventional frequency weighting (see IEC 61672-1) that does not significantly attenuate the low-frequency (or low-pitch) content of a sound. C-weighted sound level is expressed in decibels, unit symbol dB.

3.2.1.3 one-hour average A-weighted or C-weighted sound level. Level of the time-mean-square A-weighted or C-weighted sound pressure averaged over a one-hour period. One-hour average sound level is expressed in decibels, unit symbol dB.

3.2.2 background noise. Sound in a furnished, unoccupied learning space, including sounds from outdoor sources, building services and utilities. For the purposes of this standard, background noise excludes sound generated by people within the building or sound generated by temporary or permanent instructional equipment.

3.2.2.1 interior-source background noise. Noise from building services and utilities.

3.2.2.2 exterior-source background noise. Noise from transportation sources, such as aircraft, vehicle traffic, or from other outdoor noise sources (e.g., lawn maintenance, playground activities, or industrial sources).

3.2.3 reverberation. An acoustical phenomenon that occurs in an enclosed space, such as a classroom, when sound persists in that space as a result of repeated reflection or scattering from surfaces enclosing the space or objects in the space such as chairs, desks, or cabinets.

3.2.3.1 reverberation time. A measure of the degree of reverberation in a space and equal to the time required for the level of a steady sound to decay by 60 dB after it has been turned off. Reverberation time is expressed in seconds, unit symbol s.

3.2.4 sound absorption and reflection. Acoustical phenomena that occur whenever sound strikes a surface. For the calculation or measurement of reverberation time, absorbed sound is the portion of the sound energy striking a surface that is not returned as sound energy. Reflected sound is the remaining portion that bounces off the surface.

3.2.5 attenuation of airborne sound. A measure of the decrease in sound level when sound passes through construction assemblies between spaces within a building, or from outside to inside. Attenuation is expressed in decibels, unit symbol dB.

3.2.5.1 sound transmission class. A one-number rating of the sound-blocking ability of a partition, door, window, etc., calculated in accordance with ASTM E413 from measurements of one-third-octave band sound pressure levels and sound absorption made in a laboratory and in accordance with ASTM E90, abbreviation STC.

3.2.5.2 outdoor-indoor transmission class. A one-number rating of the sound-blocking ability of a partition, door, window, etc., calculated in accordance with ASTM E1332 from measurements of one-third-octave band sound pressure levels and sound absorption made in a laboratory and in accordance with ASTM E90, abbreviation OITC.

3.2.5.3 composite sound transmission class. When a wall or other structure is made from multiple elements (for example concrete block, door, and window), the reduction in sound level is a function of the transmission loss and the area of each of the elements.

3.2.6 structure-borne impact sound. The acoustical phenomenon of sound generation and transmission due to impacts or other interaction of objects with a structure, the most common being footsteps on a floor.

3.2.6.1 impact insulation class. Single-number rating of structure-borne noise radiated below by a floor or floor-ceiling assembly when tested in a laboratory in accordance with ASTM E492 and calculated in accordance with ASTM E989; abbreviation IIC.

NOTE 1 The IIC rating is derived from the sound pressure levels measured in the receiving room when a standard tapping machine is operating on the floor assembly above, adjusted to what they would be for a specific amount of absorption in the receiving space below.

NOTE 2 The higher the IIC rating, the lower the impact sound pressure levels.

3.3 classroom audio distribution system. A system for which the primary design goal is to electro-acoustically distribute the audio portion of curricular content throughout a learning space. This content may include, but is not limited to, live voices from teachers and peers, as well as prerecorded or streaming media content from various sources, or both. The systems are not typically designed for public address purposes (such as building-wide announcements) or for the delivery of alert or warning signals, though they may include these capabilities. Classroom audio distribution systems may also include provisions to assist persons with low-amplitude voice levels or those with certain hearing conditions.

#### **4 Applications**

4.1 The acoustical performance criteria and design requirements of this standard apply to the design and construction of all new classrooms and learning spaces as specified in 1.1.

4.2 The acoustical performance criteria and design requirements of this standard apply to major renovations as defined by the adopting authority (e.g., State or local building authority, school board, or owner).

4.3 Alterations, renovations, repairs, and maintenance that diminish the acoustical performance of existing classrooms shall not be permitted.

#### **5 Acoustical performance criteria and noise isolation design requirements and guidelines**

##### **5.1 Introduction**

Acoustical performance criteria and design requirements are contained in the following sub-clauses and were selected to provide an appropriate acoustical learning environment. The performance criteria shall apply to classrooms and other core learning spaces and to ancillary learning spaces. For purposes of design calculations and field measurements used to determine conformance to the requirements of this standard, it shall be assumed that the learning spaces are furnished consistent with their use and the building is unoccupied with doors and windows closed.

5.2 Performance criteria for background noise levels

5.2.1 Exterior-source background noise levels

5.2.1.1 The one-hour average A- and C-weighted exterior-source background noise level within the enclosed space for the noisiest continuous one-hour period during times when learning activities take place shall not exceed the limits specified in Table 1.

5.2.1.2 When transportation or military sources are the dominant noise source(s), the yearly average, one-hour, or day-night (as available) A-weighted sound level shall, where practical, be predicted using the methods and computer programs developed by the U.S. Department of Transportation or U.S. Department of Defense. These include Integrated Noise Model (INM) and Noisemap for aircraft noise, Traffic Noise Model (TNM) for road noise, and the Federal Railroad Administration procedures for rail noise. These calculated levels shall be used in lieu of measured sound levels to determine the exterior-source background noise level.

5.2.1.3 The one-hour average A- and C-weighted sound level for exterior-source background noise, if measured, shall be measured in accordance with the procedures of Annex A based on guidance in ANSI/ASA S12.9 Part 2 or ANSI/ASA S12.9 Part 3 as applicable.

**Table 1 — Limits on A- and C-weighted sound levels of background noise and reverberation times in unoccupied furnished learning spaces**

<u>Learning space a)</u>	<u>Greatest one-hour average A- and C-weighted sound level of exterior-source background noise b), f) (dB)</u>	<u>Greatest one-hour average A- and C-weighted sound level of interior-source background noise c), f) (dB)</u>	<u>Maximum permitted reverberation times for sound pressure levels in octave bands with midband frequencies of 500, 1000, and 2000 Hz (s)</u>
Core learning space with enclosed volume ~ 283 m3 (~ 10 000 ft3)	35 / 55	35 / 55	0.6 s e)
Core learning space with enclosed volume > 283 m3 and ~ 566 m3 (> 10 000 ft3 and ~ 20 000 ft3)	35 / 55	35 / 55	0.7 s
Core learning spaces with enclosed volumes > 566 m3 (> 20 000 ft3) and all ancillary learning spaces	40 / 60 d)	40 / 60 d)	<u>No requirement</u>
a) See 3.1.1.1 and 3.1.1.2 for definitions of core and ancillary learning spaces. b) The greatest one-hour average A- and C-weighted interior-source and the greatest one-hour average A- and C-weighted exterior-source background noise levels are evaluated independently and will normally occur at different locations in the room and at different times of day. c) See 5.2.2 for other limits on interior-source background noise level. d) See 5.2.3 for limits in corridors adjacent to classrooms. e) See 5.3.2 for requirement that core learning spaces ~ 283 m3 (~ 10 000 ft3) shall be readily adaptable to allow reduction in reverberation time to 0.3 s. f) The design location shall be at a height of 1 m above the floor and no closer than 1 m from a wall, window, or fixed object such as HVAC equipment or supply or return opening. See A.1 .3 for measurement location.			

5.2.2 Interior-source background noise levels

5.2.2.1 Limits on interior-source A- or C-weighted background noise levels from building services and utilities and calculation of HVAC noise levels

The levels of interior-source background noise shall be calculated using, as a minimum, the octave-band sound pressure levels with nominal midband frequencies from 63 Hz through 8 kHz unless the equipment rating standard specifies a different range. The calculation shall include the sound from all relevant HVAC sources and paths.

The one-hour average A- or C-weighted level of interior-source background noise shall not exceed the limits specified in Table 1. Multi-stage types of HVAC equipment may operate at multiple conditions resulting in different sound levels that contribute to the one-hour average A- or C-weighted sound level. The sound levels for the different conditions shall not exceed the limits in Table 2. The noise level of the different operational conditions, if measured, shall be measured in accordance with the procedures of Annex A. The one-hour average A- or C-weighted sound levels of any other building system sounds (e.g., lighting) for which sound power data are available, shall be combined on time-mean-square basis with the calculated one-hour average A- or C-weighted sound level of the HVAC noise before determining conformance. Where sound power data are not available, estimated one-hour average A- or C-weighted sound levels shall be used.

**Table 2 — Limits on one-hour average A- and C-weighted sound levels (designated by X / Y below) from sources associated with building services and utilities**

<u>Room type</u>	<u>HVAC operating condition</u>	<u>Building services a) sound level limits (dB) c) d)</u>	
		<u>Single mode HVAC Type 1</u>	<u>Multiple mode HVAC Type 2</u>
Core learning space	Design or maximum capacity heating or cooling	35 / 55	37 / 57
	Reduced or low capacity heating or cooling or ventilation b)	Not applicable	34 / 54
Ancillary space	Design or maximum capacity heating or cooling	40 / 60	42 / 62
	Reduced or low capacity heating or cooling or ventilation b)	Not applicable	39 / 59
Type 1 - represents systems that have a single operational mode of performance.			

Type 2 - represents systems that have multiple stages of cooling or heating, multiple or variable fan speeds, or ventilation-only modes.

a> The level for HVAC sound shall be combined with the level of the sound from other building systems such as lights, plumbing, etc., if applicable. If present, the contribution of an outdoor condenser or chiller to the classroom sound level shall be combined with the sound from other building services.

b> The operating condition is one that occurs frequently and represents airflow less than design or reduced refrigeration capacity or both.

c> The HVAC design location shall be at the loudest position that is at a height of 1 m above the floor and no closer than 1 m from a wall or fixed object such as HVAC supply or return opening.

d) An HVAC unit designed to provide climate control and ventilation for individual classrooms that conforms to the 35 dB hourly equivalent level requirements of ANSI/ASA S12.60 Part 2 shall be considered to conform to the requirements of ANSI/ASA S12.60 Part 1.

5.2.2.2 Limits on disturbing sounds from building services and utilities

Disturbing tonal sounds, such as hums, buzzes, whines, or whistles generated by HVAC systems and other building services and utilities shall be controlled so as to not interfere with speech communication or be distracting or annoying to the occupants of the learning spaces. Such sounds, if any, that were not able to be controlled during the design process shall be mitigated after construction. The prominence of any tonal sounds shall be quantified using the methods in ANSI/ASA S1.13, and there shall be no "prominent discrete tones" as defined in ANSI/ASA S1.13.

5.2.3 Background noise in corridors

When corridors adjacent to classrooms are used solely for conveyance of occupants within the school building and structured learning activities do not occur there, the one-hour average A-weighted background noise level in such corridors shall not exceed 45 dB.

5.2.4 Equipment, machinery, and components associated with instruction

The limits on background noise level established in 5.2.1 through 5.2.3 do not apply to portable or permanent (built-in) equipment, machinery, and components associated with instruction, such as computers, audiovisual equipment, shop machinery, fume hoods, kitchen exhaust, and similar devices provided such equipment can be turned off from within the learning space. Calculations of background noise level shall not include such equipment and all measurements shall be made with such equipment and emergency equipment turned off. Calculations of background noise level shall include all equipment that cannot be turned off from within the learning space except for emergency equipment.

5.3 Performance criteria for reverberation times

5.3.1 The reverberation times shall conform to the limits specified in Table 1.

5.3.2 Core learning spaces ≤ 283 m3 (≤ 10 000 ft3) shall be readily adaptable to allow reduction in reverberation time to 0.3 s. A classroom is readily adaptable if it can be readily improved through adding the required sound absorption as calculated with the Sabine equation (Equation 1). According to this formula, the minimum total sound absorption A needed to achieve a reverberation time of T60 seconds or less in a room of enclosed volume V is given by:

$$A \geq kV / T60 \quad (1)$$

The constant k = 0.161 s/m when volume V is in cubic meters and the sound absorption A is in square meters. Constant k = 0.049 s/ft when volume V is in cubic feet and sound absorption A is in square feet.

It shall be shown, or be readily apparent, that available surface area to add new sound absorptive materials (carpet, wall panels, etc.) on existing sound reflective finishes and/or additional sound absorption from improving readily upgradable existing acoustical finishes, such as replacing ceiling panels, are together adequate to provide the required sound absorption. For purposes of this standard, no further calculations are required if it can be shown that the area of reflective wall or ceiling area readily available for adding sound absorptive finishes is at least the lesser of 80 m2 or 0.28 V m2 where V is the room volume in m3 (860 ft2 or 0.086 V ft2 where V is the room volume in ft3).

5.4 Noise isolation design requirements

5.4.1 Outdoor-to-indoor attenuation of airborne sound

5.4.1.1 The background noise level inside classrooms from exterior sources is a function of two independent factors: (1) the exterior noise environment, and (2) the reduction of the exterior noise from outdoors to indoors by the building shell. It shall be the responsibility of the user, e.g., the school board, to determine and specify the site exterior noise environment which is the one-hour average A-weighted sound level for the noisiest hour on the average (school) day during school hours. To this end, the user shall conduct a site assessment to determine the greatest outdoor one-hour average A-weighted sound level at the proposed location of the classroom or other core learning space.

5.4.1.2 In addition to the requirement of 5.2.1.1 to reduce the one-hour average interior A-weighted sound levels below 35 dB and the corresponding one-hour average C-weighted sound levels to less than 55 dB, all newly constructed core learning spaces shall be designed to conform to a minimum Outdoor-Indoor Transmission Class (OITC) shown in Table 3. Where a wall contains windows, doors, or penetrations for ventilation, the composite structure, including the window, doors, or penetrations, shall conform to the OITC requirement.

5.4.1.3 When there is an exterior walkway within 3 m (10 ft) or a playground within 9 to 15 m (30 to 50 ft) of the exterior wall of a core learning space, the basic wall shall have an STC rating of at least 45 and exterior doors shall have an STC rating of at least 30. If there are windows in such a wall within 3 m (10 ft) of an exterior walkway or within 9 to 15 m (30 to 50 ft) of a playground, the composite STC rating of the wall including the windows and doors shall be at least STC 40. If a playground is closer than 9 m (30 ft) to the wall of a core learning space, the composite STC rating of the exterior wall shall have a rating of at least STC 50, except that this requirement shall not apply where the playground is dedicated for use only by the adjacent learning space and will therefore not be active while learning activities are occurring in the core learning space.

5.4.1.4 Verification measurements, if required, shall be performed in accordance with the procedures in Annex A.

**Table 3 — Minimum OITC rating for core learning spaces**

<b>A-weighted outdoor noise level(dB) a, b)</b>	<b>OITC rating walls with windows</b>	<b>OITC rating roofs and walls without</b>
---	---------------------------------------	--

		<u>windows</u>
<55	30	36
<u>56</u>	<u>31</u>	<u>37</u>
<u>57</u>	<u>32</u>	<u>38</u>
<u>58</u>	<u>33</u>	<u>39</u>
<u>59</u>	<u>34</u>	<u>40</u>
<u>60</u>	<u>35</u>	<u>41</u>
<u>61</u>	<u>35</u>	<u>41</u>
<u>62</u>	<u>36</u>	<u>42</u>
<u>63</u>	<u>37</u>	<u>43</u>
<u>64</u>	<u>38</u>	<u>44</u>
<u>65</u>	<u>39</u>	<u>45</u>
<u>66</u>	<u>39</u>	<u>45</u>
<u>67</u>	<u>40</u>	<u>46</u>
<u>68</u>	<u>41</u>	<u>47</u>
<u>69</u>	<u>42</u>	<u>48</u>
<u>70</u>	<u>43</u>	<u>49</u>
<u>71</u>	<u>43</u>	<u>49</u>
<u>72</u>	<u>44</u>	<u>50</u>
<u>73</u>	<u>45</u>	<u>51</u>
<u>74</u>	<u>46</u>	<u>52</u>
<u>75</u>	<u>47</u>	<u>53</u>
<u>76</u>	<u>47</u>	<u>53</u>
<u>77</u>	<u>48</u>	<u>54</u>
<u>78</u>	<u>49</u>	<u>55</u>
<u>79</u>	<u>50</u>	<u>56</u>
<u>80</u>	<u>50</u>	<u>56</u>
>80	Not permitted	Not permitted
a) See 5.4.1.1.		
b) See 5.2.1.		

5.4.2 Indoor-to-indoor attenuation of airborne sound

5.4.2.1 Wall and floor-ceiling assemblies that separate enclosed or open-plan core learning spaces from adjacent spaces shall be designed to achieve the minimum STC ratings specified in Table 4. The STC rating requirements of Table 4 also shall apply to the design of temporary partitions that subdivide a learning space.

**Table 4 — Minimum STC ratings required for single or composite wall and floor-ceiling assemblies that separate a core learning space from an adjacent space**

<u>Adjacent space</u>			
<u>Other enclosed or open-plan core learning space, therapy room, health care room and space requiring a high degree of acoustical privacy a), b)</u>	<u>Common-use and public-use toilet room and bathing room a)</u>	<u>Corridor, staircase, office, or conference room c), d)</u>	<u>Music room, music performance space, auditorium, mechanical equipment room, e) cafeteria, gymnasium, or indoor swimming pool.</u>
50	53	45	60
<p>a&gt; These requirements do not apply to toilets opening only into the core learning space and used only by occupants of the core learning space.</p> <p>b&gt; A 20 cm (8") concrete masonry unit wall having a surface weight density of at least 180 kg/m<sup>2</sup> painted and sealed on both sides, acoustically sealed at the entire perimeter and extending from the floor slab to the structural deck above, is an acceptable alternate assembly that conforms to the intent of 5.4.2.1.</p> <p>c&gt; For corridor, office, or conference room walls containing doors, the basic wall, exclusive of the door, shall have an STC rating as shown in the appropriate column in this table. The entrance door shall conform to the requirements of 5.4.2.4.</p> <p>d&gt; When acoustical privacy is required, the minimum composite STC rating, including the effects of doors, of the partitions around an office or conference room, shall be increased to 50.</p> <p>e&gt; The isolation between core learning spaces and mechanical equipment rooms shall have a STC rating of 60 or greater unless it is shown that the sound level in the mechanical equipment room combined with a lower STC rating can achieve the required sound level in the core learning space. In no case shall the design STC between such spaces be less than 45.</p>			

5.4.2.2 All penetrations in sound-rated partitions shall be sealed and treated as necessary to achieve the required STC ratings. Attention shall be given to flanking paths that would reduce the isolation between spaces.

5.4.2.3 For walls containing doors between a core learning space and corridors or stairwells, the minimum STC ratings of Table 4 apply to the wall exclusive of the door. For walls containing doors between a core learning space and offices, conference rooms, or



toilets that open only to the one core learning space, the minimum STC ratings of Table 4 apply to the wall exclusive of the door. In all other cases, the STC rating applies to the composite construction including the effects of doors, windows, penetrations, etc.

5.4.2.4 Interior door assemblies and up to 1 m<sup>2</sup> (10 ft<sup>2</sup>) of window glazing area immediately adjacent to the door opening into core learning spaces from corridors, stairways, offices, or conference rooms shall achieve a STC rating of 30 or greater in their operable condition. The STC rating for interior entry doors into music rooms from corridors or staircase areas shall be at least 40 if such doors are within 9 m (30 ft) of a door to a core learning space. A vestibule entry composed of two sets of doors with STC ratings of 30 or greater shall be considered to conform to the STC 40 requirement.

5.4.2.5 It shall be the responsibility of the user, e.g., the school board, to determine if and when an office or conference room needs to have a high degree of acoustical privacy. If so, then the STC rating between these specifically designated spaces and adjacent spaces shall be at least 50.

5.4.2.6 Verification measurements, if required, shall be made in accordance with the procedures in Annex A.

#### **5.4.3 Structure-borne impact sound isolation**

The floor-ceiling assemblies of normally occupied rooms located above learning spaces shall be designed for a laboratory test rating of at least IIC 45 if they are located above core learning spaces and IIC 40 if they are located above ancillary learning spaces. These IIC ratings shall apply without carpeting on the floor in the room above the learning space. In new construction, gymnasias, dance studios, or other rooms with high floor-impact activity shall not be located above classrooms or other core learning spaces. In renovations, existing gymnasias, dance studios, and similar rooms with high floor-impact activity when it is located above core learning spaces shall either be relocated or the IIC rating of the separating floor-ceiling assembly shall be at least 70 when located above a core learning space with an enclosed volume not greater than 566 m<sup>3</sup> (20 000 ft<sup>3</sup>); at least 65 when located above a core learning space with an enclosed volume greater than 566 m<sup>3</sup> (20 000 ft<sup>3</sup>); and at least 65 when located above an ancillary learning space.

#### **5.5 Classroom audio distribution systems 5.5.1 Uniformity of coverage**

Classroom audio distribution systems, if installed, shall not be used as a substitute for achieving the acoustical design requirements of this standard. Such systems, if installed, shall have uniform coverage within  $\pm 2.5$  dB for octave-band sound pressure levels with midband frequencies of 500 Hz, 1000 Hz, 2000 Hz, and 4000 Hz. Measurements of the coverage uniformity, if performed, shall be conducted in accordance with the measurement procedures contained in ANSI/INFOCOMM 1 M-2009.

#### **5.5.2 Limitations on sound intrusion into adjacent learning spaces**

Classroom audio distribution systems shall be adjustable so that their sound output can be reduced to levels such that the sound from the system does not intrude on adjacent learning spaces.

#### **5.6 Conformance testing**

This standard does not require testing to demonstrate conformance. When optional tests are performed to verify conformance to the requirements of this standard, the procedures in Annex A shall be followed.

NOTE If the school is a prototype design that will be repeated at multiple sites, it is recommended that conformance testing be undertaken on the first structure.

### **Annex A (normative)**

#### **Verification of conformance by measurement**

##### **A.1 Verification of conformance with interior-source background noise requirements**

A.1.1 Interior-source background noise level measurements shall be taken during time periods when the outdoor sound contribution to the indoor sound is minimal. Both background measurements and HVAC measurements shall be taken under nominally the same outdoor environment.

A.1.2 Identify the listening area within the classroom where direct teacher and student speech communication generally takes place. With the HVAC and other noise sources operating in their respective design operational modes, perform an acoustical survey of the classroom within that listening area. This survey shall be done at what are potentially the noisiest locations within the room, including at the HVAC inlet or outlet air ducts, in the vicinity of the HVAC equipment, or at any other location that the observer identifies as a significant source of interior-generated noise. Identify the noisiest location within the listening area using a sound level meter that conforms to the requirements for either Class 1 or Class 2 performance as specified in IEC 61672-1. The meter shall have a minimum frequency range encompassing the octave bands from 63 Hz to 8 kHz. The location with the highest A-weighted sound level shall be termed the "key" location.

A.1.3 Measurements, including the above screening for the "key" location, shall be taken at any time such that outdoor noise levels (except for HVAC equipment such as condensing sections or chillers) are at least 6 dB below the interior-source noise levels; that is, they contribute less than 0.5 dB to the measurement of the interior source background noise. The microphone shall be located at a height of 1.0 to 1.2 m (40 to 48 in.) above the floor and no closer than 1 m (40 in.) from a wall, fixed object such as HVAC plenum, or bookshelves, and no closer than 0.5 m (20 in.) from a readily movable object such as a desk, chair, or table.

A.1.4 At the key location, first measure the sound with the HVAC equipment turned off. Then take five consecutive A- and C-weighted 60-second time-averaged sound level measurements with the HVAC operating. If each of the measured A- and C-weighted levels with HVAC equipment operating is at least 6 dB higher than the background A- and C-weighted levels, respectively, then the HVAC noise shall be considered to be the primary source of interior noise. If the HVAC sound is the primary source of interior-generated noise, then the steadiness of the noise shall be determined following the procedure in A.1.6.

A.1.5 For heat pump systems, the sound testing shall be performed in the cooling mode if the outdoor ambient temperature is 10° C (50° F) or above and in the heating mode if the outdoor ambient temperature is below 10° C (50° F). For fuel furnaces and compressor cooling systems, the sound testing shall be performed in the cooling mode.

A.1.6 The average of five consecutive 60-second measurements in each mode of operation shall be recorded. For each mode, it shall be determined if the background sound levels are steady. The criterion for steady background sound levels shall be that the difference between the highest and lowest data sound levels of the five 60-second samples is not more than 3 dB.

A.1.7 If the background noise level is steady, then measurements shall be repeated in each operational mode of the HVAC equipment and the sound levels shall be compared to the limits in Table 2.

A.1.8 If the background noise level is unsteady, then the source of the unsteadiness shall be determined—exterior or interior.

A.1.8.1 If the source is exterior, then the interior-source background noise measurements shall be repeated at a time when the exterior noise is less. If no such time can be found, then it is likely that the outdoor sound is too great and it shall be measured and conformance verified for exterior-source background noise by the procedure in A.2.

A.1.8.2 If the source is interior, then one-hour average A-weighted sound level measurements including operation at both design conditions and other typical conditions shall be taken and reported. These measurements shall be used in lieu of the five 60-second averages to determine the interior-source background noise level for the room at the key location. The one-hour measurements shall be compared to the limits in Table 2.

A.1.9 Measured sound levels within 2 dB of the background noise criterion shall be reported as conforming to the background noise criterion.

## **A.2 Verification of conformance to the exterior-source background noise requirement**

### **A.2.1 Verification of conformance with the outdoor-to-indoor noise level reduction requirement**

A.2.1.1 The outdoor-indoor noise isolation class (OINIC) shall be measured in accordance with the procedures of ASTM E966.

A.2.1.2 If present with sufficiently high sound level, the actual major outdoor noise source (e.g., aircraft, road or rail traffic, industrial noise) may be used for the OINIC measurements at a specific application site; otherwise, an artificial noise source(s) shall be used.

A.2.1.3 The OINIC shall always be measured for a wall with windows. If the only wall with windows is shielded from direct exposure to the dominant exterior source sound, and a roof or another wall without windows is exposed to the dominant exterior source sound, then the OINIC shall also be measured for the roof or wall without windows.

A.2.1.4 Where a requirement exists for a wall or room to conform to a specified OITC, a measured OINIC for that wall or room within 3 points of the specified OITC shall be considered as verifying the specified performance.

### **A.2.2 Determining or verifying the user-stipulated exterior-source, outdoor, free-field, loudest-hour environmental noise levels**

A.2.2.1 The one-hour average A-weighted sound levels shall be measured in accordance with ANSI/ASA S12.9 Part 2 and ANSI/ASA S12.9 Part 3, as applicable, and in accordance with ANSI/ASA S1.13. Extraordinary sounds such as a vehicle crash, a loud airplane where normally there are none, or siren where normally there are none, shall be excluded from the reported hourly environmental noise level.

A.2.2.2 Sound levels within 2 dB of a previously estimated and stipulated one-hour average A-weighted sound level shall be considered as verifying conformance to the estimated and stipulated result.

### **A.2.3 Overall outdoor-to-indoor tolerance**

The sum of the deviations reported for A.2.1.2 and A.2.2.2 shall be  $\leq 2$  dB.

## **A.3 Verification of conformance to the inside-to-inside sound isolation requirements**

### **A.3.1 Verification of inside-to-inside airborne sound isolation**

A.3.1.1 The noise isolation class (NIC) between rooms shall be measured in accordance with the procedures in ASTM E336.

A.3.1.2 Where a requirement exists for isolation to conform to a specified STC, a measured NIC within 3 points of the specified STC shall be considered as verifying conformance to the specified performance.

A.3.1.3 In some cases walls containing doors and windows, such as corridor walls, are exempt from the overall STC requirement as affected by the doors and windows. For these cases calculate the composite STC based on the expected STC of the various elements such as wall, doors, and windows and their respective areas. To determine conformance, compare the composite STC with a measured NIC.

### **A.3.2 Verification of inside-to-inside impact sound isolation**

A.3.2.1 The apparent impact insulation class (AIIIC) shall be measured in accordance with the procedures in ASTM E1007.

A.3.2.2 A resulting AIIIC within 5 points of the specified IIC shall be considered as verifying conformance to specified performance.

## **A.4 Verification of conformance to reverberation time requirements**

Conformance with the reverberation time requirements of this standard may be verified by either of the two options below.

1) Calculation option: Absorption coefficients shall be provided in octave bands with mid-band frequencies of 500, 1000, and 2000 Hz for surface material and acoustic treatments used within the space. Using these absorption coefficients and the room dimensions, the Sabine equation [Equation (1)], shall be used to calculate conformance to the standard. These calculations are required during the design phase and may be used to demonstrate conformance.

2) Measurement options: If field measurements are made to demonstrate conformance, the methods described in ASTM E2235-04 and ISO 3382-2 can be referred to for general guidance on the test method. In either case, the following requirements shall be met. When using the interrupted noise method to obtain decays, a minimum of five decays shall be measured at each measurement position. These measurements shall be repeated for at least six combinations of three microphone positions and two source positions. If the integrated impulse response method (described in ISO 3382-2) is used to obtain the decays, there is no need for repeated decays at each measurement position. However, measurements shall be made for a minimum of the six combinations of three microphone positions and two source positions.

The use of an approximately omni-directional loudspeaker source is preferred, but other types of loudspeakers may be used including corner loudspeakers and loudspeakers with directionality similar to a human talker. In all cases the source-to-receiver distance shall not be less than 1/3 of the largest dimension of the room.

If omni-directional or human-simulating sound sources are used, they shall be placed at positions that are typical for teachers and/or students when they are speaking to the class. Microphone locations shall be selected from locations where student listeners typically would be located.

Measurements shall be at a minimum for the octave bands including 250 Hz through 4000 Hz.

In determining the decay rate, the calculation shall begin with the first point of the decay that is more than 5 dB below the level when the sound was on.

A measured reverberation time  $\pm 0.1$  s shall be considered to conform to this standard.

## **A.5 Terms and definitions used in Annex A**

A.5.1 apparent impact insulation class (AIIIC). Single-number rating of the structure-borne noise radiated below by a floor or floor-ceiling assembly when tested in the field in accordance with ASTM E1007 and calculated in accordance with ASTM E989.

NOTE 1 The rating is derived from the sound pressure levels measured in the receiving room when a standard tapping machine is operating on the floor assembly above, adjusted to what they would be for a specific amount of absorption in the receiving space below.

NOTE 2 The higher the AIIIC rating, the lower the impact sound pressure levels.

NOTE 3 AIIIC is sometimes also referred to as "field impact insulation class" or FIIC.

A.5.2 noise isolation class (NIC). A one-number rating of the attenuation of airborne sound between enclosed spaces calculated in accordance with ASTM E413 from one-third octave band sound levels measured in accordance with ASTM E336 or from the attenuation of airborne sound calculated between the spaces during design.

A.5.3 outdoor-indoor noise isolation class (OINIC). A one-number rating of the attenuation of airborne sound between the outdoors and inside a building calculated in accordance with the procedures of ASTM E1332 from one-third octave band sound levels measured in accordance with ASTM E966 or from the attenuation of airborne sound from outdoors to indoors calculated during design.

NOTE The measured or calculated attenuation of airborne sound between the outdoors and indoor spaces is substituted for the ASTM E90 data in the calculation method of E1332 to calculate the OINIC.

## **Annex B** **(informative)**

### **Commentary on specific paragraphs of this standard**

Commentary-1.1.1. Special-purpose classrooms such as teleconferencing rooms, special-education rooms such as those for students with hearing and listening impairments, or other spaces such as large auditoria may have unique acoustical requirements that are different than the minimum requirements set forth in this standard. Requiring conformance to the minimum requirements of this standard therefore may not be suitable or appropriate for such rooms. While these spaces are exempt from the minimum requirements of this standard, designers are expected to consider and design for the unique acoustical requirements of these spaces.

Commentary-1.1.2. An objective of these performance criteria is to achieve a level of speech that is sufficiently high relative to the background noise level for listeners throughout the classroom or learning space. However, a requirement for the relative difference between speech levels and levels of background noise, usually referred to as the signal-to-noise ratio, is not within the scope of this standard.

Commentary-1.1.4. The background noise generated by occupants and instructional equipment can seriously degrade communication or speech intelligibility in learning spaces. This evaluation should be made to aid in the application of practical noise control measures for school designers or staff. The measures may take the form of using neoprene chair-leg tips to minimize the sound of scuffling chairs and avoiding locating noisy projectors close to students.

Commentary-3.2.3.1 reverberation time. The decay rate depends on the amount of sound absorption in a room, the room geometry, and the frequency of the sound. In practice, the reverberation time is often measured by measuring the time required for a 20 or 30 dB decay and extrapolating that decay rate to the time required for a 60 dB decay.

Commentary-3.2.4 sound absorption and reflection. The level of a reflected sound in a room is determined by the amount of sound absorption at the surfaces, the room geometry, and the frequency of the sound. As the distance between a sound source and a receiver in a classroom increases, the sound at the position of a receiver is increasingly dominated by reflected sound.

Commentary-3.2.5 attenuation of airborne sound. The attenuation of airborne sound depends on the sound reduction through these elements, on their size, on sound leakage around their periphery, on the sound absorption in the receiving space, and on the frequency of the sound.

Commentary-3.2.5.3 composite sound transmission class. Elements with very little transmission loss, such as openings or holes, reduce the effective transmission loss of the composite wall. The reduced effectiveness can be observed even when the opening is a small percent of the total wall, and may not be significantly increased by the greater sound transmission loss of the remaining elements of the wall.

Commentary-4.1. Conformance to the requirements and guidelines of this standard should be considered to be a minimum goal for the acoustical qualities of such spaces, excluding auditoria. The standard does not provide recommendations for electronic aids for persons with hearing impairment, though conformance to this standard will help ensure effective application of such aids.

Commentary-4.2. During renovation of some facilities, it may not be practical to achieve the targets for sound levels or transmission loss. In those cases, the intent of this standard should be followed to the extent practical.

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## **Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools,** **Part 2: Relocatable Classroom Factors**

### **1 Scope and purpose**

#### **1.1 Scope**

1.1.1 This part of ANSI/ASA S12.60 is applicable to relocatable classrooms and other relocatable modular core learning spaces of small to moderate size. This standard includes siting requirements, acoustical performance criteria, and design requirements for relocatable classrooms. Annex A (informative) provides commentary information on this standard, and Annex B (normative) provides procedures for determining compliance with the background sound requirements. This standard seeks to provide design flexibility without compromising the goal of obtaining adequate speech intelligibility for all students and teachers in classrooms and learning spaces within the scope of this standard.

1.1.2 Acoustical performance criteria are specified in this standard by limits on maximum one-hour A-weighted and C-weighted background noise levels and limits on maximum reverberation times.

1.1.3 The control of background noise levels in this standard is achieved, in part, by specifying the minimum outdoor-to-indoor level reduction for noise that intrudes into the classroom or learning space from sources outside of the school building envelope, and

noise isolation for school building elements for noise that originates within the school building and intrudes into the classroom through classroom walls and partitions, floor-ceiling assemblies, and ventilation systems.

1.1.4 This standard does not apply to noise generated within a classroom by its occupants. Occupant-generated noise sources include voices and the sounds of classroom activities such as the moving of chairs. Furthermore, this standard does not apply to the noise from portable or permanent built-in equipment used during the course of instruction, such as audiovisual equipment and computers.

1.1.5 The following annexes are provided to support this standard.

- Annex A: Commentary: Additional information, discussion, and explanation of various provisions of the standard (informative).

- Annex B: Determining compliance with the background sound requirements (normative).

1.2 Purpose  
This standard, in conjunction with the information provided in the commentary and annexes, is intended to help school planners and designers provide the acoustical qualities necessary for good speech communication between students and teachers in classrooms and other learning spaces without the use of electronic amplification systems. This standard is also intended to provide a minimum set of requirements that can be adopted by reference to this standard and enforced by an authority having jurisdiction.

## **2 Normative references**

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ANSI S1.1-1 994 (R2004), American National Standard Acoustical Terminology

ANSI S1.4-1 983 (R2006), American National Standard Specification for Sound Level Meters ANSI S1.13-2005, American National Standard Measurement of Sound Pressure Levels in Air

ANSI/ASA S12.9-1992/Part 2 (R2008), American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, Part 2: Measurement of Long-term, Wide-area Sound

ANSI/ASA S12.9-1993/Part 3 (R2008), American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, Part 3: Short-term Measurements with an Observer Present

ASTM E90-09, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

ASTM E336-08, Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings

ASTM E966-04, Standard Guide for Field Measurements of Airborne Sound Insulation of Building Façades and Façade Elements

ASTM E1 007-04e1, Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures

ASTM E1 332-90(2003), Standard Classification for Determination of Outdoor-Indoor Transmission Class

IEC 61672-1 :2002, Electroacoustics — Sound level meters — Part 1: Specifications

## **3 Definitions**

For the purposes of this standard, the terms and definitions given in ANSI S1.1 and the following apply. The definitions of acoustical terms given here are consistent with those given in ANSI S1.1 but may be simplified for the purposes of this document.

### **3.1 General terms**

3.1.1 Classrooms and other learning spaces. Locations within buildings where students assemble for educational purposes.

3.1.1.1 Core learning spaces. Spaces for educational activities where the primary functions are teaching and learning and where good speech communication is critical to a student's academic achievement. These spaces include, but are not limited to, classrooms (enclosed or open plan), instructional pods or activity areas, group instruction rooms, libraries, and offices used for educational purposes.

3.1.1.2 Ancillary learning spaces. Spaces where good communication is important to a student's educational progress but for which the primary educational functions are informal learning, social interaction, or similar activity other than formal instruction. These areas include, but are not limited to, corridors, cafeterias, gymnasias, and indoor swimming pools.

3.1.1.3 Relocatable classroom. Educational classroom structure that utilizes factory-built modular construction methods that can be efficiently, repeatedly transported over public roads without the removal of the floor, roof, or other significant structural modification, and that typically consists of one or two modules (units, boxes, floors), but can consist of multiple units. Frequently called portable classrooms, temporary classrooms, mobile classrooms, or learning cottages.

3.1.1.4 special-purpose classrooms. Teaching areas designed for specific activities where the finishes and building systems including lighting and HVAC systems are specifically designed to support the unique activities occurring in the spaces they serve. Examples could include art studios, kitchens, chemistry labs, metal shops, wood shops, and classrooms used primarily for instruction of children with special hearing problems or other learning disabilities.

3.1.2 Acoustical privacy. Pertains to the acoustical attenuation between spaces that is needed to prevent conversation in one space from being understood in an adjacent space.

### **3.2 Terms relating to acoustical performance and design**

3.2.1 Noise level or sound level. Generic terms employed interchangeably throughout this standard to represent the frequency-weighted sound pressure level of an airborne sound. This descriptor is used to express the magnitude of a sound in a manner related to how the ear perceives this magnitude. Noise level or sound level is expressed in decibels, unit symbol dB.

3.2.1.1 A-weighted sound level. Sound pressure level measured with a conventional frequency weighting that roughly approximates how the human ear hears different frequency components of sounds at typical listening levels for speech. The A-weighting (see ANSI S1.4 or IEC 61672-1) attenuates the low-frequency (or low-pitch) content of a sound. A-weighted sound level is expressed in decibels, unit symbol dB.

3.2.1.2 C-weighted sound level. Sound pressure level measured with a conventional frequency weighting (see ANSI S1.4 or IEC 61672-1) that does not significantly attenuate the low-frequency (or low-pitch) content of a sound. C-weighted sound level is expressed in decibels, unit symbol dB.

3.2.1.3 one-hour average A-weighted or C-weighted sound level. Level of the time-mean-square A-weighted or C-weighted sound pressure energy averaged over a one-hour period. One-hour average sound level is expressed in decibels, unit symbol dB.

3.2.2 Background noise level. Sound in a furnished, unoccupied learning space, including sounds from outdoors, building services, and utilities. For the purposes of this standard, this excludes sound generated by people within the building or sound generated by temporary or permanent instructional equipment.

3.2.2.1 interior-source background noise. Noise from building services and utilities.

3.2.2.2 exterior-source background noise. Noise from transportation sources, such as aircraft, vehicle traffic, or from other outdoor noise sources (e.g., industrial sources).

3.2.3 Reverberation. An acoustical phenomenon that occurs in an enclosed space, such as a classroom, when sound persists in that space as a result of repeated reflection or scattering from surfaces enclosing the space or objects in the space, such as chairs or cabinets.

3.2.3.1 Reverberation time. A measure of the amount of reverberation in a space and equal to the time required for the level of a steady sound to decay by 60 dB after it has been turned off. Reverberation time is expressed in seconds, unit symbol s.

NOTE For measurement of reverberation time see ASTM E2235.

3.2.4 Sound absorption and reflection. Acoustical phenomena that occur whenever sound strikes a surface. For purposes of the calculation or measurement of reverberation time, absorbed sound is the portion of the sound energy striking the surface that is not returned as sound energy. Reflected sound is the remaining portion that bounces off the surface.

3.2.4.1 Sound absorption coefficient. A measure of the ability of a material to absorb sound and equal to the ratio of the intensity of the absorbed sound to the intensity of the incident sound.

3.2.5 Attenuation of airborne sound. A measure of the decrease in sound level when sound passes through structures between spaces within a building, or from outside to inside.

3.2.5.1 Sound transmission class (STC). A one-number rating of the sound blocking ability of a partition, door, window, etc., calculated in accordance with ASTM E413 from one-third-octave band measurements made in a laboratory in accordance with ASTM E90.

3.2.5.2 Noise isolation class (NIC). A one-number rating of the attenuation of airborne sound between enclosed spaces calculated in accordance with ASTM E413 from one-third octave band measurements made in accordance with ASTM E336.

3.2.5.3 outdoor-indoor level reduction (OILR). A measure of the decrease in sound level (attenuation) in one-third octave bands when airborne sound passes from outdoors to indoors.

3.2.5.4 outdoor-indoor noise isolation class (OINIC). A one-number rating of the decrease in sound level (attenuation) when airborne sound passes from outdoors to indoors calculated in accordance with ASTM E1332 using values of outdoor-indoor level reduction instead of transmission loss.

3.2.6 structure-borne impact sound. The acoustical phenomenon of sound transmission due to impacts or other interaction of objects with a structure, the most common being footsteps on a floor.

3.2.6.1 Impact insulation class (IIC). Single number rating of structureborne noise radiated below by a floor or floor-ceiling assembly when tested in a laboratory in accordance with ASTM E492 and calculated in accordance with ASTM E989; abbreviation IIC.

NOTE 1 the rating is derived from the sound levels measured in the receiving room when a standard tapping machine is operating on the floor assembly above, adjusted to what they would be for a specific amount of absorption in the receiving space below  
NOTE 2 The higher the FIIC rating, the lower the impact sound levels.

3.2.6.2 Field impact insulation class (FIIC). Single number rating of the structureborne noise radiated below by a floor or floor-ceiling assembly when tested in the field in accordance with ASTM E1007 and calculated in accordance with ASTM E989; abbreviation FIIC.

NOTE 1 The rating is derived from the sound levels measured in the receiving room when a standard tapping machine is operating on the floor assembly above, adjusted to what they would be for a specific amount of absorption in the receiving space below.

NOTE 2 The higher the FIIC rating, the lower the impact sound levels.

NOTE 3 FIIC is also known as apparent impact insulation class, AIIC.

3.3 major renovation. Any reconstruction, rehabilitation, addition, or capital improvement of a structure, the cost of which equals or exceeds fifty percent of the market value of the structure itself before the start of construction of the improvement.

#### **4 Applications**

4.1 This standard applies to relocatable classrooms and other relocatable modular core learning spaces of small to moderate size with volumes not exceeding 566 m<sup>3</sup> (20 000 ft<sup>3</sup>) and to relocatable ancillary learning spaces of any volume. Learning spaces larger than the above volume limit shall be considered ancillary spaces for purposes of this standard. The standard does not apply to special-purpose classrooms such as music rooms, teleconferencing rooms, special-education rooms such as those for severely acoustically challenged students, or other spaces such as large auditoria that have unique or more stringent acoustical requirements.

4.2 The acoustical performance criteria and design requirements of this standard apply during the design and construction of all new relocatable classrooms or learning spaces of small to moderate size as specified in 4.1.

4.3 The acoustical performance criteria and design requirements of this standard apply during major renovation as defined in 3.3 of all relocatable classrooms or learning spaces of small to moderate size as specified in 4.1.

4.4 Relocation of a classroom shall not constitute new construction or major renovation. However, a relocated classroom shall continue to meet all the requirements of Clause 5 that were applicable to it before the relocation.

4.5 No renovations shall be allowed that diminish the acoustical performance of existing relocatable classrooms.

4.6 Sound reinforcement systems shall not be used as a substitute for meeting acoustical design requirements.

**5 Acoustical performance criteria and noise isolation design requirements and guidelines**

**5.1 Introduction**

Acoustical performance criteria and design requirements are contained in the following sub-clauses and are designed to ensure an appropriate acoustical learning environment. The performance criteria shall apply to relocatable classrooms and other relocatable modular core learning spaces and to ancillary learning spaces. For purposes of this standard it shall be assumed that the learning spaces are furnished consistent with their use and the building is unoccupied with doors and windows closed.

Acoustical design requirements for minimum noise isolation apply only to fully enclosed classrooms and learning spaces.

**5.2 Performance criteria for background noise**

**5.2.1 Exterior-source background noise**

**5.2.1.1** The one-hour average A-weighted exterior-source background noise level within the enclosed space for the noisiest continuous one-hour period during times when learning activities take place shall not exceed the limits specified in Table 1. The limits for the exterior-source background noise shall apply for the following conditions:

- 1) for the noisiest continuous one-hour period during times when learning activities take place;
- 2) portable and permanent (built-in) instructional equipment, such as computers and audiovisual equipment, are turned off.

**Table 1 — A-weighted sound levels of background noise and reverberation times in unoccupied, furnished learning spaces**

<u>Learning space a)</u>	<u>One-hour average A-weighted sound level of interior-source background noise b) (dB)</u>	<u>One-hour average A-weighted sound level of exterior-source background noise (dB)</u>	<u>Maximum reverberation time for sound pressure levels in octave bands with midband frequencies of 500, 1000, and 2000 Hz (s)</u>
Core learning space with enclosed volume ≤ 283 m <sup>3</sup> (≤ 10 000 ft <sup>3</sup> )	41 dBA upon adoption; 38 dBA in 2013; 35 dBA in 2017	35	0.5
Core learning space with enclosed volume > 283 m <sup>3</sup> and ≤ 566 m <sup>3</sup> (> 10 000 ft <sup>3</sup> and ≤ 20 000 ft <sup>3</sup> )	41 dBA upon adoption; 38 dBA in 2013; 35 dBA in 2017	35	0.6
All ancillary learning spaces	40 c)	40 c)	No requirement
a) See 3.1.1.1 and 3.1.1.2 for definitions of core and ancillary learning spaces.			
b) See 5.2.2.2 -5.2.2.4 for other limits on interior-source background noise.			
c) See 5.2.3 for limits in corridors adjacent to classrooms.			

5.2.1.2 When transportation or military sources are the dominant noise source(s), the one-hour average A-weighted sound level shall, where practical, be predicted using the methods and computer programs developed by the U.S. Department of Transportation or U.S. Department of Defense. These include Integrated Noise Model (INM) and Noisemap for aircraft noise, Traffic Noise Model (TNM) for road noise, and the Federal Transit Administration procedures for rail noise. These calculated levels shall be used in lieu of measured values to determine the exterior noise level.

5.2.1.3 The one-hour average A-weighted sound level for exterior source background noise, if measured, shall be measured in accordance with the procedures of Annex B based on guidance in ANSI/ASA S12.9 Part 2 or ANSI/ASA S12.9 Part 3 as applicable.

**5.2.2 Interior-source background noise**

**5.2.2.1 Limits on interior-source A-weighted background noise levels from building services and utilities and calculation of HVAC noise**

The one-hour average A-weighted level of interior-source background noise shall not exceed the limits specified in Table 1 when calculated as follows. The one-hour average A-weighted sound level for the HVAC shall be calculated using the duty cycles in Table 2 for 1-, 2-, and 3-stage HVAC systems. The noise level of the different stages, if measured, shall be measured in accordance with the procedures of Annex B. The one-hour average A-weighted sound level of any other building system noises (e.g., lighting) shall be added on an energy basis to the calculated one-hour average A-weighted sound level of the HVAC noise. Specifically, these "Integration Factors" shall be applied as indicated by the following example.

For a Type 3 unit, if the sound levels for the Maximum Capacity Heating, Low Capacity Heating, and Ventilation modes are 40, 35, and 32 dB, respectively, the energy average sound level for one-hour operation at the respective relative times of 17%, 25%, and 58%, will be:

$$10 \times \text{Log}_{10}[0.17 \times 10(40/10) + 0.25 \times 10(35/10) + 0.58 \times 10(32/10)] = 35.3 \text{ dB.}$$

**Table 2 — HVAC system duty cycles**

	<u>HVAC system operational modes integration factors a), b)</u>		
	<u>Single mode Type 1</u>	<u>Dual mode Type 2</u>	<u>Triple mode Type 3</u>
<u>Max. capacity heating or cooling</u>	100%	34%	17%
<u>Low capacity c) heating or cooling</u>	Not applicable	Not applicable	25%
<u>Ventilation d)</u>	Not applicable	66%	58%

Type 1 - represents systems that have a single stage and operational mode of performance.  
 Type 2 - represents systems that have a single stage of cooling or heating and a ventilation-only mode.  
 Type 3 - represents systems that have two stages of cooling or heating with an additional ventilation-only mode.  
 a) See clause 5.2.2.1 for a worked example.  
 b) These duty cycles are based on testing done over a one-year period with classrooms sited in Modesto and Fontana, California. The buildings sited in Modesto were selected because of their cold winters and hot summers, and the Fontana units were selected because of their high cooling demand and long cooling season. Both of these are inland locations and, thus, they represent a more challenging HVAC environment than do temperate coastal areas. This study was conducted by Lawrence Berkeley National Laboratory with support from the DOE and the California Energy Commission.  
 c) Low capacity shall be no lower than 60% of maximum capacity for the given time weight values to apply. If other values are used for low capacity they shall be accompanied by appropriate time weighting and sufficient information to substantiate the values chosen.  
 d) Ventilation shall be at least at the rate required by applicable code.

**5.2.2.2 Limits on interior-source C-weighted background noise levels from building services and utilities**

The maximum one-hour average C-weighted steady background noise levels from the combination of HVAC systems, lighting, and other building services and utilities operating simultaneously shall not exceed the limits on A-weighted interior-source background noise levels in Table 1 by more than 20 dB.

**5.2.2.3 Limits on disturbing sounds from building services and utilities**

Disturbing sounds, such as rumble, or the tones from hums, buzzes, whines, or whistles generated by HVAC systems and other building services and utilities shall be controlled so as to not interfere with speech communication or be distracting or annoying to the occupants of the learning spaces. Rumble can be quantified using the methods in ANSI/ASA S12.2 and there shall be no "clearly perceptible vibration and rattles" as required in Clause 6 of ANSI/ASA S1 2.2. Also, the prominence of any tones shall be quantified using the methods in ANSI S1.13 and there shall be no "prominent discrete tones" as defined in ANSI S1.13.

**5.2.2.4 Limits on time-varying noise levels from building services and utilities**

The A-frequency-weighted and SLOW time-weighted noise level at any usable location in a room from HVAC systems and other building services shall not vary by more than 3 dB during any 5 s period, except during transition between operating modes of the HVAC system.

**5.2.3 Background noise in corridors**

When corridors adjacent to classrooms are used solely for conveyance of occupants within the school building and structured learning activities do not occur there, the one-hour A-weighted steady background noise level for such corridors shall not exceed 45 dB.

**5.2.4 Computers and audio-visual equipment**

The limits on background noise do not apply to portable or permanent (built-in) instructional equipment such as computers and audiovisual equipment. Calculations of background noise shall not include such equipment and all measurements shall be made with such equipment turned off.

**5.3 Performance criteria for reverberation times**

The reverberation times shall not exceed the limits specified in Table 1.

**5.4 Noise isolation design requirements**

**5.4.1 Outdoor to indoor attenuation of airborne sound**

5.4.1.1 The exterior-source background noise is a function of two independent factors: (1) the exterior noise environment, and (2) the reduction of the exterior noise from outdoors to indoors by the building shell. It shall be the responsibility of the user, e.g., the school board, to determine and specify the site exterior noise environment,  $L_{site}$ , which is the one-hour average A-weighted sound level for the noisiest hour on the average (school) day during school hours. To this end, the user shall conduct a site assessment to determine the maximum outdoor one-hour average A-weighted sound level at the proposed location of the relocatable classroom. It shall be the responsibility of the user to specify, and the supplier to provide, a modular classroom with an Outdoor-Indoor Noise Isolation Class (OINIC) greater than:

$$OINIC_{min} = L_{site} - 35.$$

5.4.1.2 All newly constructed relocatable classrooms shall be designed to meet a minimum OINIC of 20 dB. For an OINIC of 20 dB, selected sites shall not exceed a one-hour average A-weighted sound level of 55 dB for the noisiest hour during the time of day that school is normally in session. For sites with a one-hour average A-weighted sound level exceeding 55 dB, schools shall follow the requirements in Table 3.

**Table 3 — OINIC rating for relocatable classroom**

<b>A-weighted outdoor noise level</b>	<b>OINIC rating for relocatable classroom</b>
≤ 55	20 dB
>55 dB and ≤ 60 dB	25 dB
>60 dB and ≤ 65 dB	30 dB

5.4.1.3 Sites with an outdoor one-hour average A-weighted sound level that exceeds 65 dB shall be acceptable only if the requisite sound reduction can be achieved.

5.4.1.4 Verification measurements, if required, shall be performed in accordance with Annex B.

**5.4.2 Indoor to indoor attenuation of airborne sound**

5.4.2.1 Wall and floor-ceiling assemblies that separate enclosed or open-plan core learning spaces from adjacent spaces shall be designed to achieve the minimum STC ratings specified in Table 4 when tested in accordance with ASTM E90 in a laboratory. The STC rating requirements of Table 4 also shall apply to the design of temporary partitions that subdivide a learning space.

5.4.2.2 All penetrations in sound-rated partitions shall be sealed and treated to maintain the required ratings. Attention shall be given to flanking paths that would reduce the isolation between spaces so as to achieve an overall isolation between two core learning spaces of at least NIC 45 if tested.

**Table 4 — Minimum STC ratings required for single or composite interior wall and floor-ceiling assemblies that separate an enclosed core learning space from an adjacent space**

<b>Adjacent space</b>			
<u>Other core learning space, speech clinic, health care room</u>	<u>Common use and public use toilet room and bathing room a)</u>	<u>Corridor, staircase, office or conference room b)</u>	<u>Music room</u>
50	53	45c)	60
<p>a) This requirement does not apply to a toilet that opens only to a single core learning space.</p> <p>b) For corridor, staircase, office or conference room walls containing doors, the basic wall exclusive of the door shall meet the STC rating shown. The door shall meet the requirements of 5.4.2.4.</p> <p>c) STC 50 for critical privacy conditions.</p>			

5.4.2.3 Except for walls containing doors between the core learning spaces and corridors, staircases, offices, or conference rooms, when a partition contains a door or window or is not of consistent construction throughout, the required minimum STC ratings in Table 4 apply to the overall composite partition. Basic wall assemblies which contain doors or interior windows with STC ratings less than those given in Table 4 shall have higher STC ratings sufficient to conform to the required minimum STC ratings of the composite construction. For walls containing doors to corridors or staircases, or to offices, conference rooms or toilets that open only to the one core learning space, the minimum STC ratings of Table 4 apply to the wall exclusive of the door. See B.3.1 .3 for the method to calculate the composite STC.

5.4.2.4 Interior doors into core learning spaces from corridors, stairways, offices, or conference rooms shall be capable of achieving STC 30 or higher in their operable condition. The STC rating for interior entry doors into music rooms from corridors or staircase areas shall be 40 or higher.

5.4.2. It shall be the responsibility of the user, e.g., the school board, to determine if and when the need for acoustical privacy around an office or conference room is critical. If so, then the minimum STC rating of the partitions around these specifically designated spaces shall be 50 or higher.

**5.4.3 Structureborne impact sound isolation**

The floor-ceiling assemblies of normally occupied rooms located above learning spaces shall be designed for an expected laboratory test rating of at least IIC 50 if above core learning spaces and IIC 45 if above ancillary learning spaces.

**5.5 Compliance testing**

This standard does not require compliance testing to demonstrate conformance. When optional tests are performed to verify conformance with the requirements of this standard, the procedures in Annex B shall be followed.

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**Annex A  
(Informative)  
Commentary**

Commentary-1.1.2 An objective of these performance criteria is to achieve a level of speech that is sufficiently high relative to the background noise level for listeners throughout the classroom or learning space. However, a requirement for the relative difference between speech levels and levels of background noise, usually referred to as the signal-to-noise ratio, is not within the scope of this standard.

Commentary-1.1.4 The background noise generated by occupants and instructional equipment can seriously degrade communication or speech intelligibility in learning spaces. This background noise should be evaluated in terms of the one-hour average A-weighted sound level.

Commentary-3.2.3.1 reverberation time. The decay rate depends on the amount of sound absorption in a room, the room geometry, and the frequency of the sound. In practice, the reverberation time is often measured by measuring a 20 or 30 dB decay and extrapolating that to the time required for a 60 dB decay.

Commentary-3.2.4 sound absorption and reflection. The magnitude of the reflected sound in a room is determined by the amount of sound absorption at the surfaces, the room geometry, and the frequency of the sound. As distance from a sound source in a classroom increases, the sound is increasingly dominated by reflected sound.

Commentary-3.2.4.1 sound absorption coefficient. The sound absorption coefficient of a material normally varies with frequency. It ranges from about 0.2 to about 1.0 for sound-absorbing materials, to less than 0.05 for a smooth, painted concrete floor. Sound absorption coefficients measured in a laboratory (that is, in a reverberation room) can be larger than 1.0 because of test method and sample size effects.

Commentary-3.2.5 attenuation of airborne sound. The attenuation of airborne sound depends on the sound reduction through these elements, on their size, on sound leakage around their periphery, on the sound absorption in the receiving space, and on the frequency of the sound.

Commentary-4.1 Conformance to the requirements of this standard should be considered to be a minimum goal for the acoustical qualities of such spaces, excluding auditoria. The standard does not provide recommendations for electronic aids for persons with hearing impairment.

Commentary-Table 1 — Maximum A-weighted steady background noise levels and maximum reverberation times in unoccupied, furnished learning spaces. Regarding note c), the use of corridors for formal learning purposes should be avoided. Regarding reverberation in core learning spaces with enclosed volumes >566 m3 (>20 000 ft3) and all ancillary learning spaces, this standard does not specify a mandatory reverberation time for these spaces; however, spaces larger than 566 m3 are not likely when using relocatable/modular construction.

Commentary-5.2.4 Background noise from instructional equipment. Control of such noise, especially from permanent built-in instructional equipment, should be carefully addressed in the planning stages for new and renovated schools.

Commentary-Table 2 Other situations may be substantially different in terms of percentages, but the decibel change is usually modest if the HVAC is one that was designed for that climate zone. For



example, in the clause 5.2.2.1 example, if the percent time of Max Fan and Low Fan were each to increase by about 50% (with a corresponding decrease in ventilation) to the percentages for Max Fan, Low Fan, and Ventilate of 25%, 40%, 35%, respectively, then the computed level goes up by just over 1 dB.

Commentary-5.4 Noise isolation design requirements. The first and most cost-effective step in achieving good noise isolation between learning spaces and other spaces in a school is accomplished in the facility planning stage. This includes optimizing the location of noisy spaces and activities to protect sensitive learning spaces. Where this is not possible, adequate noise isolation is needed.

Need for noise isolation. The acoustical performance criteria for background noise levels in 5.2 apply to unoccupied facilities. However, in occupied facilities, activity noises generated in one space can be transmitted through walls, floors, ceilings, and doors to adjacent learning spaces, thus contributing to the overall background noise level in those spaces. Adequate sound isolation is required to limit noise transmission between core learning spaces and adjacent spaces in occupied facilities. The minimum STC ratings of Table 4 are intended to provide this noise isolation for normal activities in adjoining spaces. Certain educational styles (such as open plan and group learning) intentionally avoid the use of full enclosures between learning groups. Sometimes, partial height sound barriers or no barriers at all separate adjacent learning groups. Adequate noise isolation between adjacent learning groups cannot be assured unless each learning group is fully enclosed by ceiling-height sound barriers. Because of the inherent low noise isolation, partially enclosed or unenclosed learning spaces are not recommended when good speech communication is desired. In occupied multistory educational facilities, the transmission of impact noise through the floor of the room above to the learning space below also contributes to the overall background noise level. To limit impact noise disturbances in learning spaces, this standard also provides minimum impact insulation class (IIC) design requirements for the floor-ceiling assemblies above learning spaces for multi-story educational facilities.

Caution on variability of sound isolation test results. The same wall or floor-ceiling assembly design when tested in a laboratory can achieve results over a significantly wide range. With enough tests a typical expected result can be established. A single test result can be unrepresentative. Likewise, there is a variation when tests are conducted in the field. The apparent performance of the partition in the field when rated by the apparent STC or FIC is virtually always less than the laboratory result due to flanking around the partition and possibly lesser quality construction. Flanking between adjacent classrooms in modular construction can be severe if details are not appropriately controlled. Specifically, the gypsum in side walls should not be continuous from one classroom to another. Floor flanking also can be a problem. On the other hand, the perceived overall isolation for airborne sound can be enhanced by strong absorption in the receiving room in comparison with the size of the partition. While this is factored into the NIC if measurements are done, the required STC values should not be reduced in anticipation of such absorption benefit still achieving the required NIC in a field test. Note that while a similar absorptive benefit can reduce the sound heard from impacts above, no credit for it is given in the required FIC result if measurements are made.

Ancillary learning spaces. Recommendations are given in Table A.1 for STC ratings for partitions (that is, walls and floor-ceiling assemblies) that enclose an ancillary learning space or that separate two ancillary spaces. When the partition includes two or more elements, such as doors, windows, or penetrations of the partition for HVAC ducts or other services, the STC of this composite construction also should conform to the recommendations of Table A.1.

Commentary-Table A.1 — Minimum STC ratings recommended for single or composite wall, floor-ceiling and roof-ceiling assemblies separating an ancillary space from an adjacent space.

<u>Receiving ancillary learning space</u>	<u>Adjacent space</u>			
	<u>Corridor or staircase a), common use, and public use toilet and bathing room b)</u>	<u>Music room</u>	<u>Office or conference room a)</u>	<u>Mechanical equipment Room f), cafeteria, gymnasium or indoor swimming pool</u>
<u>Corridor</u>	<u>45</u>	<u>60c)</u>	<u>45d)</u>	<u>55c)</u>
<u>Music Room</u>	<u>45</u>	<u>60</u>	<u>60e)</u>	<u>60</u>
<u>Office or conference room</u>	<u>45</u>	<u>60</u>	<u>45d)</u>	<u>60</u>
<p>a) <u>For</u> corridor, staircase, office or conference room walls containing entrance doors to the ancillary learning space, the STC rating of the basic wall, exclusive of the door, should be 45. The entrance door should conform to the requirements of 5.4.2.4.</p> <p>b) <u>The</u> STC rating for an ancillary space/toilet partition does not apply when the toilet is private and connected to a private office. An STC rating higher than 45 may be required for separating a quiet office or conference room from a common use or public use toilet or bathing room.</p> <p>c) <u>When</u> the corridor will not be used as an ancillary learning space, the minimum STC rating may be reduced to not less than 45. Use of corridors as ancillary learning spaces should be avoided when they are located next to the noisy spaces indicated in the table by the high STC ratings.</p> <p>d) <u>When</u> the need for acoustical privacy is critical, the STC rating should be increased to 50.</p> <p>e) <u>This</u> is justified to prevent the music space from interfering with the office or conference room.</p> <p>f) <u>When</u> the adjacent space is a mechanical equipment room containing fans circulating 140 m<sup>3</sup>/min (5000 ft<sup>3</sup>/min) or more, the minimum STC rating should be 60. When the fan circulation is less than this rate, the STC rating may be as low as 40 providing the maximum A-weighted steady background noise level in the adjacent ancillary learning space does not exceed 40 dB. The minimum STC rating includes the effect of any entry door(s) into the mechanical equipment room.</p>				

Commentary-5.4.2.3 Core learning spaces. Composite assemblies are walls, floor-ceiling and roof-ceiling constructions composed of more than one element (for example, a wall with a door, window, or penetrations by HVAC ducts or other services). This standard requires that walls between core learning spaces meet the composite STC requirement, which means that any door in such a wall will need to be acoustically rated. See 5.4.2.4 for special requirements for doors in corridor, office or conference room walls that are not required to meet the STC requirements for composite walls including the doors. Walls and floor-ceiling assemblies may not maintain their design STC rating if penetrations or openings for piping; electrical devices; recessed cabinets; soffits; or heating, ventilating or exhaust ducts are unsealed.

Commentary-5.4.2.4 Entry doors into classrooms and other core learning spaces. The intent of the STC 30 requirement is to require solid core wood doors or heavy-duty steel doors with good seals. The location of classroom entry doors across a corridor should be staggered to minimize noise transmission between these classrooms. Provisions should be made to ensure that the perimeter seals of sound rated doors are well maintained. Seals for entrance doors should be inspected and adjusted, as necessary, every six months. The gaskets of door seals should never be painted.

Commentary-5.4.3 Structureborne impact sound isolation. There is no way to mathematically predict what an IIC rating will be. Structures have to be tested. Very little if any test data is available for classroom-type structures. Almost all test data is for residential structures with gypsum ceilings. Achieving this rating with frame-type construction usually requires an isolated gypsum ceiling and a cushioning agent under a hard surface floor or the use of carpet. ANSI/ASA S12.60 currently requires the IIC requirements be met without carpet even if carpet is to be used.

## **Annex B (Normative)**

### **Verifying Compliance with the Background Sound Level Requirements by Measurement**

#### **B.1 Verifying compliance with the interior source background noise requirement**

**B.1 .1 Interior source background noise measurements shall be taken during time periods when the outdoor sound contribution to the indoor sound is minimal. Both background measurements and HVAC measurements shall be taken under nominally the same outdoor environment.**

**B.1 .2 Identify the listening area within the classroom where direct teacher and student speech communication generally takes place. With the HVAC and other noise sources operating in their respective noisiest operational mode, perform a quick acoustical survey of the classroom within that listening area. This shall be done at the potentially noisiest locations within the room, including at the HVAC inlet or outlet air ducts, in the vicinity of the HVAC equipment, or at any other location that the observer feels could be a significant source of interior-generated noise. Identify the noisiest location within the listening area using a sound level meter that conforms to the requirements for Type 1 in ANSI S1.4 or Class 1 in IEC 61672. The location with the highest A-weighted sound level shall be termed the "key" location.**

**B.1 .3 Measurements, including the above screening for the "key" location, shall be taken at any time such that outdoor noise contributes less than 0.5 dB to the measurement of the interior source background noise. The microphone shall be located at a height of 1.0 to 1.2 m (40 to 48 in.) above the floor; no closer than 1 m (40 in.) from a wall or fixed object such as HVAC plenum or bookshelves; and no closer than 0.5 m (20 in.) from a readily movable object such as a desk, chair, or table.**

**B.1 .4 At the key location, first measure the sound with the HVAC equipment turned off. Then take five consecutive A- and C-weighted 60-second time-average sound level measurements with the HVAC operating. If the measured A- and C-weighted levels with HVAC equipment operating are at least 6 dB higher than the background A- and C-weighted levels, respectively, then the HVAC noise shall be considered to be the primary source of interior noise. If the HVAC sound is the primary source of interior generated noise, then measurements shall be repeated in each operational mode of the HVAC equipment as described in Table 2; otherwise, the method of clause B.1 .8.2 shall be used.**

**B.1 .5 For heat pump systems, the sound testing shall be performed in the cooling mode if the outdoor ambient temperature is 10 °C (50 °F) or above and in the heating mode if the outdoor ambient temperature is below 10 °C (50 °F). For fuel furnaces and compressor cooling systems, the sound testing shall be performed in the cooling mode.**

**B.1 .6 The average of five consecutive 60-second measurements in each mode of operation shall be recorded. For each mode, it shall be determined if the background sound data are steady. The criterion for steady background sound data shall be that the difference between the highest and lowest data points of the five 60-second samples is not more than 3 dB.**

**B.1 .7 These data, if steady, then shall be used to calculate an integrated single value sound level using the percent factors from Table 2.**

**B.1 .8 If the background noise level is unsteady, then the source of the unsteadiness shall be determined—exterior or interior.**

**B.1 .8.1 If the source is exterior, then the interior-source background noise measurements shall be repeated at a time when the exterior noise is less. If no such time can be found, then it is likely that the outdoor sound is too great and it shall be measured.**

**B.1 .8.2 If the source is interior, then one-hour average A-weighted sound level measurements shall be taken and reported. These measurements shall be used in lieu of the five 60-second averages to determine the interior-source background noise level for the room at the key location.**

**B.1 .9 Measured results within 2 dB of the background noise criterion shall be reported as passing the test for meeting the background noise criterion.**

#### **B.2 Verifying compliance with the exterior source background noise requirement**

##### **B.2.1 Verifying compliance with the outdoor-to-indoor noise level reduction requirement**

**B.2.1.1 The OINIC shall be computed using the following 2-step process.**

**B.2.1.1.1 The OILR shall be measured in one-third octave bands from 80 to 4000 Hz following the guidance in ASTM E966.**

**B.2.1.1.2 The OINIC shall be calculated using the OILR data in accordance with the procedure described in ASTM E1332 using the values of OILR instead of transmission loss.**

**B.2.1 .2 In situ, the source and geometry are defined. In this case, if present with sufficient intensity, the actual major outdoor noise source (e.g., aircraft, road or rail traffic, industrial noise) shall be used for the OILR measurements at a specific application site; otherwise, an artificial noise source(s) shall be used. The space shall be evaluated with the surfaces exposed that would be exposed to the exterior sound in the application. Results within 2 dB of the stipulated OINIC rating shall be reported as verifying the stipulated OINIC rating.**

B.2.1 .3 At a factory when a classroom is being rated for general use, the source and exposure situation are not well defined. The classroom shall be rated based on the greatest exposure likely to occur. A modular classroom shall be assumed to have one, two, or three exposed surfaces (wall or roof section that can be the whole roof) as given in the following three cases:

B.2.1 .3.1 Case 1 – Three exposed surfaces. This case shall include two adjacent, (normally) perpendicular walls and the roof section adjacent to the two walls. This case occurs any time two or more adjacent walls of a classroom face the outdoors and the classroom is part of a single-story unit or on the top floor of a multi-story unit. Examples include a single, stand-alone classroom, a 2- classroom unit, or any corner unit that is either single story or occupies the top story.

B.2.1 .3.2 Case 2 – Two exposed surfaces. This case shall include either two adjacent walls or one wall with its adjacent roof section. The one wall with its adjacent roof section situation occurs for classrooms that adjoin three other interior spaces and that are part of a single-story facility or occupy part of the top floor of a multi-story facility. The two-wall situation occurs for any corner unit in a multistory facility that occupies any floor other than the top floor.

B.2.1 .3.3 Case 3 – One exposed surface. This case shall include one wall. It occurs for classrooms in a multi-story unit that horizontally adjoin three other interior spaces and that occupy any floor other than the top floor.

B.2.1.4 ASTM E966 describes methods to measure the OILR for single, individual partitions such as a wall alone or roof alone rather than a complete room with multiple surfaces exposed to the sound. When sound can enter the enclosed space through multiple surfaces, the sound through the various surfaces combines, and as a result the overall OILR and OINIC for the space will be less than (poorer than) that of the exposed surface that produces the lowest (poorest) OINIC.

B.2.1.4.1 If N multiple surfaces are sequentially exposed to sound and the OINIC determined for each without significant exposure of other surfaces, the overall OINIC for the room with all such surfaces exposed shall be computed from:

$$\text{OINIC}_{\text{Room}} = -10 \log (10 - (\text{OINIC}_1/10) \sim 10 - (\text{OINIC}_2/10) \sim \dots \sim 10 - (\text{OINIC}_N/10) ) \quad (\text{B.1})$$

where N is the number of surfaces exposed.

B.2.1.4.2 If the OINIC is evaluated for one surface of a space exposed and it is assumed that additional surfaces that would be exposed have the same ability to block sound, then the OINIC shall be estimated by:

$$\text{OINIC} = \text{OINIC}_{\text{meas}} - 10 \log (A / A_{\text{meas}}) \quad (\text{B.2})$$

where OINIC<sub>meas</sub> is the OINIC for the surface that is evaluated, A<sub>meas</sub> is the area of that surface, and A is the full area that would be exposed in the typical situation.

## **B.2.2 Determining or verifying the user-stipulated exterior-source, outdoor, free-field, loudest-hour environmental noise levels**

B.2.2.1 The one-hour average A-weighted sound levels shall be measured in accordance with ANSI/ASA S12.9 Part 2 and ANSI/ASA S12.9 Part 3, as applicable, and in accordance with ANSI S1 .13. Extraordinary sounds such as a vehicle crash, a loud plane where normally there are none, or siren where normally there are none, shall be excluded from the reported hourly environmental noise level.

B.2.2.2 Results within 2 dB of a previously estimated and stipulated one-hour average A-weighted sound level shall be considered as verifying the estimated and stipulated result.

## **B.3 Verifying inside-to-inside sound isolation**

### **B.3.1 Verifying inside-to-inside airborne sound isolation**

B.3.1 .1 The noise isolation class (NIC) between rooms shall be measured in accordance with ASTM E336.

B.3.1.2 Where a requirement exists for a composite partition including floor-ceilings to meet a specified STC, an NIC within 5 points of the specified STC shall be considered as verifying the specified performance.

B.3.1 .3 In some cases walls containing doors, such as corridor walls, are exempt from the composite STC requirement. However, a minimum expected STC of the composite wall can be calculated based on the areas of the door and wall and the minimum required STC of each. The approximate expected composite STC of the wall with the door can be estimated from:

$$\text{Composite STC} = 10 \log (A_w \sim A_d) - 10 \log \{ A_w \times 10^{(-\text{STC}_w/10)} \sim A_d \times 10^{(-\text{STC}_d/10)} \} \quad (\text{B.3})$$

where

A<sub>w</sub> is the area of the wall exclusive of the door;

A<sub>d</sub> is the area of the door;

STC<sub>w</sub> is the STC of the wall exclusive of the door;

STC<sub>d</sub> is the STC of the door and its seals.

This result can then be compared to a measured NIC for evaluation. For a more accurate result, the above equation should be applied to the result at each of the one-third-octave bands included in the STC to get a composite result in each band, and the composite STC determined from those results in accordance with ASTM E413.

### **B.3.2 Verifying inside-to-inside impact sound isolation**

B.3.2.1 The field impact insulation class (FIIC) shall be measured in accordance with ASTM E1007.

B.3.2.2 A resulting FIIC within 5 points of the specified IIC shall be considered as verifying specified performance.

## **Bibliography**

ANSI/ASA S1 2.2-2008. American National Standard Criteria for Evaluating Room Noise

ANSI/ASA S1 2.60-2002 (R 2009). American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools

ASTM E41 3-04 (2009). Standard Classification for Rating Sound Insulation

ASTM E492-09. Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine

ASTM E989-06. Standard Classification for Determination of Impact Insulation Class (IIC)

Committee Action:                    AS                    AM                    D

808 (New)-SNYDER.doc

## 9-1 – 12

### 901.1, 905.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**901.1 Scope.** ~~Built-in~~ furnishings and equipment required to be accessible by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of Chapter 9.

**905.1 General.** Accessible built-in storage facilities shall comply with Section 905.

**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 provisions for dining and work surfaces and benches (when required) are applicable to loose and 'built-in' elements. Sales and service counters are typically furnishings that are permanent during the life of the store; built-in is not the issue. There is an argument for storage facilities to be limited to built-in, just so you pick up cabinets and closets and not file cabinets and desks.

Committee Action:           AS                   AM                   D

901.1-PAARLBERG.doc

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## 9-2- 12

### 902.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**902.2 Clear Floor Space.** A clear floor space complying with Section 305, positioned for a forward approach, shall be provided. Knee and toe clearance complying with Section 306 shall be provided. The clear floor space shall be centered on the work surface.

**EXCEPTIONS:**

1. At drink surfaces 12 inches (305 mm) or less in depth, knee and toe space shall not be required to extend beneath the surface beyond the depth of the drink surface provided.
2. Dining surfaces that are 15 inches (380 mm) minimum and 24 inches (610 mm) maximum in height are permitted to have a clear floor space complying with Section 305 positioned for a parallel approach.

**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.

Section 1003.12.3.1 requires that the clear floor space at the kitchen work surface be centered. Section 1003.12.3. applies to Type A kitchens. For kitchens in Accessible units, the work surface is regulated by Section 902. 902 doesn't require then centering. For consistency the centering should be added to the Accessible units or removed from the Type A requirements.

Committee Action:           AS                   AM                   D

902.2-PAARLBERG.doc

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## 9-3 – 12

### 902.2

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

**902.2 Clear Floor Space.** A clear floor space complying with Section 305, positioned for a forward approach, shall be provided. Knee and toe clearance complying with Section 306 shall be provided.

**EXCEPTIONS:**

1. ~~At drink surfaces 12 inches (305 mm) or less in depth, knee and toe space shall not be required to extend beneath the surface beyond the depth of the drink surface provided.~~
2. ~~Dining surfaces that are 15 inches (380 mm) minimum and 24 inches (610 mm) maximum in height are permitted to have a clear floor space complying with Section 305 positioned for a parallel approach.~~

**Reason:** The only exception in the 2010 Standards that would allow a side approach is in 902.4 Dining Surfaces and Work Surfaces for Children's Use.

As written, the dining and work surfaces that meet exception #1 and #2 are not exclusively for children's use. Dining and work surfaces designed to the exceptions in A117.1's 902.2 can be found not in compliance with the 2010 ADA Standards. For harmonization with the 2010 ADA Standards, exceptions #1 & #2 should be deleted.

Committee Action:           AS                   AM                   D

902.2-WAI.doc

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## 9-4 – 12

### 903.2

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

**Revise as follows:**

**903.2 Clear Floor Space.** A clear floor space complying with Section 305, positioned ~~for a parallel approach to the bench seat, shall be provided.~~ at the end of the bench seat and parallel to the short axis of the bench.

**Exception.** A clear floor space positioned for a parallel approach to the bench seat, shall be permitted where it provides equivalent or greater accessibility.

**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 for 903.2:** A117.1 specifically states a parallel approach. ADA specifically states a location at the end of the bench. The HTG believes that the A117.1 provides better access, but recognizes that the ADA has a very specific requirement here. The amendment places the ADA language as the requirement and allows a parallel approach as an exception where equivalent or greater accessibility is provided. While the latter phrasing is redundant with Section 103, it is important to state it in this exception.

Committee Action:      AS                      AM                      D

903.2-ROETHER.doc

## 9-5 – 12

### 903.5, Figure 903

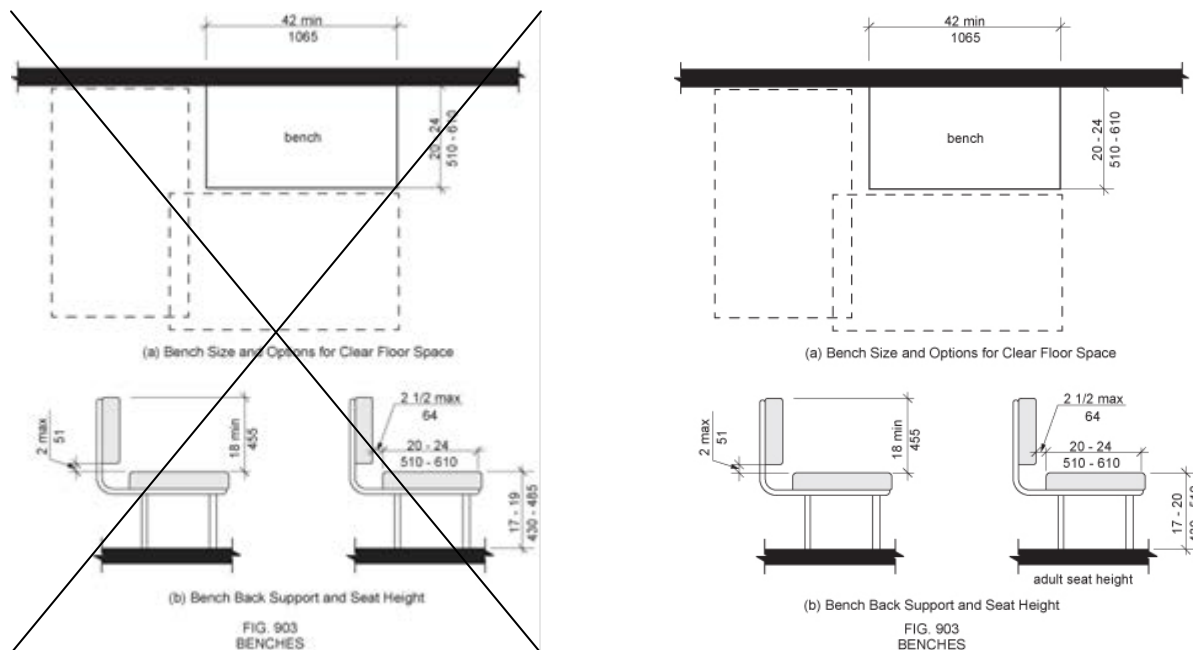
**Proponent:** Edward Steinfeld, IDEA Center, School of Architecture and Planning, University at Buffalo, State University of New York

**Revise as follows:**

**903.5 Height.** The top of the bench seat shall be 17 inches (430 mm) minimum and ~~19~~ 20 inches (485 510 mm) maximum above the floor, measured to the top of the seat.

#### **EXCEPTIONS:**

1. Benches primarily for children's use shall be permitted to be 11 inches (280 mm) minimum and 17 inches (430 mm) maximum above the floor, measured to the top of the seat.
2. An accessible seat which is adjustable in height is permitted to provide adjustability within a range of 11 inches (280 mm) minimum to 25 inches (635 mm) maximum, provided that at least one adjustment setting provides a seat within the range specified in Section 903.5.



**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 addition to the findings reported in Steinfeld, et al., 2010, the IDeA Center developed a Design Resource entitled, *Analysis of Seat Height for Wheeled Mobility Devices* that provides more detailed information about the study reported in Steinfeld, et al., 2010. *Analysis of Seat Height for Wheeled Mobility Devices* indicates that the current maximum height of 19 inches (485 mm) accommodates 51% of female manual wheelchair users, 30% of manual wheelchair users, and fewer than 20% of power and



scooter users. The report indicates a seat height of 25 inches (635 mm) would accommodate over 95% of all wheeled mobility device users (D'Souza and Steinfeld, 2011, pg. 5).

Increasing the maximum seat height to 20 inches (510 mm) would allow 75% of female manual wheelchair and 53% of male manual wheelchair users (D'Souza and Steinfeld, 2011, pg. 5) to transfer comfortably. Comfort in this case is determined by how closely the height of the transfer surface matches the height of a wheelchair seat. Steinfeld, et. Al., 2010 (pg. 85) report that "keeping the height of a transfer surface close to the height of a wheelchair seat reduces the effort necessary to transfer and provides a safer environment."

However, a fixed seat any higher than 20 inches (510 mm) would likely disadvantage people of short stature, particularly if it was the *only* seat. Encouraging innovation would help to accommodate a greater number of wheeled mobility users without disadvantaging people of short stature. Adjustability is the best option to accommodate the widest population but in the meantime, the upper limit should be raised to 20 inches (Steinfeld, et al., 2010, pgs. 85-86).

NOTE: This change necessitates a change to Fig. 903 to ensure consistency. Thus, the proposed revised figure has been attached, along with the existing figure for comparison purposes.

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

D'Souza, C. and Steinfeld, E. (2011). *Analysis of Seat Height for Wheeled Mobility Devices*. 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.

Committee Action:                   AS                   AM                   D

903.5-STEINFELD.doc

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## 9-6 – 12

### 904.3

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

**Revise as follows:**

**904.3 Sales and Service Counters.** Sales and service counters shall comply with Section 904.3.1 or 904.3.2. The accessible portion of the countertop shall extend the same depth as the sales and service countertop.

**EXCEPTION:** In *alterations*, when the provision of a counter complying with Section 904.4 would result in a reduction of the number of existing counters at work stations or a reduction of the number of existing *mail boxes*, the counter shall be permitted to have a portion which is 24 inches (610 mm) long minimum complying with Section 904.4.1 provided that the required clear floor *space* is centered on the *accessible* length of the counter.

**Add new Figure**

Figure 904.3 (Exception) Alteration of Sales and Service Counters

**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 for 904.3** ADA has added the exception. A117.1 does not have anything equivalent in this portion of the code..

Committee Action:      AS                      AM                      D

904.3-ROETHER.doc

**9-7 – 12**  
**904.3**

**Proponent:** M. Bradley Gaskins, AIA, CASp, The McIntosh Group, LLC, representing National Association of Convenience Stores

**Revise as follows:**

**904.3 Sales and Service Counters.** Sales and service counters shall comply with Section 904.3.1 or 904.3.2. The accessible portion of the countertop shall extend the same depth as the public side of the sales and service countertop or where a split-height public-side countertop is provided, the depth of the accessible portion shall be equivalent to the upper portion depth.

**Reason:** This section is constantly being misapplied such that the sales and service countertop is being required to extend from the front to the back edge at the same level. There are no height requirements for the non-public or employee side of the countertop and the language should be clarified. Reading from the DOJ 2010 ADA Standards Guidance we see "Where the counter is a split-height counter, this requirement applies only to the customer side of the counter top." Further discussion with the DOJ about the intent of a split height-counter is that the desire is not for the counter to extend the full depth of the public side either, but that the lower portion of the public side be equivalent to the upper portion of the public side.

Committee Action:           AS                   AM                   D

904.3-GASKINS.doc

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## 9-8 – 12

### 904.3

**Proponent:** Gail Himes, City of Tacoma, Washington

**Revise as follows:**

**904.3 Sales and Service Counters.** Sales and service counters shall comply with Section 904.3.1 or 904.3.2. The accessible portion of the countertop shall extend the same depth as the sales and service countertop. The accessible countertop shall be the same height and the same length for the entire depth of the counter.

**Reason:** This change would clarify that the counter height must be consistent for the entire depth, and avoid 36" high "walls" and "reach over counters." The length must be uniform for the entire depth to avoid "trapezoidal" configurations where the service side is narrower than the customer side.

Committee Action:           AS                   AM                   D

904.3-HIMES.doc

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## 9-9 – 12

### 904.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**904.3 Sales and Service Counters.** Sales and service counters and windows shall comply with Section 904.3.1 or 904.3.2. Where counters are provided, the accessible portion of the countertop shall extend the same depth as the sales and service countertop.

**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 main text was changed last cycle to include windows, but there were no provisions in the technical requirements for what was applicable.

Committee Action:           AS                   AM                   D

904.3 #1-PAARLBERG.doc

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# 9-10 – 12

## 904.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**904.3 Sales and Service Counters.** Sales and service counters shall comply with Section 904.3.1 or 904.3.2. The accessible portion of the countertop shall extend the same depth as the sales and service countertop. The accessible portion of sales and service counter shall be located so that a person using a wheelchair is visible to the staff behind the counter.

**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 current text allows for obstructed counters so that you cannot have the interaction with the service personnel.



Committee Action:           AS                   AM                   D

904.3 #2-PAARLBERG.doc

## 9-11 – 12

### 904.3.1

**Proponent:** Gail Himes, City of Tacoma, Washington

**Revise as follows:**

**904.3.1 Parallel Approach.** A portion of the counter surface 36 inches (915 mm) minimum in length and 36 inches (915 mm) maximum in height above the floor shall be provided. Where the counter surface is less than 36 inches (915 mm) in length, the entire counter surface shall be 36 inches (915 mm) maximum in height above the floor. A clear floor space complying with Section 305, positioned for a parallel approach adjacent to and centered on the accessible counter, shall be provided.

**Reason:** This proposed change would ensure consistent access to a counter. Changes in direction of counters or other building obstructions such as walls or columns can create a condition where building designers want to offset the clear floor space from the accessible counter..

Committee Action:           AS                   AM                   D

904.3.1-HIMES.doc

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## 9-12 – 12 905 (New)

**Proponent:** Kim Paarlberg, International Code Council

**Add new text as follows:**

### **905 Gaming machines and tables**

**905.1 Clear Floor Space.** Accessible gaming machines and tables shall have a clear floor space complying with Section 305 positioned for transfer or for use by an individual seated in a wheelchair. Clear floor spaces required at gaming machines and tables shall be permitted to overlap.

**EXCEPTION:** Gaming tables or machines complying with Section 902 are not required to comply with Section 905.1.

**905.2 Operable parts.** Operable parts on gaming machines and tables shall not be required to comply with Section 309.

**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.

A code change was passed in the IBC that requires one of each type of gaming machine or table to be accessible. The above is an attempt at providing appropriate technical criteria in A117.1. The options are providing a table with knee and toe clearances complying with the same provisions as a work surface, or providing the option of moving to the area of a table or machine and transferring to a seat.

Committee Action:           AS                   AM                   D

905 (New)-PAARLBERG.doc

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# 9-13 – 12

## 905.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**905.1 General.** Accessible storage facilities shall comply with Section 905.

**EXCEPTION:** Kitchen cabinets are not required to comply with Section 905.

**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 is intended as a coordination change related to revisions that were made in the 2009 edition of the standard. In the 2009 development cycle the requirements for kitchen storage in the general kitchens, Accessible units and Type A units were modified. See Sections 804.5, 1002.14, 1003.12.5 and 1003.14 from the 2003 standard; and compare to the 2009 edition where:

- (a) the general kitchen storage requirements were deleted,
- (b) the Accessible unit storage provisions were modified to exclude kitchen cabinets,
- (c) the Type A unit kitchen storage requirements were deleted, and
- (d) the Type A unit storage requirements were modified to exclude kitchen cabinets.

While the 2003 edition had a section to specifically address the storage in a general kitchen (Section 804.5 in 2003) there is no comparable section within the 2009 standard. This has caused users to now turn to the general storage requirements of Section 905 and to begin trying to apply them to the general kitchens that are constructed using Section 804.

While it is possible to point to the "intent" of the previous code change, (explaining that 804.5 was removed; plus pointing to the related changes in 1002.14 and 1003.14) there is no language within the standard that would indicate the kitchen cabinets in Section 804 are not required to meet the general storage provisions. Under the 2003 standard it could be argued that the kitchen storage requirements of Section 804.5 were a specific requirement and therefore the provisions of 905 did not apply. With the loss of Section 804.5 there is no longer a specific requirement and therefore it appears that the general requirements may be applicable.

The proposal shown above will really only affect the kitchens constructed under Section 804 since the Accessible units and Type A units already have a similar exception in Sections 1002.14 and 1003.14. The Type B units do not have a storage requirement but could also use this exception if someone did try to impose the general storage requirements on a Type B unit.

The only other option that I can see to clarify this issue is to add a new section into Section 804 and specifically state that kitchen cabinets are not required to comply with Section 905. That would be unusual from a format standpoint because it would simply say something was not required even though there is no longer a base paragraph which would indicate that element is regulated.

Committee Action:                    AS                    AM                    D

905.1-PAARLBERG.doc

## 10-1 – 12

### Chapter 10, Chapter 11

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

**Revise as follows:**

**Chapters 10 and 11:**

Renumber all sections the standard to exchange the order of these 2 chapters.

**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 for Chapter 10 and 11:** ADA's Chapter 10 is Chapter 11 in the A117.1. ADA doesn't have the equivalent of the A117.1 Chapter 10 because it has less focus on dwelling and sleeping units. Changing the order will allow ease of communication for people trying to compare ADA and A117.1 requirements.

Committee Action:      AS                      AM                      D

Chapter 10-ROETHER.doc

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## 10-2 – 12

### 1001.2 (NEW)

**Proponent:** Larry Nordin, Solomon Cordwell Buenz

**Add new text as follows:**

**1001.2 Mail Boxes.** Where mail boxes are provided for individual dwelling and sleeping units, a mail box complying with Section 309 shall be provided for each Accessible and each Type A unit.

**Reason:** The purpose of the proposed added section is to define the accessibility requirements for the mailboxes for the Accessible Type A units. The proposed wording is taken from ADA 2010-228.2.

If a reach range definition is desired for the type B units, I would suggest that the USPS standard be used as a guideline. The USPS limits the heights of mailboxes based upon their mail carrier standards. The USPS limits are between 28" to the bottom of the lowest mail box and 67" to the operable hardware of the highest mail box.

Section 309 requirements should not be placed on the Type B units due to the other considerations such as people with back ailments. When Section 309 requirements are applied on the Type B unit mail boxes, the size of a mail room practically doubles in size, especially in large residential buildings.

Committee Action:           AS                   AM                   D

1001.2 (NEW)-NORDIN.doc

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## 10-3 – 12

### 1002.3.1, 1003.3.1

**Proponent:** Rebecca Ingram, representing herself

**Revise as follows:**

**1002.3.1 Location.** At least one accessible route shall connect all accessible spaces and accessible elements that are a part of the unit. Accessible routes shall coincide with or be located in the same area as a general circulation path.

**EXCEPTION:** An accessible route is not required to unfinished attics and unfinished basements that are part of the unit.

**1003.3.1 Location.** At least one accessible route shall connect all accessible spaces and accessible elements that are a part of the unit. Accessible routes shall coincide with or be located in the same area as a general circulation path.

**EXCEPTION:** An accessible route is not required to unfinished attics and unfinished basements that are part of the unit.

**Reason:** This proposal was received late in the previous development cycle as a suggested editorial revision. Because it appeared to be more than an editorial revision and due to when it was submitted, it was not dealt with at that time.

This proposal was submitted to help clarify how the accessible route requirements should be coordinated with the changes made in the 2009 edition of the standard which require “at least one” toilet and bathing room” to be accessible (Accessible and Type A units) and “at least one sleeping area” to include bed access (Accessible units). This suggested revision provides a limitation for the accessible route if it is serving toilet rooms and bathrooms that are not required to comply with Sections 1002.11.2 or 1003.11.2.

While the standard clearly indicates that only one bathroom and one bedroom are regulated, it does not indicate whether an accessible route is required to all spaces (including bedrooms and bathrooms that are not required to be accessible) or just to accessible spaces. The committee’s discussion and action on this item will clarify how the accessible route should be applied to the various accessible or nonaccessible areas of the unit.

One question of concern that was not addressed by the original proponent was how this would coordinate with the Type B and Fair Housing requirements which are shown in Section 1004.3.1. Since the Type B provisions also require an accessible route to “all spaces and elements that are a part of the unit” it would seem that revising the Accessible and Type A units to requiring access only to the accessible spaces and elements would take those units out of conformance with the Type B requirements and jeopardize their ability to substitute for the Type B units and to meet Fair Housing. So while the original proponent’s concept and concern which was related to transient lodging (R-1) seems reasonable regarding access to the nonaccessible bathroom in an Accessible unit, it definitely is more than an editorial change when compared with the Type B unit provisions. Perhaps this proposal should either be submitted to the scoping document/model building code, or another option may be the following wording:

**1002.3 Accessible Route.** Accessible routes within Accessible units shall comply with Section 1002.3.

**1002.3.1 Location.** At least one accessible route shall connect all spaces and elements that are a part of the unit. Accessible routes shall coincide with or be located in the same area as a general circulation path.

**EXCEPTIONS:**

1. An accessible route is not required to unfinished attics and unfinished basements that are part of the unit.
2. In transient lodging facilities that are not intended to be occupied as a residence, the accessible route is not required to the following:
  - 2.1 Toilet and bating areas which are not required to comply with Section 1002.11.2
  - 2.2 Sleeping areas which are not required to comply with Section 1002.15.

Committee Action:            AS                            AM                            D

1002.3.1-ingram.doc

## 10-4 – 12

### 1002.5, 1003.5

**Proponent:** Kim Paarlberg, International Code Council

#### **Revise as follows:**

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

#### **EXCEPTIONS:**

1. Existing doors to hospital patient sleeping rooms shall be exempt from the requirement for space at the latch side provided the door is 44 inches (1120 mm) minimum in width.
2. In toilet rooms and bathrooms not required to comply with Section 1002.11.2, maneuvering clearances required by Section 404.2.3 are not required on the toilet room or bathroom side of the door.
3. A turning space between doors in a series as required by Section 404.2.5 is not required.
4. Storm and screen doors are not required to comply with Section 404.2.5.
5. Communicating doors between individual sleeping units are not required to comply with Section 404.2.5.
6. At other than the primary entrance door, where exterior space dimensions of balconies are less than the required maneuvering clearance, door maneuvering clearance is not required on the exterior side of the door.
7. The maneuvering clearances required by Section 404 are not required within a closet or pantry complying with Exception 2 of Section 1002.3.2.

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

#### **EXCEPTIONS:**

1. Thresholds at exterior sliding doors shall be permitted to be  $\frac{3}{4}$  inch (19 mm) maximum in height, provided they are beveled with a slope not greater than 1:2.
2. In toilet rooms and bathrooms not required to comply with Section 1003.11.2, maneuvering clearances required by Section 404.2.3 are not required on the toilet room or bathroom side of the door.
3. A turning space between doors in a series as required by Section 404.2.5 is not required.
4. Storm and screen doors are not required to comply with Section 404.2.5.
5. Communicating doors between individual sleeping units are not required to comply with Section 404.2.5.
6. At other than the primary entrance door, where exterior space dimensions of balconies are less than the required maneuvering clearance, door maneuvering clearance is not required on the exterior side of the door.
7. The maneuvering clearances required by Section 404 are not required within a closet or pantry complying with Exception 2 of Section 1003.3.2.

**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 is intended to coordinate with a change made in Sections 1002.3.2 and 1003.3.2 of the 2009 standard and to clean up a technical inconsistency.

The 2009 standard added an exception for Accessible and Type A units which eliminates the turning space requirements from small closets and pantries. Because the doors to these spaces are still considered as being "intended for user passage", the standard would technically still require the door maneuvering space within the closet. Since the space is of such a limited size and

will not provide adequate space to turn around, the door will only be approachable from within the space by reversing the course used to enter. In addition, the size of the closet or pantry is limited to maximum 48 inch depth although most maneuvering clearances require a 48 inch minimum depth or greater. Therefore none of the door maneuvering clearances specified in Section 404 would work within the space.

I have submitted this proposal to only address the closets and pantries which are addressed in Exception 2 of both Sections 1002.3.2 and 1003.3.2. I believe it is easily apparent that the exclusion of door maneuvering clearances is appropriate for those situations. In reality, the new exceptions should address any space which does not provide a turning space within the room. Therefore I will suggest an alternate for the committee to consider which would pick up both the toilet and bathing rooms of Exception 1 (Sections 1002.3.2 and 1003.3.2) as well as the closets and pantries mentioned previously. The suggested alternate would be:

7. The door maneuvering clearances from Section 404 are not required within a room or space which does not provide a turning space complying with Section 1002.3.2. (1003.3.2 for Type A)

While it may seem to be a bigger issue to eliminate the door maneuvering clearance within the nonaccessible toilet and bathing rooms; the reality of the matter is that regardless of what the space is, if there is no adequate space to turn around within it, then there is no option to approach the door from any direction other than by reversing the entry path.

Committee Action:                    AS                    AM                    D

1002.5-PAARLBERG.doc

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## 10-5 – 12

### 1002.5

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

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

**EXCEPTIONS:**

1. Existing doors to hospital patient sleeping rooms shall be exempt from the requirement for space at the latch side provided the door is 44 inches (1120 mm) minimum in width.
2. In toilet rooms and bathrooms not required to comply with Section 1002.11.2, maneuvering clearances required by Section 404.2.3 are not required on the toilet room or bathroom side of the door.
3. A turning space between doors in a series as required by Section 404.2.5 is not required.
4. Storm and screen doors are not required to comply with Section 404.2.5.
5. Communicating doors between individual sleeping units are not required to comply with Section 404.2.5.
6. ~~At other than the primary entrance door, where exterior space dimensions of balconies are less than the required maneuvering clearance, door maneuvering clearance is not required on the exterior side of the door.~~

**Reason:** Accessible units apply to Group I occupancies, similar to “transient lodging” in the 2010 ADA Standards. Section 806.2.3 of the 2010 ADA Standards requires “Exterior Spaces”, which would include balconies, to be accessible. For harmonization with the 2010 ADA Standards, exception #6 should be deleted.

Committee Action:           AS                   AM                   D

1002.5-WAI.doc

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## 10-6 – 12

### 1002.9, 1003.9

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

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

**EXCEPTIONS:** (no change to exceptions)

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

**EXCEPTIONS:** (no change to exceptions)

**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 text related to the operating hardware for operable windows should be eliminated from Sections 1002.9 and 1003.9 since it will create confusion and conflicts with the revised window requirements that were put into Sections 1002.13 and 1003.13 during the development cycle for the 2009 standard.

The requirements for windows in Sections 1002.13 and 1003.13 only reference specific sections of Section 309 while the operable parts requirements of Sections 1002.9 and 1003.9 reference all of Section 309. Therefore the operable parts sections are requiring compliance with portions of Section 309 that are not required by the window provisions.

If the committee does not want to delete the indicated text from Sections 1002.9 and 1003.9 then an additional exception should be added to those sections which would reference the window provisions of Section 1002.13 or 1003.13 respectively.

Committee Action:           AS                   AM                   D

1002.9-PAARLBERG.doc



## 10-7 – 12

### 1002.9, 1003.9, 1004.9

**Proponent:** Dominic Marinelli, representing United Spinal Association

#### Revise as follows:

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

#### EXCEPTIONS:

1. Receptacle outlets serving a dedicated use.
2. ~~Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with 309.~~ In kitchens, kitchenettes, toilet and bathing facilities, receptacle outlets and switches shall comply with Section 1002.9.1.
3. Floor receptacle outlets.
4. HVAC diffusers.
5. Controls mounted on ceiling fans.
6. Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible.
7. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
8. Electrical panelboards shall not be required to comply with Section 309.4.

**1002.9.1 Receptacle outlets and switches in kitchens, kitchenettes and toilet and bathing facilities.** Receptacle outlets and switches in toilet and bathing facilities complying with Section 1002.11.2 and kitchens shall be provided as specified in Sections 1002.9.1.1 through 1002.9.1.4. Outlets and switches in toilet and bathing facilities not complying with Section 1002.11.2 and kitchenettes shall be provided as specified in Sections 1002.9.1.3 and 1002.9.1.4.

**1002.9.1.1 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 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 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.

**1002.9.1.2 Receptacle outlets required in toilet and bathing facilities.** In toilet and bathing facilities complying with Section 1002.11.2, an outlet shall be provided on one side of the lavatory complying with Section 606, less than 12 inches horizontally from the inside face of the lavatory bowl.

**1002.9.1.3 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 <sup>1</sup>/<sub>2</sub> 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.

**1002.9.1.4 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 1002.9.1.1 Item 2.
3. Redundant controls for range hoods are permitted over the work surface complying with Section 308.2.2 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.

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

**EXCEPTIONS:**

1. Receptacle outlets serving a dedicated use.
- ~~2. Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with Section 309. Receptacle outlets and switches in kitchens, kitchenettes and toilet and bathing facilities shall comply with Section 1003.9.1.~~
3. Floor receptacle outlets.
4. HVAC diffusers.
5. Controls mounted on ceiling fans.
6. Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible.
7. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
8. Electrical panelboards shall not be required to comply with Section 309.4.

**1003.9.1 Receptacle outlets and switches in kitchens and bathrooms.** Receptacle outlets and switches in bathrooms complying with Section 1003.11.2 and in kitchens, shall be provided as specified in Sections 1003.9.1.1 through 1003.9.1.4. Receptacle outlets and switches in toilet and bathing facilities not complying with Section 1003.11.2 and kitchenettes shall be provided as specified in Sections 1003.9.1.3 and 1003.9.1.4.

**1003.9.1.1 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 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 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.

**1003.9.1.2 Receptacle outlets required in toilet and bathing facilities.** In toilet and bathing facilities complying with Section 1003.11.2, a receptacle outlet shall be provided on one side of the lavatory complying with Section 1003.11.2.2, less than 12 inches horizontally from the inside face of the lavatory bowl.

**1003.9.1.3 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 receptacle outlet per counter length shall be located a minimum of 12 inches horizontally away from 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 <sup>1</sup>/<sub>2</sub> inches (650 mm) maximum in depth.

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

**1003.9.1.4 Switches.** In kitchens, kitchenettes, and toilet and bathing 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 outlets in Section 1003.9.1.1 Item 2.
3. Redundant controls for range hoods are permitted over the counter adjacent to the range or cooktops at a location where access to controls does not require reaching across burners.

**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.

**EXCEPTIONS:**

1. Receptacle outlets serving a dedicated use.
2. ~~Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with Section 309. Outlets and switches in kitchens, kitchenettes and toilet and bathing facilities that comply with Section 1004.9.1.~~
3. Floor receptacle outlets.
4. HVAC diffusers.
5. Controls mounted on ceiling fans.
6. Controls or switches mounted on appliances.
7. Plumbing fixture controls. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
8. 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.
9. ~~Within kitchens and bathrooms, lighting controls, electrical switches and receptacle outlets are permitted to be located over cabinets with counter tops 36 inches (915 mm) maximum in height and 25<sup>1</sup>/<sub>2</sub> inches (650 mm) maximum in depth.~~

**1004.9.1 Receptacle outlets and switches in kitchens, kitchenettes and toilet and bathing facilities.** Receptacle outlets and switches in kitchen, kitchenettes and toilet and bathing facilities shall be provided as specified in Sections 1004.9.1.1 and 1004.9.1.2.

**1004.9.1.1 Receptacle outlets.** In kitchens, kitchenettes and toilet and bathing facilities, receptacle outlets shall be provided in accordance with the electrical code. Where receptacle 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 away from 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<sup>1</sup>/<sub>2</sub> inches (650 mm) maximum in depth.

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

**1004.9.1.2 Switches.** In kitchens, kitchenettes and toilet and bathing facilities switches are permitted to be located over cabinets or counter tops 36 inches (915 mm) maximum in height and 25<sup>1</sup>/<sub>2</sub> inches (650 mm) maximum in depth.

**Reason:** The Reach Range subgroup of the Wheeled Mobility Task Group examined the data provided by the Wheeled Mobility Research project and has attempted to use this data in conjunction with NEC requirements for outlets in kitchens and bathrooms to come up with standards that will provide the most usability as possible for outlets in Accessible, Type A and Type B units.

The reach range subgroup's goal is to take a different approach and call out those outlets that must be accessible, exempting the remaining outlets in kitchens and toilet/bathing rooms. From a construction standpoint, this approach is likely less restrictive than the current scoping in A117.1 and from a Usability perspective, we have used the data provided from the Wheeled Mobility Research Project, to identify those locations for receptacles that will benefit the largest number of wheelchair users while also working within the technical requirements of the NEC.

Several background issues the subgroup considered when constructing this language are as follows:

The most important issue which has not been solved to date regardless of the NEC i.e., even though Type B unit countertops are permitted to be 25½ inches deep and 36 inches high (ANSI 1004.9 Exception 10, which is in line with FHA) compliance with 1004.9, Exception 2 can never be achieved if appliances which project beyond the countertop edge "push back" the CFS and prevent it from being positioned for a side approach flush up against the countertop edge such that the reach depth to outlets at the backsplash does not exceed 24 inches recognizing the allowance for a 25½-inch deep countertop. The only time compliance with Exception 2 can be achieved is when base cabinet runs are no less than 48 inches such that the side approach can be positioned up against the base cabinet without obstruction by appliances. This is rare in many cases and certainly not expected, required or contemplated by any requirement. Practically speaking, appliances project beyond countertop edges so requiring that appliances do not project beyond countertops is not feasible.

All of the above is true for Type A units at 1003.9 (and all common area kitchens/kitchenettes) except outlets are not accessible when mounted above counters deeper than 24 inches (side approach) and higher than 34 inches. Achieving compliance with Exception 2 at 1003.9 is always challenging in the Type A unit; if compliance with Exception 2 is required in Type A units (and common area kitchens and kitchenettes), then shouldn't it be required that all countertops in Type A unit kitchens (and common area kitchens and kitchenettes) be no higher than 34 inches? We know this is not required. Because this is not required then all outlets over 36-inch high countertops, which are permitted in Type A units (such as those located above the dishwasher) are not accessible and are in violation of Exception 2, always. Bringing outlets to the front of base cabinets is not practical and draping chords are certainly dangerous. In addition, there is the issue of the loss of the drawer at that location and the additional costs for that type of outlet. Even adding outlets to a side wall where a countertop runs into a wall on one side is not a way to meet compliance when the countertop is higher than 34 inches.

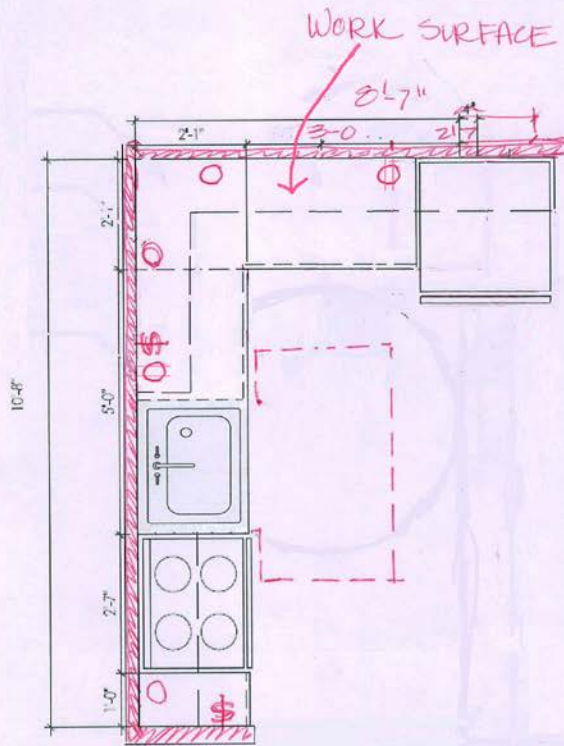
If only one 30-inch wide section of counter in a Type A unit is required to serve as the accessible work area (fixed at 34 inches AFF or adjustable), then only outlets above this work counter should be required to be accessible. This is certainly practical and can always be achieved. Since a front approach must be provided below this work counter (open or removable base cabinet), the language in the attached proposal clarifies that no less than one outlet must be located above the 30-inch wide work counter; and, it must be no higher than 44 inches AFF. This would guarantee that at least one outlet over the required 30-inch wide work counter will be accessible when the base cabinet below the work surface is removed to provide the front approach. The same logic applies to the sink in Accessible and Type A units - hence the recommendation to provide an accessible outlet adjacent to the sink.

The attached proposal attempts to require that in Accessible and Type A kitchens, an outlet would be required at the work surface and immediately adjacent to the sink.

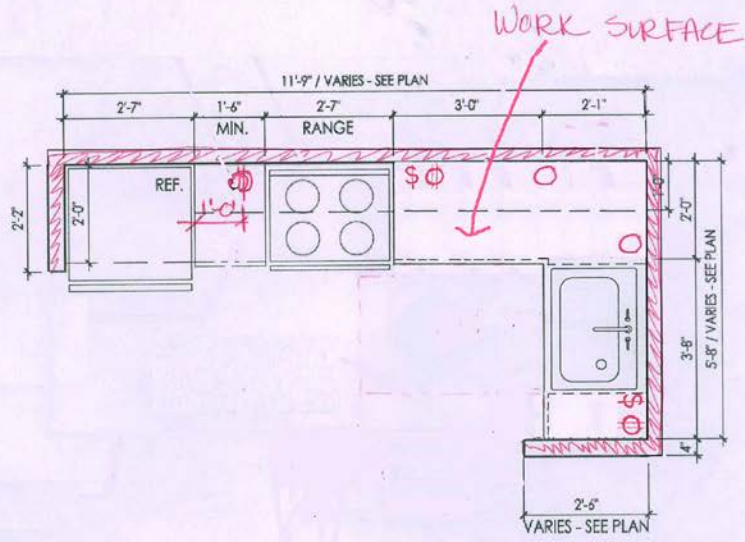
In Accessible and Type A bathrooms, an outlet would be required adjacent to the accessible lavatory.

Following are several examples of kitchens where the group looked at compliance with the new provisions.

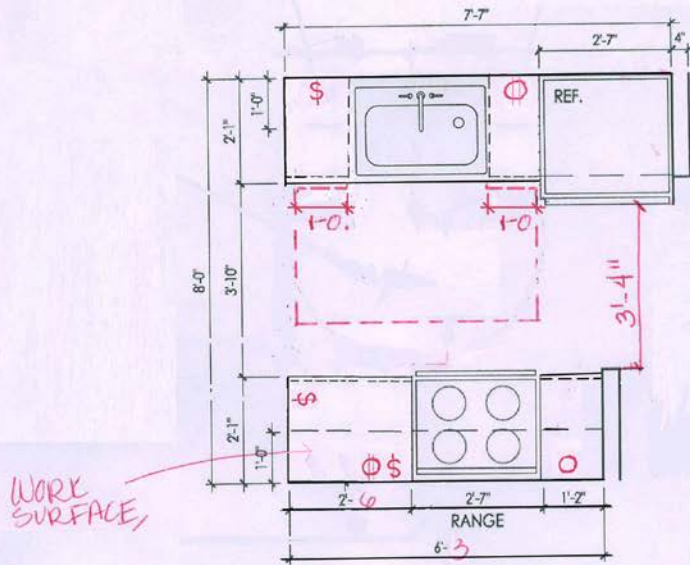




Plan 2  
Type A units

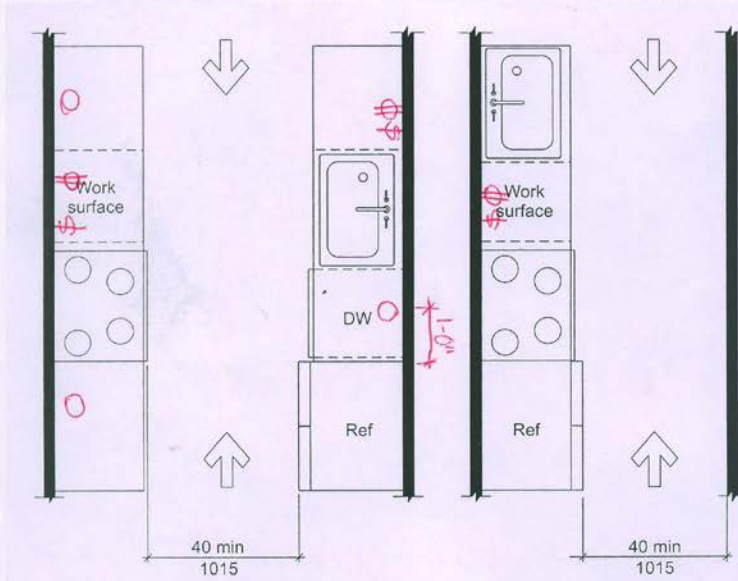


Plan 3  
Accessible unit

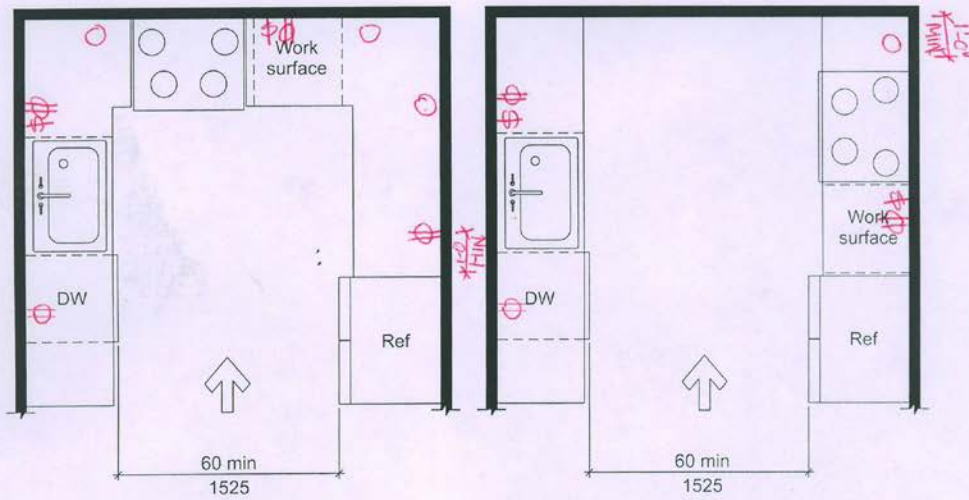


Plan 4  
 Accessible Unit Example





Plan 5 and 6  
 Accessible Unit Example



Plan 7 and 8  
 Accessible Unit Example

Committee Action: AS AM D

1002.9-MARINELLI.doc

## 10-8 – 12

### 1002.9, 1003.9, 1004.9

**Proponent:** Cheryl Kent, representing U.S. Department of Housing and Urban Development

#### Revise as follows:

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

#### EXCEPTIONS:

1. Receptacle outlets serving a dedicated use.
2. ~~Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with 309.~~ For each length of countertop, at least one receptacle outlet shall comply with Section 309.
3. Floor receptacle outlets.
4. HVAC diffusers.
5. Controls mounted on ceiling fans.
6. Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible.
7. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
8. Electrical panelboards shall not be required to comply with Section 309.4.
9. Within kitchens and bathrooms, lighting controls, electrical switches and receptacles outlets are permitted to be located over cabinets with counter tops 36 inches (915 mm) maximum and 25 ½ inches (650 mm) maximum in depth.

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

#### EXCEPTIONS:

1. Receptacle outlets serving a dedicated use.
2. ~~Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with Section 309.~~ For each length of countertop, at least one receptacle outlet shall comply with Section 309.
3. Floor receptacle outlets.
4. HVAC diffusers.
5. Controls mounted on ceiling fans.
6. Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible.
7. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
8. Electrical panelboards shall not be required to comply with Section 309.4.
9. Within kitchens and bathrooms, lighting controls, electrical switches and receptacles outlets are permitted to be located over cabinets with counter tops 36 inches (915 mm) maximum and 25 ½ inches (650 mm) maximum in depth.

**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.

#### EXCEPTIONS:

1. Receptacle outlets serving a dedicated use.
2. ~~Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with Section 309.~~ For each length of countertop, at least one receptacle outlet shall comply with Section 309.
3. Floor receptacle outlets.
4. HVAC diffusers.
5. Controls mounted on ceiling fans.
6. Controls or switches mounted on appliances.
7. Plumbing fixture controls.
8.           Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
9. Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible.
10. Within kitchens and bathrooms, lighting controls, electrical switches and receptacle outlets are permitted to be located over cabinets with counter tops of 36-inch (915 mm) maximum in height and 25-1/2 inches (650 mm) maximum in depth.
11. Electrical panelboards shall not be required to comply with Section 309.4.

**Reason:** The Department believes that providing accessible switches and outlets in Accessible, Type A and Type B kitchens is problematic due to the depth of most of the appliances, as well as the standard overhang of the countertop, which typically creates a depth for the obstruction (countertop and cabinet) of 25 to 25 ½ inches. In addition, the location of the appliances and their related depth typically makes it difficult if not impossible to achieve a full 48-inch parallel approach at the electrical outlet and/or switch because the greater depth of the appliance makes it not possible to achieve a close parallel approach. This proposal attempts to address these problems. In addition, in the Type B Unit, the circuit breaker box/electrical panel board is not required to be accessible, and although it has not been identified as an exception for Type B units under Section 1004.9, and therefore, apparently is currently required to be accessible for Type B units, we believe adding an exception that is consistent with the exception for Accessible and Type A units is appropriate.

Committee Action:           AS                   AM                   D

1002.9-KENT.doc

## 10-9 – 12

### 1002.9, 1003.9, 1004.9

**Proponent:** Robert D. Feibleman, HAND Construction, representing self

#### Revise as follows:

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

#### EXCEPTIONS:

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

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

#### EXCEPTIONS:

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

**1004.9 Operable Parts.** Lighting controls, electrical panelboards, electrical switches and receptacle outlets, environmental controls, appliance controls, operating hardware for operable windows, plumbing fixture controls, and user controls for security or intercom systems shall comply with Sections 309.2 and 309.3.

#### 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 uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with Section 309.
3. Floor receptacle outlets.
4. HVAC diffusers.
5. ~~Controls mounted on ceiling fans.~~ Controls for ceiling fans.
6. Controls or switches mounted on appliances.
7. Plumbing fixture controls.
8. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
9. Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible.
10. Within kitchens and bathrooms, lighting controls, electrical switches and receptacle outlets are permitted to be located over cabinets with counter tops 36 inches (915 mm) maximum in height and 25 ½ inches (650 mm) maximum in depth.
11. Clock, timer and light controls (non-cooking controls) on kitchen ranges and cooktops.

**Reason:** To state that controls mounted on ceiling fans do not need to be reachable is kind of stating something that is already deemed impossible without a ladder, thus moot. Presumably the issue is whether or not ceiling fan controls need to be accessible. If the intent is that they don't need to be, the revised text is more definitive. If the intent is to provide accessible ceiling fan controls, then remove the exception all together and let the designer figure out how. We have provided wall mounted ceiling fan controls. However when you purchase a switch (see attached photo) that controls the on/off, speed, direction, and light you end up with a device that's almost impossible to use. Another option would be to provide for separate switches, thus all functions available. A four gang box can be challenging to locate. There's always the handheld remote control option, which probably makes the most sense for all unit types.



Ranges with front controls come in very limited models, presumably because the market for these is small. They are considered a major safety hazard around children, thus seldom used. The ADA compliant models do not have controls on the back panel due to reach compliance with 1003.12.5.4.4. So the net affect is that no one gets the upgrade of the clock, timer, and light control. If those options were available, it would be nice to offer them to those that can reach them.



Committee Action: AS AM D

1002.9-FEIBLEMAN.doc

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## 10-10 – 12

### 1002.9.1 (New)

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

**Add new text as follows:**

**1002.9.1 Wheelchair Charging Area.** A wheelchair charging area shall be provided adjacent to at least one electrical outlet. A clear floor space complying with Section 305 shall be provided adjacent to the outlet.

**Reason:** Add a new section for wheelchair charging area. Many times a person with disabilities must get the hotel staff to move furniture and make space to recharge their wheelchair. This is an important part of travelling and should always be required in Accessible Units.

Committee Action:           AS                   AM                   D

1002.9.1 (New)-Reed.doc

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## 10-11 – 12

### 1002.11.2

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

**Revise as follows:**

**1002.11.2 Accessible Toilet and Bathing Facility.** At least one toilet and bathing facility shall comply with Section 603. At least one lavatory, one water closet and either a bathtub or shower within the unit shall comply with Sections 604 through 610. ~~The accessible toilet and bathing fixtures shall be in a single toilet/bathing area, such that travel between fixtures does not require travel through other parts of the unit.~~

**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 for 1002.11.2:** ADA does not have the sentence which is shown as being deleted. The A117 text has proven confusing and difficult for compliance in hospital and nursing home design.

Committee Action:      AS                      AM                      D

1002.11.2-ROETHER.doc

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## 10-12 – 12

### 1002.15.3 (New)

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

**Add new text as follows:**

**1002.15.3 Bed Height.** The top of the bed shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum above the floor, measured to the top of the mattress.

**Reason:** Bed mattresses are getting too high to transfer up from a wheelchair. Provide a similar height requirement as for toilet seats and benches.

Committee Action:           AS                   AM                   D

1002.15.3 (New)-REED.doc

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# 10-13 – 12

## 1002.15.3 (New)

**Proponent:** Dominic Marinelli, representing United Spinal Association

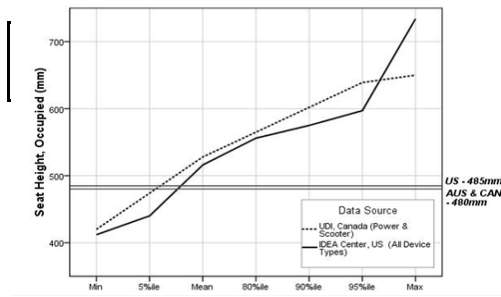
**Revise as follows:**

**1002.15.3 Bed Height.** At least one bed shall measure 19 to 23 inches high from the floor to the top of the mattress, whether or not the mattress is compressed.

**Reason:** This proposal is put forth as a response to numerous comments from our membership that cite the lack of accessible beds in places of transient lodging, which makes it very difficult for people with disabilities to transfer from their mobility device to beds that are becoming increasingly higher when measured to the top of the mattress. These complaints from our membership, combined with the data released in the Final Report of the Anthropometry of Wheeled Mobility Project - Prepared for the U.S. Access Board December 31st, 2010, substantiate the need to address the height of beds in accessible hotel rooms. Increasing bed heights also adversely impact persons of short stature that have difficulty accessing these beds – which can range from approximately 25 inches to 30 inches above the ground measured to the top of the mattress.

Due to the increased heights of hotel beds over the past approximately 8 years, rooms that were once considered accessible have become inaccessible. Our proposal would require at least one bed to provide a mattress height between 19 inches and 23 inches above the ground.

The Final Report - Anthropometry of Wheeled Mobility Project - Prepared for the U.S. Access Board December 31st, 2010, Center for Inclusive Design and Environmental Access (IDeA) contains research on seat heights for various types of mobility devices including manual wheelchairs, scooters and power chairs. The height range we propose for accessible bed heights is between 19-23 inches and accommodates the mean occupied seat heights of the Wheeled Mobility Project User groups which were as follows (see Section 3.3.5 of The Final Report - Anthropometry of Wheeled Mobility Project): 495 mm (19.5 in.) for manual chair users, 538 mm (21.2 inches) for power chair users and 549 mm (21.6 in.) for scooter users. Figures from the Wheeled Mobility research are included below for reference.



Data Source	Sample Size	Min	5%ile	Mean	80%ile	90%ile	95%ile	Max
<b>UDI, Canada</b>								
Power chairs and scooters*	50	420	-	528	-	-	639	650
<b>IDeA Center, U.S.</b>								
Manual chairs	276	414	434	496	530	547	567	608
Power chairs	189	412	465	539	574	599	628	734
Scooters	30	472	475	550	582	595	636	643
All Device Types*	495	412	440	516	556	575	597	734

Committee Action: AS AM D

1002.15.3 (NEW)-MARINELLI.doc

**10-14 – 12**  
**1002.15.3 (New)**

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

**Add new text as follows:**

**1002.15.3 Height.** The top of the bed shall be between 17 inches minimum and 19 inches maximum above the floor.

**Reason:** This will enable the wheelchair person to make a transfer onto the bed. The bed is an element in the building that is required to be accessible. The standard height is 17 inches to 19 inches where a transfer is necessary.

Committee Action:           AS                   AM                   D

1002.15.3 (New)-FALSTAD.doc

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**10-15 – 12**  
**1002.16 (NEW), 905.5 (NEW)**

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

**Add new text as follows:**

**1002.16 Privacy Safe.** Privacy safes provided in accessible units shall comply with Sections 1002.16.1 and 1002.16.2.

**1002.16.1 Clear floor safe.** A clear floor space complying with Section 305 shall be provided. The clear floor space shall be positioned for a forward approach to the safe.

**1002.16.2 Height.** The key pad shall be located with the eye level between 43 inches minimum and 48 inches maximum above the floor.

**905.5 Privacy Safes.** Where provided, privacy safes shall be provided with a clear floor space complying with Section 305 positioned for a forward approach. Key pads shall be located between 43 inches minimum and 48 inches maximum above the floor.

**Reason:** All rooms now being equipped with a privacy safe, so there needs to be some direction on how to make it wheelchair accessible.

Committee Action:           AS                   AM                   D

1002.16 (NEW)-FALSTAD.doc

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## 10-16 – 12

### 1003.5

**Proponent:** Francine Wai, Executive Director, Disability & Communication Access Board

**Revise as follows:**

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

**EXCEPTIONS:**

- ~~1.~~ ~~Thresholds at exterior sliding doors shall be permitted to be 3/4 inch (19 mm) maximum in height, provided they are beveled with a slope not greater than 1:2.~~
- ~~2.~~ 1. In toilet rooms and bathrooms not required to comply with Section 1003.11.2, maneuvering clearances required by Section 404.2.3 are not required on the toilet room or bathroom side of the door.
- ~~3.~~ 2. A turning space between doors in a series as required by Section 404.2.5 is not required.
- ~~4.~~ 3. Storm and screen doors are not required to comply with Section 404.2.5.
- ~~5.~~ 4. Communicating doors between individual sleeping units are not required to comply with Section 404.2.5.
- ~~6.~~ 5. At other than the primary entrance door, where exterior space dimensions of balconies are less than the required maneuvering clearance, door maneuvering clearance is not required on the exterior side of the door.

**Reason:** The “type A units” apply to residential units. The 2010 ADA Standards requires all doors and doorways providing user passage to be accessible in the accessible residential units. The 2010 ADA Standard do not allow thresholds required to be accessible to be higher than ½ inches, even at exterior sliding doors. Doors designed per exception #1 of A117.1 Section 1003.5 can be found not in compliance with the 2010 Standards. For harmonization with the 2010 ADA Standards, exception #1 should be deleted.

Committee Action:            AS                    AM                    D

1003.5-WAI.doc

## 10-17 – 12

### 1003.11.2.3

**Proponent:** Robert D. Feibleman, HAND Construction, representing self

**Revise as follows:**

**1003.11.2.3 Mirrors.** Mirrors above accessible lavatories shall have the bottom edge of the reflecting surface 40 inches (1015 mm) maximum above the floor.

**EXCEPTION:** Where a mirror complying with this section is provided, medicine cabinet mirrors are exempt from Section 1003.11.2.3.

**Reason:** The medicine cabinet isn't addressed and its mirror surface could be secondary to other mirrors. It's not uncommon for the medicine cabinet installation height to be affected by electrical outlet and switch placement. Also, the lower it's mounted, the more countertop items are knocked over when it's opened.



Committee Action:           AS                   AM                   D

1003.11.2.3-FEIBLEMAN.doc

## 10-18 – 12

### 1003.11.2.4.6

**Proponent:** Peter A. Stratton, Steven Winter Associates, Inc.

**Revise as follows:**

**1003.11.2.4.6 Flush Controls.** Flush controls shall be hand-operated or automatic. Hand operated flush controls shall comply with Section 309. Hand-operated flush controls shall be located on the open side of the water closet.

**EXCEPTION:** Dual flush controls are permitted to be centered on the top of the water closet tank and shall comply with Section 309.4.

**Reason:** Water saving requirements of the US Green Building Council's LEED® rating system, among other energy saving programs, including Enterprise Green Communities are addressed at toilet fixtures through the use of dual flush toilets which provide two (dual) push-button-controlled options for flushing; one of which dispenses more water during flushing. Dual flush toilets, especially residential models, include push button controls centered on the top of the toilet tank which are technically non-compliant with ANSI A117.1 604.6 and 1003.11.2.4.6, i.e., they are not located on the "wide side" of toilets. However, technically, ½ of the push button control when mounted on the top of the tank are located between the centerline of the toilet (center of the tank top) and the wide side, but they are not located fully between the centerline and the wide side of the toilet. The only readily available models have top centered controls. ANSI must recognize water savings offered by dual flush toilets while at the same time ensuring that they are accessible. To that end, the proposal suggested here is to allow controls mounted on the top of toilet tanks as long as the push button controls comply with 309.4, operation. When a clear floor space is positioned adjacent to toilets, controls mounted on the top of the tank are within reach from a side approach despite the fact that they are not located technical on the "wide side." See attached pdf standard dual flush control and its location.

Committee Action:                    AS                    AM                    D

1003.11.2.4.6-STRATTON.doc

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## 10-19 – 12

### 1003.11.2.5.2, 1004.11.3.1.3.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1003.11.2.5.2 Shower.** Showers shall comply with Section 608.

#### **EXCEPTIONS:**

1. At standard roll-in shower compartments complying with Section 608.2.2, lavatories, counter tops and cabinetry shall be permitted at one end of the clearance, provided the following criteria are met:
  - a) The countertop and cabinetry can be removed;
  - b) The floor finish extends under the countertop and cabinetry; and
  - c) The walls behind and surrounding the countertop and cabinetry are finished.
2. A shower door shall be permitted where the door can be removed without replacement or repair of tile or other finish on the wall or floor.

**1004.11.3.1.3.3 Shower Compartment.** If a shower compartment is the only bathing facility, the shower compartment shall have dimensions of 36 inches (915 mm) minimum in width and 36 inches (915 mm) minimum in depth. A clearance of 48 inches (1220 mm) minimum in length, measured perpendicular from the shower head wall, and 30 inches (760 mm) minimum in depth, measured from the face of the shower compartment, shall be provided. Reinforcing for a shower seat is not required in shower compartments larger than 36 inches (915 mm) in width and 36 inches (915 mm) in depth.

**EXCEPTION:** A shower door shall be permitted where the door can be removed without replacement or repair of tile or other finish on the wall or 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 allows for the type of shower door that can be attached in such a way that it is removable. Not everyone wants only the option of a shower curtain. Glass doors on the market cannot provide space for a transfer when in place.

Committee Action:            AS                    AM                    D

1003.11.2.5.2-PAARLBERG.doc

## 10-20 – 12

### 1003.12.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1003.12.3 Work Surface.** At least one section of counter shall provide a work surface 30 inches (760 mm) minimum in length complying with Section 1003.12.3.

**EXCEPTION:** Spaces that do not provide a cooktop or conventional range are not required to be provided with an accessible work surface.

**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.

Many homes have kitchenettes or wetbars in family rooms. Side approach should be permitted in these areas. This adds an exception similar to what is allowed for an Accessible unit (Section 1002.12, Exception) or for a general kitchen (Section 804.3, Exception). While the work surface required in Section 1003.12.3 is allowed to be adaptable/adjustable and is therefore different than what is required in an Accessible unit or a general kitchen, it still is more restrictive to require the work surface in the Type A unit if the Accessible units and general kitchens do not require them at all.

Committee Action:           AS                   AM                   D

1003.12.3-PAARLBERG.doc

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# 10-21 – 12

## 1003.12.4.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1003.12.4.1 Clear Floor Space.** A clear floor space, positioned for a forward approach to the sink, shall be provided. Knee and toe clearance complying with Section 306 shall be provided.

### **EXCEPTIONS:**

1. The requirement for knee and toe clearance shall not apply to more than one bowl of a multi-bowl sink.
2. Cabinetry shall be permitted to be added under the sink, provided the following criteria are met:
  - (a) The cabinetry can be removed without removal or replacement of the sink,
  - (b) The floor finish extends under the cabinetry, and
  - (c) The walls behind and surrounding the cabinetry are finished.
3. A parallel approach complying with Section 305 and centered on the sink, shall be permitted to a kitchen sink in a space where a cook top or conventional range is not provided.
4. A parallel approach complying with Section 305 and centered on the sink, shall be permitted at wet bars.

**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.

When kitchenettes were added into Section 1003.12 of the 2009 standard, it created some inconsistencies between the Type A units and the Accessible units. This causes uncertainty for the Type A units and would appear to make them more restrictive than the Accessible units or general kitchens.

These two new exceptions are copied from Section 606.2, Exceptions 1 and 6. The intent of adding these exceptions into the Type A unit requirements is to coordinate with the arrangements that are allowed in an Accessible unit and for a general kitchen. The Accessible units (Section 1002.12) based on the reference to Section 804; and the general kitchens (Section 804.4) are allowed to install a sink that complies with Section 606. A parallel approach to the sink in a kitchenette (or wet bar) would be permitted versus the forward approach that would typically apply in the Accessible and Type A units. This is based on both Exceptions 1 and 6 in Section 606.2. This allowance for the parallel approach to the sink is clearly permitted for the Accessible units because of the reference from Section 1002.12 up to Section 804 and then from Section 804.4 to Section 606 and its subsection 606.2.

When dealing with the Type A units, however, the requirements are not as clear and, depending upon the interpretation, they may even result in those units being more restrictive than the Accessible units for certain requirements. As stated earlier, when dealing with an Accessible unit, Section 1002.12 clearly provides the reference to Section 804 that will result in the parallel approach to the sink in a kitchenette or wet bar. The Type A unit requirements of Section 1003.12 do not provide an equivalent reference or exception for allowing the sink to have a parallel approach. A similar problem also exists with the clearance requirements of Section 1003.12.1 and 1004.12.1, which do not contain an exception similar to that found in Section 804.2.

Because of these inconsistencies, users must decide to either be code literal and make the Type A units more restrictive and provide better access than required for the Accessible units, or they must use their judgment to permit the Type A units to use the exceptions that are allowed for an Accessible unit. Because an Accessible unit is considered as the higher level of accessibility, I believe it is appropriate to add these exceptions in the Type A requirements or provide some type of similar exception which allows compliance with Section 606. As an option, both of these exceptions could be replaced with a single exception stating "Sinks complying with Section 606" or a more specific exception which would only address the clear floor space saying "Sinks complying with Section 606.2."

Remember that Type B units already allow for a side approach to the sink, so there should not be the same issue for Type B units.

Committee Action:           AS                   AM                   D

1003.12.4.1-PAARLBERG.doc

## 10-22 – 12

### 1003.12.5.5

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1003.12.5.5 Oven.** Ovens shall comply with Section 1003.12.5.5. ~~Ovens shall have controls on front panels, on either side of the door.~~

**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 change is to resolve a glitch that was created due to a processing error with code change #267 during the 2009 standard's development cycle. This will also eliminate the confusion which is created by having both Sections 1003.12.5.5 and 1003.12.5.5.4 address the location of the oven controls. Deleting this text will coordinate the Type A unit oven requirements with identical requirements for the Accessible unit and general kitchen requirements of Section 804.5.5.4. A similar requirement for the controls to be located on the front panel of the oven was located in Section 804.6.5.3 of the 2003 edition of the standard. That requirement was deleted from the general kitchen and Accessible unit requirements as a part of code change #267 in the previous cycle.

When code change #267 was originally approved the proposal showed the text for Section 1003.12.5.5 (1003.12.6.5 in the 2003 edition) incorrectly. (The sentence that is proposed for deletion was never shown with Section 1003.12.6.5 as existing text in the 2003 edition.) The editorial task group had originally proposed deleting this sentence as a part of a needed correlation change to accomplish the A117 committee's intent which was established by code change #267. The task group's review draft showed a correlation for the text so it would match what was shown in the first public comment draft and what the A117 committee saw when they approved code change #267. It seemed clear to the editorial task group that based on the revisions in Chapter 8 and the reason statements with the code change that a similar coordinating change was appropriate for the Type A units. Proposal #267 inserted the new control section into Section 1003.12.5.5.4 and made the format of the section consistent with the other units. Leaving this text within 1003.12.5.5 will conflict with the intent of the proponent of proposal #267 and the A117 committee's reason statement for approving that change. It will also lead to a possible confusion between the provisions of Sections 1003.12.5.5 and 1003.12.5.5.4 unless users understand the intent and history of code change #267.

Ultimately the editorial task group determined that the deletion of the text in Section 1003.12.5.5 was beyond the scope of an editorial change. Therefore the text was reinserted and the task group indicated they hoped the A117 committee would review this issue in this next development cycle.

This proposal will create a technical change, but it is one which the committee had seemingly approved previously and it will coordinate with make the Type A units match the oven control requirements for the Accessible units and general kitchens.

If for some reason the committee decides to not approve this proposal, the sentence related to the oven controls should be moved from Section 1003.12.5.5 and be combined into Section 1003.12.5.5.4 so that all of the oven control requirements are in a single location.

Committee Action:                    AS                    AM                    D

1003.12.5.5-PAARLBERG.doc

**10-23 – 12**  
**1003.13.3 (New)**

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

**Add new text as follows:**

**1003.13.3 Turning Spaces.** A turning space complying with Section 304 shall be provided adjacent to at least one window, when the window or windows are operable the turning space shall be at one of the operable windows.

**Reason:** This will enable the wheelchair person to circulate throughout the guest room. ADA requirement of Section 12182(a).

Committee Action:           AS                   AM                   D

1003.13.3 (New)-FALSTAD.doc

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**10-24 – 12**  
**1003.13.3 (NEW)**

**Proponent:** Robert D. Feibleman, HAND Construction, representing self

**Add new text as follows:**

**1003.13.3 Locking Devices.** Where redundant locks are provided for a single window, only one shall be required to comply with Section 309.

**Reason:** On horizontal sliding windows over a certain size height, two locks are typically provided. The higher lock will be above 48 inches in most cases. The occupant has the option to not engage that lock if it's not within their reach range. If the higher lock was lowered, it would be so close to the lower lock it would be moot. If the higher lock was removed, it would not be of benefit to those who can reach it.

Committee Action:           AS                   AM                   D

1003.13.3 (NEW)-FEIBLEMAN.doc

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## 10-25 – 12

### 1003.14

**Proponent:** Robert D. Feibleman, HAND Construction, representing self

**Revise as follows:**

**1003.14 Storage Facilities.** Where storage facilities are provided at least one of each type shall comply with Section 905.

#### **EXCEPTIONS:**

1. Kitchen cabinets shall not be required to comply with Section 1003.14.
2. Bathroom medicine cabinets.

**Reason:** The medicine cabinet isn't addressed and could be considered challenging to reach, as is the upper kitchen cabinetry which was exempted in the 2009 revision. Also, the strike through language in exception 1 is because it seems redundant, it's an exception under Section 1003.14, it doesn't need to be restated.



Committee Action:            AS            AM            D

1003.14 (NEW)-FEIBLEMAN.doc

# 10-26 – 12

## 101, 202, 1004

**Proponent:** Larry Perry

### Revise as follows:

**101 Purpose.** The technical criteria in Chapters 3 through 9, Sections 1002, 1003 and 1006 and Chapter 11 of this standard make sites, facilities, buildings and elements accessible to and usable by people with such physical disabilities as the inability to walk, difficulty walking, reliance on walking aids, blindness and visual impairment, deafness and hearing impairment, incoordination, reaching and manipulation disabilities, lack of stamina, difficulty interpreting and reacting to sensory information, and extremes of physical size. The intent of these sections is to allow a person with a physical disability to independently get to, enter, and use a site, facility, building, or element.

~~Section 1004 of this standard provides criteria for Type B units. These criteria are intended to be consistent with the intent of the criteria of the U.S. Department of Housing and Urban Development (HUD) Fair Housing Accessibility Guidelines. The Type B units are intended to supplement, not replace, Accessible units or Type A units as specified in this standard.~~

Section 1005 of this standard provides criteria for minimal accessibility features for one and two family dwelling units and townhouses which are not covered by the U.S. Department of Housing and Urban Development (HUD) Fair Housing Accessibility Guidelines.

This standard is intended for adoption by government agencies and by organizations setting model codes to achieve uniformity in the technical design criteria in building codes and other regulations.

### Revise as follow:

#### 202 Dwelling and Sleeping Units

Chapter 10 of this standard contains dwelling unit and sleeping unit criteria for Accessible units, Type A units, ~~Type B units~~, Type C (Visitable) dwelling units and units with accessible communication features. The administrative authority shall specify, in separate scoping provisions, the extent to which these technical criteria apply. These scoping provisions shall address the types and numbers of units required to comply with each set of unit criteria.

### Delete without substitution as follows:

#### 1004 Type B Units

~~1004.1 General.~~ Type B units shall comply with Section 1004.

~~1004.2 Primary Entrance.~~ The accessible primary entrance shall be on an accessible route from public and common areas. The primary entrance shall not be to a bedroom unless it is the only entrance.

~~1004.3 Accessible Route.~~ Accessible routes within Type B units shall comply with Section 1004.3.

~~1004.3.1 Location.~~ At least one accessible route shall connect all spaces and elements that are a part of the unit. Accessible routes shall coincide with or be located in the same area as a general circulation path.

#### EXCEPTIONS:

1. ~~An accessible route is not required to unfinished attics and unfinished basements that are part of the unit.~~
2. ~~One of the following is not required to be on an accessible route:~~
  - 2.1 ~~A raised floor area in a portion of a living, dining, or sleeping room; or~~
  - 2.2 ~~A sunken floor area in a portion of a living, dining, or sleeping room; or~~
  - 2.3 ~~A mezzanine that does not have plumbing fixtures or an enclosed habitable space.~~



~~**1004.3.2 Components.** Accessible routes shall consist of one or more of the following elements: walking surfaces with a slope not steeper than 1:20, doors and doorways, ramps, elevators, and platform lifts.~~

~~**1004.4 Walking Surfaces.** Walking surfaces that are part of an accessible route shall comply with Section 1004.4.~~

~~**1004.4.1 Clear Width.** Clear width of an accessible route shall comply with Section 403.5.~~

~~**1004.4.2 Changes in Level.** Changes in level shall comply with Section 303.~~

~~**EXCEPTION:** Where exterior deck, patio or balcony surface materials are impervious, the finished exterior impervious surface shall be 4 inches (100 mm) maximum below the floor level of the adjacent interior spaces of the unit.~~

~~**1004.5 Doors and Doorways.** Doors and doorways shall comply with Section 1004.5.~~

~~**1004.5.1 Primary Entrance Door.** The primary entrance door to the unit shall comply with Section 404.~~

~~**EXCEPTION:** Storm and screen doors serving individual dwelling or sleeping units are not required to comply with Section 404.2.5.~~

~~**1004.5.2 User Passage Doorways.** Doorways intended for user passage shall comply with Section 1004.5.2.~~

~~**1004.5.2.1 Clear Width.** Doorways shall have a clear opening of 31<sup>3</sup>/<sub>4</sub> inches (810 mm) minimum. Clear opening of swinging doors shall be measured between the face of the door and stop, with the door open 90 degrees.~~

~~**1004.5.2.1.1 Double Leaf Doorways.** Where the operable parts on an inactive leaf of a double leaf doorway are located more than 48 inches (1220 mm) or less than 15 inches (380 mm) above the floor, the active leaf shall provide the clearance required by Section 1004.5.2.1.~~

~~**1004.5.2.2 Thresholds.** Thresholds shall comply with Section 303.~~

~~**EXCEPTION:** Thresholds at exterior sliding doors shall be permitted to be <sup>3</sup>/<sub>4</sub> inch (19 mm) maximum in height, provided they are beveled with a slope not steeper than 1:2.~~

~~**1004.5.2.3 Automatic Doors.** Automatic doors shall comply with Section 404.3.~~

~~**1004.6 Ramps.** Ramps shall comply with Section 405.~~

~~**1004.7 Elevators.** Elevators within the unit shall comply with Section 407, 408, or 409.~~

~~**1004.8 Platform Lifts.** Platform lifts within the unit shall comply with Section 410.~~

~~**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.~~

~~**EXCEPTIONS:**~~

- ~~1. Receptacle outlets serving a dedicated use.~~
- ~~2. Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with Section 309.~~
- ~~3. Floor receptacle outlets.~~
- ~~4. HVAC diffusers.~~

5. ~~Controls mounted on ceiling fans.~~
6. ~~Controls or switches mounted on appliances.~~
7. ~~Plumbing fixture controls.~~
8. ~~Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.~~
9. ~~Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible.~~
10. ~~Within kitchens and bathrooms, lighting controls, electrical switches and receptacle outlets are permitted to be located over cabinets with counter tops 36-inch (915 mm) maximum in height and 25-1/2 inches (650 mm) maximum in depth.~~

**1004.10 Laundry Equipment.** ~~Washing machines and clothes dryers shall comply with Section 1004.10.~~

**1004.10.1 Clear Floor Space.** ~~A clear floor space complying with Section 305.3, 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 machines.~~

**1004.11 Toilet and Bathing Facilities.** ~~Toilet and bathing fixtures shall comply with Section 1004.11.~~

**EXCEPTION:** ~~Fixtures on levels not required to be accessible.~~

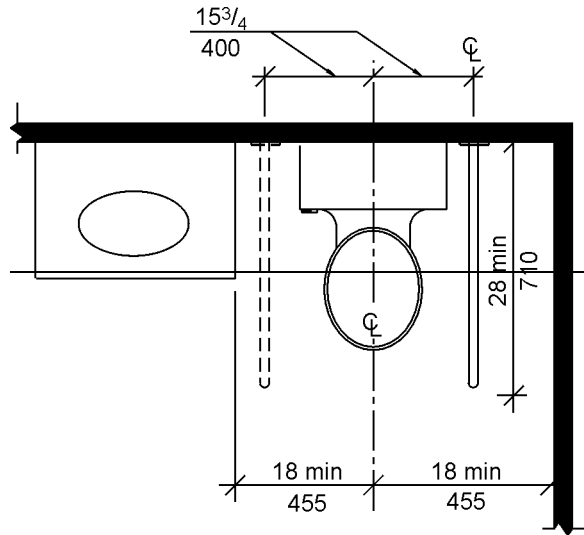
**1004.11.1 Grab Bar and Shower Seat Reinforcement.** ~~Reinforcement shall be provided for the future installation of grab bars and shower seats at water closets, bathtubs, and shower compartments. Where walls are located to permit the installation of grab bars and seats complying with Section 604.5 at water closets; grab bars complying with Section 607.4 at bathtubs; and for grab bars and shower seats complying with Sections, 608.3, 608.2.1.3, 608.2.2.3 and 608.2.3.2 at shower compartments; reinforcement shall be provided for the future installation of grab bars and seats complying with those requirements.~~

**EXCEPTIONS:**

1. ~~In a room containing only a lavatory and a water closet, reinforcement is not required provided the room does not contain the only lavatory or water closet on the accessible level of the unit.~~
2. ~~At water closets reinforcement for the side wall vertical grab bar component required by Section 604.5 is not required.~~
3. ~~At water closets where wall space will not permit a grab bar complying with Section 604.5.2, reinforcement for a rear wall grab bar 24 inches (610 mm) minimum in length centered on the water closet shall be provided.~~
4. ~~At water closets where a side wall is not available for a 42-inch (1065 mm) grab bar complying with 604.5.1, reinforcement for a sidewall grab bar, 24 inches (610 mm) minimum in length, located 12 inches (305 mm) maximum from the rear wall, shall be provided.~~
5. ~~At water closets where a side wall is not available for a 42-inch (1065 mm) grab bar complying with Section 604.5.1 reinforcement for a swing-up grab bar complying with Sections 1004.11.1.1 shall be permitted.~~
6. ~~At water closets where a side wall is not available for a 42-inch (1065 mm) grab bar complying with 604.5.1 reinforcement for two swing-up grab bars complying with Section 1004.11.1.1 shall be permitted to be installed in lieu of reinforcement for rear wall and side wall grab bars.~~
7. ~~In shower compartments larger than 36 inches (915 mm) in width and 36 inches (915 mm) in depth reinforcement for a shower seat is not required.~~

**1004.11.1.1 Swing-up Grab Bars.** A clearance of 18 inches (455 mm) minimum from the centerline of the water closet to any side wall or obstruction shall be provided where reinforcement for swing-up grab bars is provided. When the approach to the water closet is from the side, the 18 inches (455 mm) minimum shall be on the side opposite the direction of approach. Reinforcement shall accommodate a swing-up grab bar centered 15-3/4 inches (400 mm) from the centerline of the water closet and 28 inches (710 mm) minimum in length, measured from the wall to the end of the horizontal portion of the grab bar. Reinforcement shall accommodate a swing-up grab bar with a height in the down position of 33 inches (840 mm) minimum and 36 inches (915 mm) maximum. Reinforcement shall be adequate to resist forces in accordance with Section 609.8.

**EXCEPTION:** Where a water closet is positioned with a wall to the rear and to one side, the centerline of the water closet shall be 16 inches (405 mm) minimum and 18 inches (455 mm) maximum from the sidewall.



**Fig. 1004.11.1.1**  
**Swing-up Grab Bar for Water Closet**

**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.

**1004.11.2.1 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, excluding knee and toe clearances under elements, is provided within the room beyond the arc of the door swing.

**1004.11.2.2 Knee and Toe Clearance.** Clear floor space at fixtures shall be permitted to include knee and toe clearances complying with Section 306.

**1004.11.3 Toilet and Bathing Areas.** Either all toilet and bathing areas provided shall comply with Section 1004.11.3.1 (Option A), or one toilet and bathing area shall comply with Section 1004.11.3.2 (Option B).

**1004.11.3.1 Option A.** Each fixture provided shall comply with Section 1004.11.3.1.

**EXCEPTIONS:**

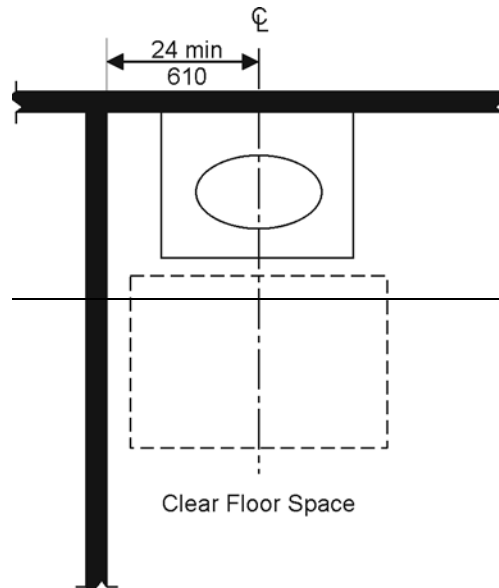
1. Where multiple lavatories are provided in a single toilet and bathing area such that travel between fixtures does not require travel through other parts of the unit, not more than one lavatory is required to comply with Section 1004.11.3.1.
2. A lavatory and a water closet in a room containing only a lavatory and water closet, provided the room does not contain the only lavatory or water closet on the accessible level of the unit.

**1004.11.3.1.1 Lavatory.** A clear floor space complying with Section 305.3, 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 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.



**Fig. 1004.11.3.1.1  
Lavatory in Type B Units—  
Option A Bathrooms**

~~**1004.11.3.1.2 Water Closet.** The water closet shall comply with Section 1004.11.3.1.2.~~

**1004.11.3.1.2.1 Location.** The centerline of the water closet shall be 16 inches (405 mm) minimum and 18 inches (455 mm) maximum from one side of the required clearance.

**1004.11.3.1.2.2 Clearance.** Clearance around the water closet shall comply with Sections 1004.11.3.1.2.2.1 through 1004.11.3.1.2.2.3.

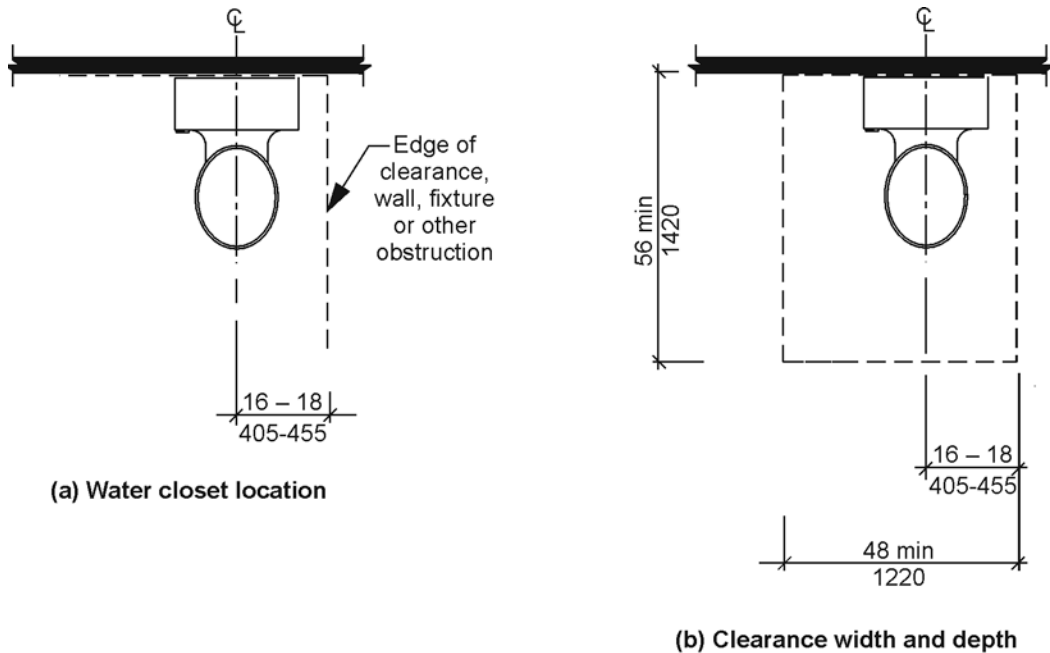
**EXCEPTION:** Clearance complying with Sections 1003.11.2.4.2 through 1003.11.2.4.4.

**1004.11.3.1.2.2.1 Clearance Width.** Clearance around the water closet shall be 48 inches (1220 mm) minimum in width, measured perpendicular from the side of the clearance that is 16 inches (405 mm) minimum and 18 inches (455 mm) maximum from the water closet centerline.

**1004.11.3.1.2.2.2 Clearance Depth.** Clearance around the water closet shall be 56 inches (1420 mm) minimum in depth, measured perpendicular from the rear wall.

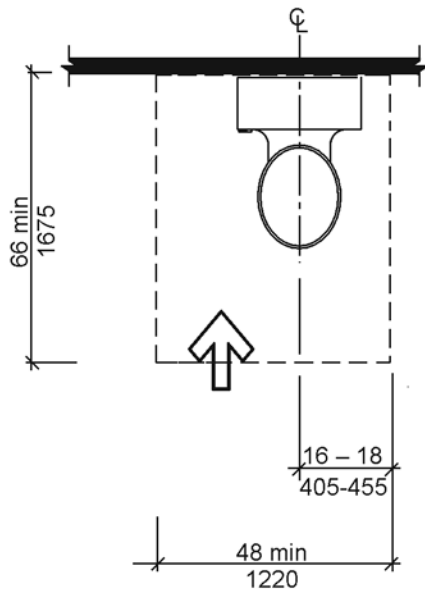
**1004.11.3.1.2.2.3 Increased Clearance Depth at Forward Approach.** Where a forward approach is provided, the clearance shall be 66 inches (1675 mm) minimum in depth, measured perpendicular from the rear wall.

**1004.11.3.1.2.2.4 Clearance Overlap.** A vanity or other obstruction 24 inches (610 mm) maximum in depth, measured perpendicular from the rear wall, shall be permitted to overlap the required clearance, provided the width of the remaining clearance at the water closet is 33 inches (840 mm) minimum.

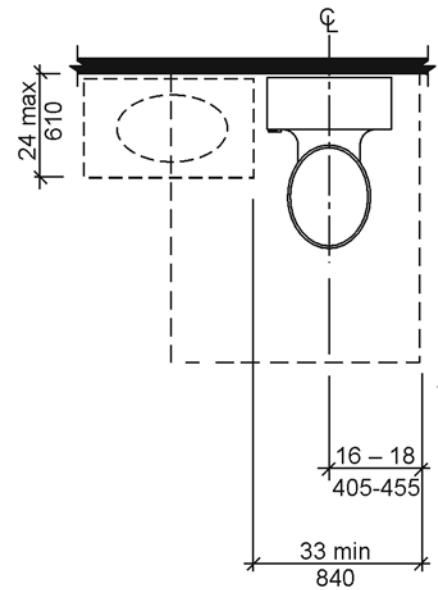


(a) Water closet location

(b) Clearance width and depth



(c) Increased clearance depth – forward approach



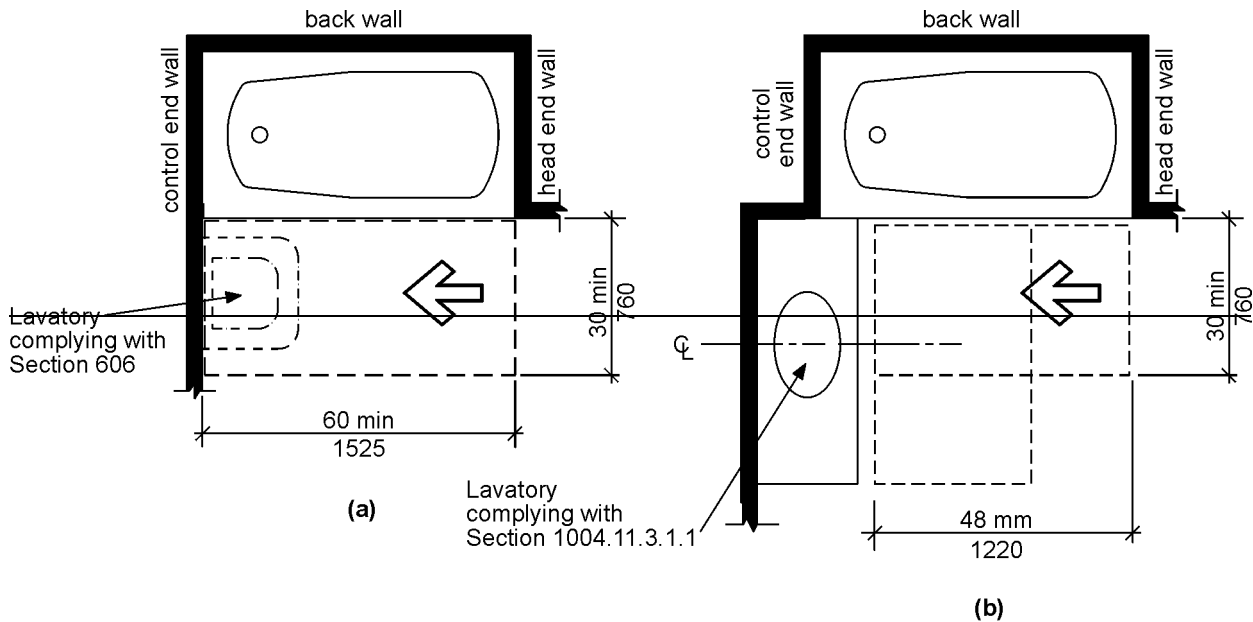
(d) Clearance with lavatory overlap

**Fig. 1004.11.3.1.2**  
**Water Closets in Type B Units**

**1004.11.3.1.3 Bathing Fixtures.** Where provided, a bathtub shall comply with Section 1004.11.3.1.3.1 or 1004.11.3.1.3.2 and a shower compartment shall comply with Section 1004.11.3.1.3.3.

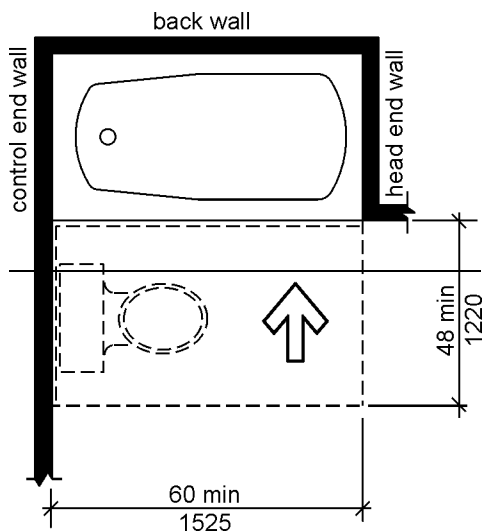
**1004.11.3.1.3.1 Parallel Approach Bathtubs.** A clearance 60 inches (1525 mm) minimum in length and 30 inches (760 mm) minimum in width shall be provided in front of

~~bathtubs with a parallel approach. Lavatories complying with Section 606 shall be permitted in the clearance. A lavatory complying with Section 1004.11.3.1.1 shall be permitted at one end of the bathtub if a clearance 48 inches (1220 mm) minimum in length and 30 inches (760 mm) minimum in width is provided in front of the bathtub.~~



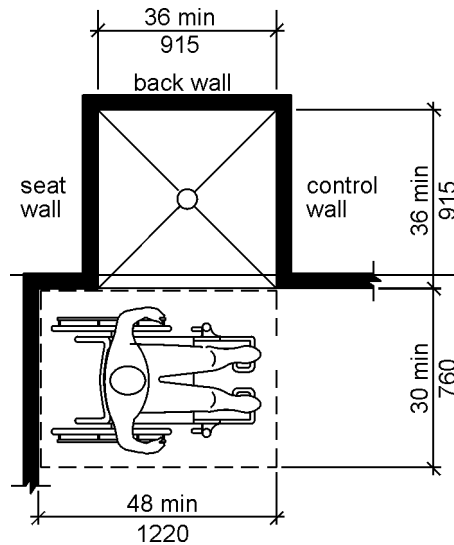
**Fig. 1004.11.3.1.3.1**  
**Parallel Approach Bathtub in Type B Units—Option A Bathrooms**

~~**1004.11.3.1.3.2 Forward Approach Bathtubs.** A clearance 60 inches (1525 mm) minimum in length and 48 inches (1220 mm) minimum in width shall be provided in front of bathtubs with a forward approach. A water closet and a lavatory shall be permitted in the clearance at one end of the bathtub.~~



**Fig. 1004.11.3.1.3.2  
Forward Approach Bathtub in Type B Units –  
Option A Bathrooms**

**1004.11.3.1.3.3 Shower Compartment.** If a shower compartment is the only bathing facility, the shower compartment shall have dimensions of 36 inches (915 mm) minimum in width and 36 inches (915 mm) minimum in depth. A clearance of 48 inches (1220 mm) minimum in length, measured perpendicular from the shower head wall, and 30 inches (760 mm) minimum in depth, measured from the face of the shower compartment, shall be provided. Reinforcing for a shower seat is not required in shower compartments larger than 36 inches (915 mm) in width and 36 inches (915 mm) in depth.



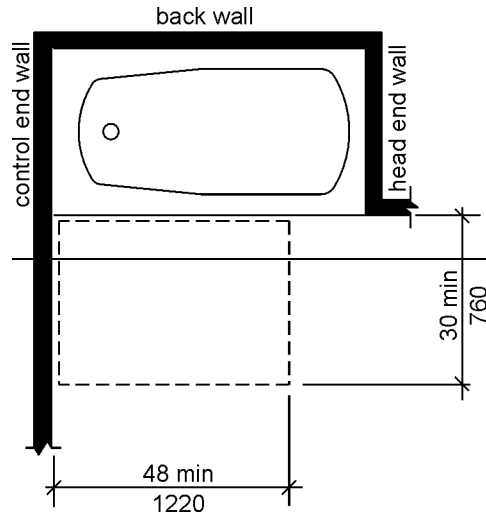
**Fig. 1004.11.3.1.3.3  
Transfer-Type Shower Compartment in  
Type B Units**

**1004.11.3.2 Option B.** One of each type of fixture provided shall comply with Section 1004.11.3.2. The accessible fixtures shall be in a single toilet/bathing area, such that travel between fixtures does not require travel through other parts of the unit.

**1004.11.3.2.1 Lavatory.** Lavatories shall comply with Sections 1004.11.3.1.1 and 1004.11.3.2.1.

**1004.11.3.2.1.1 Height.** The front of the lavatory shall be 34 inches (865 mm) maximum above the floor, measured to the higher of the rim or counter surface.



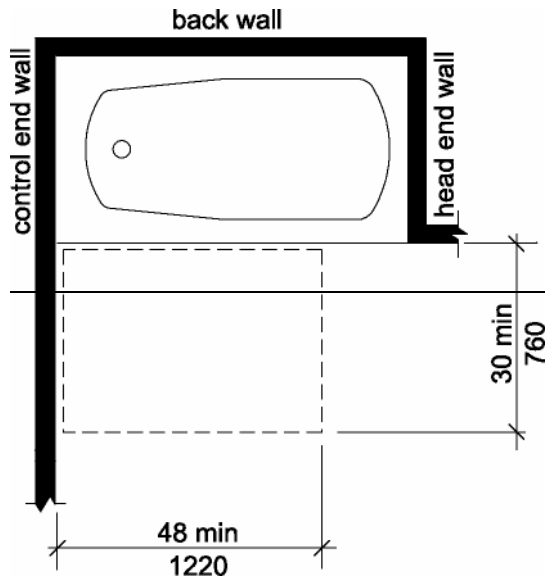


**Fig. 1004.11.3.2.1**  
**Lavatory in Type B Units—Option B Bathrooms**

**1004.11.3.2.2 Water Closet.** The water closet shall comply with Section 1004.11.3.1.2.

~~**1004.11.3.2.3 Bathing Facilities.** The accessible bathing fixture shall be a bathtub complying with Section 1004.11.3.2.3.1 or a shower compartment complying with Section 1004.11.3.2.3.2~~

~~**1004.11.3.2.3.1 Bathtub.** A clearance 48 inches (1220 mm) minimum in length measured perpendicular from the control end of the bathtub, and 30 inches (760 mm) minimum in width shall be provided in front of bathtubs.~~



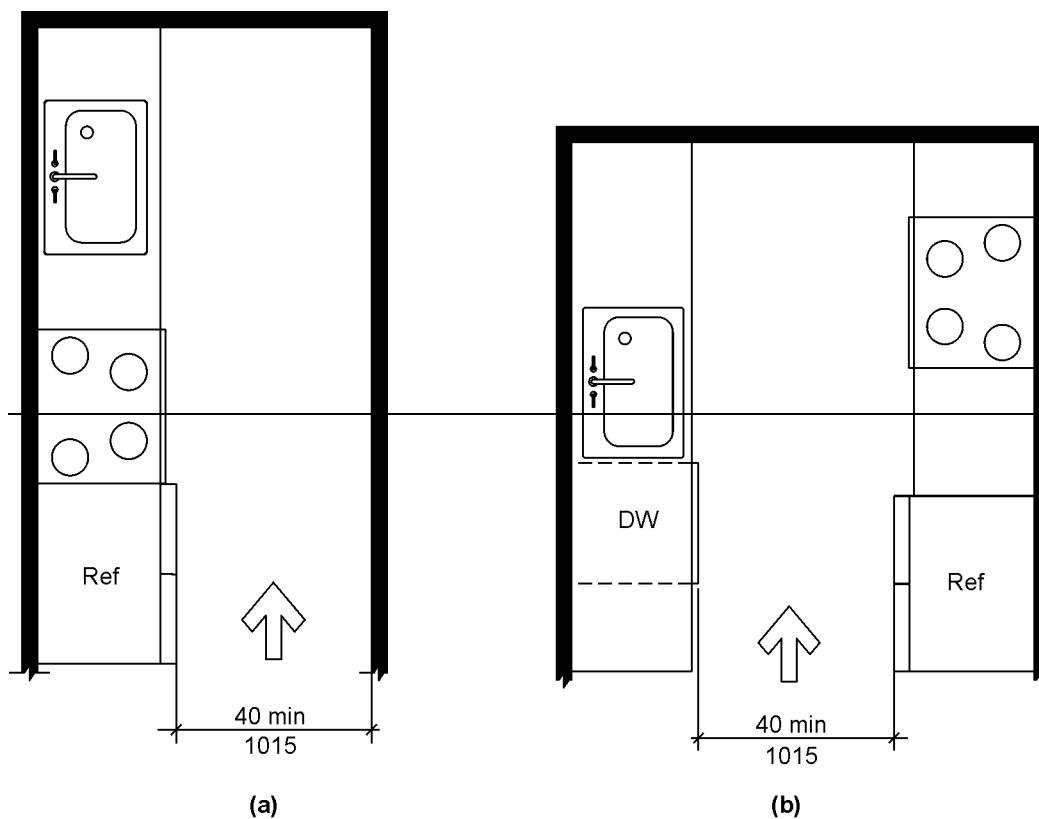
**Fig. 1004.11.3.2.3.1**  
**Bathroom Clearance in Type B Units—**  
**Option B Bathrooms**

~~1004.11.3.2.3.2 Shower Compartment.~~ A shower compartment shall comply with Section 1004.11.3.1.3.3.

**1004.12 Kitchens.** Kitchens and kitchenettes shall comply with Section 1004.12.

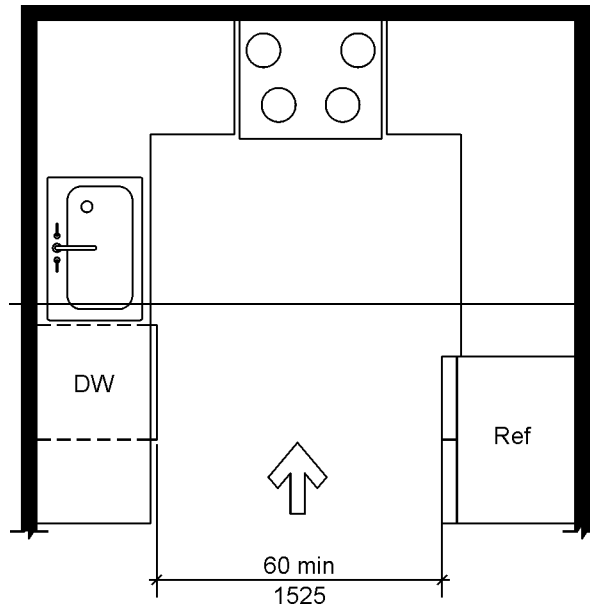
**1004.12.1 Clearance.** Clearance complying with Section 1004.12.1 shall be provided.

**1004.12.1.1 Minimum Clearance.** Clearance between all opposing base cabinets, counter tops, appliances, or walls within kitchen work areas shall be 40 inches (1015mm) minimum.



**Fig. 1004.12.1.1**  
**Minimum Kitchen Clearance in Type B Units**

**1004.12.1.2 U-Shaped Kitchens.** In kitchens with counters, appliances, or cabinets on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum.



**Fig. 1004.12.1.2**  
**U-Shaped Kitchen Clearance in Type B Units**

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

**1004.12.2.1 Sink.** A clear floor space, positioned for a parallel approach to the sink, shall be provided. The clear floor space shall be centered on the sink bowl.

**EXCEPTION:** A sink with a forward approach complying with Section 1003.12.4.1.

**1004.12.2.2 Dishwasher.** A clear floor space, positioned for a parallel or forward approach to the dishwasher, shall be provided. The dishwasher door in the open position shall not obstruct the clear floor space for the dishwasher.

**1004.12.2.3 Cooktop.** Cooktops shall comply with Section 1004.12.2.3.

**1004.12.2.3.1 Approach.** A clear floor space, positioned for a parallel or forward approach to the cooktop, shall be provided.

**1004.12.2.3.2 Forward approach.** Where the clear floor space is positioned for a forward approach, knee and toe clearance complying with Section 306 shall be provided. The underside of the cooktop shall be insulated or otherwise configured to prevent burns, abrasions, or electrical shock.

**1004.12.2.3.3 Parallel approach.** Where the clear floor space is positioned for a parallel approach, the clear floor space shall be centered on the appliance.

**1004.12.2.4 Oven.** A clear floor space, positioned for a parallel or forward approach adjacent to the oven shall be provided. The oven door in the open position shall not obstruct the clear floor space for the oven.

~~**1004.12.2.5 Refrigerator/Freezer.** A clear floor space, positioned for a parallel approach to the refrigerator/freezer, shall be provided. The centerline of the clear floor space shall be offset 24 inches (610 mm) maximum from the centerline of the appliance.~~

~~**1004.12.2.6 Trash Compactor.** A clear floor space, positioned for a parallel or forward approach to the trash compactor, shall be provided.~~

**Reason:** If Type B units are not intended to be consistent with the requirements of the Fair Housing Act, the purpose for their being included in the standard has been eliminated. By changing the Type B units where they exceed the Fair Housing provisions they are no longer "consistent" and the committee removes any limit to the extent of requirements that could/should be applied to Type B units. Doing so invalidates the entire approach used when Type B units were added to the standard.

Type B unit provisions were developed to establish a 'safe harbor' for compliance with the requirements of Fair Housing. By most accounts, the Fair Housing Guidelines were not in a form that easily facilitated their use for design and construction of compliant multi-family housing. When Type B unit provisions were added to the standard (and subsequently scoped in the model codes), Type A unit provisions were specifically maintained, recognizing that Type B (Fair Housing) units did not provide a level of access necessary for some people. If the direction of the committee is now going to be continually 'raising the bar' in Type B units, the two-tier approach of the standard and the codes no longer makes sense. Either Type B units should be removed, or alternatively, Type A units should be removed.

While some may point to the original Type B package and cite provisions that 'exceed' Fair Housing requirements, note that in the original development of the provisions this was done only where all affected interests agreed that there was no adverse impact on space, cost or functionality. Since the original package, there has been a consistent, incremental 'creep' to add additional requirements to the package. With the existing purpose statement, the standard at least provided a target that the committee was supposedly aiming for (although several changes already approved have clearly 'exceeded' Fair Housing requirements). By changing the purpose statement, the committee will now open the door towards adding any requirement at all to up to 100% of the units in a multi-family project, regardless of Fair Housing requirements, or the cost, space impact, or functionality.

Committee Action:                    AS                    AM                    D

1004-PERRY.doc

# 10-27 – 12

## 1004.9

**Proponent:** Robert D. Feibleman, HAND Construction, representing self

**Revise as follows:**

**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.

**EXCEPTIONS:**

1. Receptacle outlets serving a dedicated use.
2. Where two or more receptacle outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one receptacle outlet shall not be required to comply with Section 309.
3. Floor receptacle outlets.
4. HVAC diffusers.
5. Controls mounted on ceiling fans.
6. Controls or switches mounted on appliances.
7. Plumbing fixture controls.
8. Reset buttons and shut-offs serving appliances, piping and plumbing fixtures.
9. Where redundant controls other than light switches are provided for a single element, one control in each space shall not be required to be accessible.
10. Within kitchens and bathrooms, lighting controls, electrical switches and receptacle outlets are permitted to be located over cabinets with counter tops 36 inches (915 mm) maximum in height and 25 ½ inches (650 mm) maximum in depth.
11. Thermostats.

**Reason:** Locating thermostats at 48" is too low for the majority of people that are not in wheelchairs. The height requires hunching over and craning of the neck, which can be problematic for many people. The height of the thermostat is more for the readability of the LED readout, not button controls. Many thermostats have a small display and the angle you read them is best straight on at eye level. Fifty four inches would be more reasonable (accessible for the eye). UFAS 4.2.6 allows for 54 inches.

Committee Action:           AS                   AM                   D

1004.9 #1-FEIBLEMAN.doc

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# 10-28 – 12

## 1004.10.1

**Proponent:** Kim Paarlberg, International Code Council

### Revise as follows:

**1004.10.1 Clear Floor Space.** A clear floor space complying with Section 305.3, shall be provided for each washing machine and clothes dryer. A parallel approach shall be provided for a top loading machine. A forward or parallel approach shall be provided for a front loading machine.

**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 purpose of this change is to simply clarify that “each” machine (washer and dryer) needs to be provided with its own separate clear floor space and that a single clear floor space is not adequate to serve the two appliances.

During the last cycle the following changes were approved for this section: (Editorial group’s revisions shown in blue font with double strikeout and double underline)

1004.10.1 Clear Floor Space. A clear floor space complying with Section 305.3, ~~positioned for parallel approach,~~ shall be provided. ~~The clear floor space shall be centered on the appliance.~~ A parallel approach shall be provided for a top loading machine. A front forward or parallel approach shall be provided for a front loading machines.

This issue came up in a discussion of the editorial group during the last revision cycle when the group was looking at changing the last word of the provision from “machines” to “machine.” The concern was that with the plural word someone could argue that a single clear floor space was acceptable for both the washer and the dryer. That would obviously make it easier to comply and eliminate the problem of the clear floor space extending beyond the edges of a machine (having to keep a machine 12 inches or so out of the corner) so a parallel approach can fit. The editorial group did believe that the intent was for each machine to have its own clear floor space and revised the text accordingly.

If the committee is concerned that a question may come up as to what to do if the unit has more than one washer or more than one dryer, then perhaps some alternate language is needed. If it really is a concern that units that do have multiple washers and dryers may be unfairly burdened, then perhaps we would need to provide some scoping language similar to the bathroom provisions and say “at least one” needs to provide the space. I personally do not believe such additional language is needed, but here is an alternate proposal if the committee does wish to provide further clarification of the provision.

1004.10 Laundry Equipment. Washing machines and clothes dryers shall comply with Section 1004.10.

1004.10.1 Clear Floor Space. Where a washing machine or a clothes dryer is provided a clear floor space complying with Section 305.3, shall be provided to at least one washer and one dryer. A parallel approach shall be provided for a top loading machine. A forward or parallel approach shall be provided for a front loading machine.

Committee Action:                   AS                   AM                   D

1004.10.1-PAARLBERG.doc

## 10-29 – 12

### 1004.11.3.1.3.2

**Proponent:** Kim Paarlberg, International Code Council

#### Revise as follows:

##### Option 1

**1004.11.3.1.3.2 Forward Approach Bathtubs.** A clearance 60 inches (1525 mm) minimum in length and 48 inches (1220 mm) minimum in width shall be provided in front of bathtubs with a forward approach. Either a water closet or a lavatory or both a water closet and a lavatory shall be permitted in the clearance at one end of the bathtub.

##### Option 2

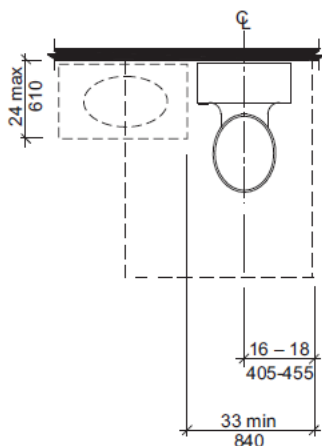
**1004.11.3.1.3.2 Forward Approach Bathtubs.** A clearance 60 inches (1525 mm) minimum in length and 48 inches (1220 mm) minimum in width shall be provided in front of bathtubs with a forward approach. A water closet, a lavatory, or both a water closet and a lavatory shall be permitted in the clearance at one end of the bathtub.

**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.

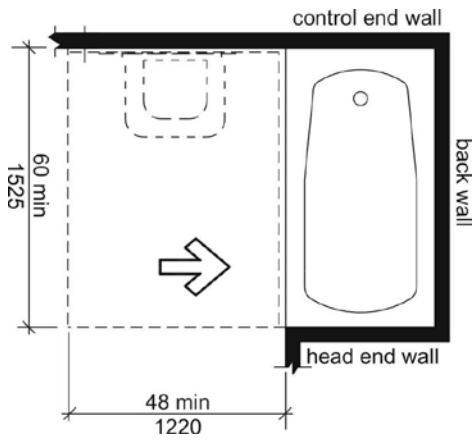
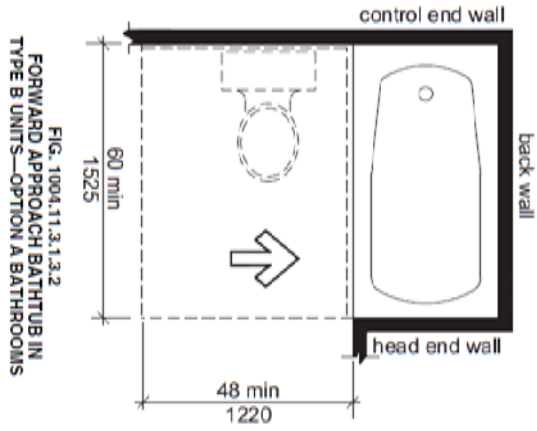
This is simply a clarification that may be helpful given several changes that occurred in the 2009 edition and dealt with the way the word “and” was used for requirements. This perceived problem may be caused by being too code literal, but the use of the word “and” as the conjunction does raise the question as to whether the encroachment is only allowed for situations where both the water closet and lavatory exist or whether the encroachment is also allowed when only one of those fixtures is within the space.

Because of the word “and” in the phrase “a water closet and a lavatory” it may be assumed to require both fixtures and not allow a water closet OR a lavatory. The word “and” is good because if you provide both a WC and a lav along the end wall you could end up with both of them extending into the required clearance (the first would be in it completely and the second would encroach just a bit based on the clearance between fixtures). [See fig. 1004.11.3.1.2(d) below for example of how both fixtures may encroach.]

Changing the word “and” to be “or” would seem like a possibility but that would not accept the second fixture extending into the space as discussed above. Because the text needs to accept either one fixture or both fixtures in the space, it may need to be changed to something like what is shown in the two options.



(d) Clearance with lavatory overlap



Committee Action: AS AM D

1004.11.3.1.3.2-PAARLBERG.doc



## 10-30 – 12

### 1004.11.3.1.3.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1004.11.3.1.3.3 Shower Compartment.** If a shower compartment is the only bathing facility, the shower compartment shall have dimensions of 36 inches (915 mm) minimum in width and 36 inches (915 mm) minimum in depth. A clearance of 48 inches (1220 mm) minimum in length, measured perpendicular from the shower head wall, and 30 inches (760 mm) minimum in depth, measured from the face of the shower compartment, shall be provided. ~~Reinforcing for a shower seat is not required in shower compartments larger than 36 inches (915 mm) in width and 36 inches (915 mm) in depth.~~

**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 text is redundant with Exception 7 in Section 1004.11.1. It is better to keep all of the reinforcement requirements in a single section as opposed to scattered throughout the document. Here is the comparable text to show that the text proposed for deletion is adequately addressed.

**1004.11.1 Grab Bar and Shower Seat Reinforcement.** Reinforcement shall be provided for the future installation of grab bars and shower seats at water closets, bathtubs, and shower compartments. Where walls are located to permit the installation of grab bars and seats complying with Section 604.5 at water closets; grab bars complying with Section 607.4 at bathtubs; and for grab bars and shower seats complying with Sections, 608.3, 608.2.1.3, 608.2.2.3 and 608.2.3.2 at shower compartments; reinforcement shall be provided for the future installation of grab bars and seats complying with those requirements.

7. In shower compartments larger than 36 inches (915 mm) in width and 36 inches (915 mm) in depth reinforcement for a shower seat is not required

Committee Action:           AS                   AM                   D

1004.11.3.1.3.3 #1-PAARLBERG.doc

# 10-31 – 12

## 1004.11.3.1.3.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1004.11.3.1.3.3 Shower Compartment.** If a shower compartment is the only bathing facility, the shower compartment shall have dimensions of 36 inches (915 mm) minimum in width and 36 inches (915 mm) minimum in depth. A clearance of 48 inches (1220 mm) minimum in length, measured perpendicular from the shower head wall, and 30 inches (760 mm) minimum in depth, measured from the face of the shower compartment, shall be provided. Reinforcing for a shower seat is not required in shower compartments larger than 36 inches (915 mm) in width and 36 inches (915 mm) in depth.

**EXCEPTION:** A shower shall be permitted to have dimensions of 30 inches minimum in depth and 60 inches minimum in width. A clearance of 60 inches (1525 mm) minimum in length adjacent to the 60- inch (1525 mm) width of the open face of the shower compartment, and 30 inches (760 mm) minimum in depth, shall be provided. A lavatory complying with Section 606 shall be permitted at the end of the clearance.

**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.

Type B units should be permitted the option of the bathroom that allows for either a roll-in shower or a tub, or the new style of walk-in tub/shower. The size and clearance are taken from roll-in showers that are permitted in Accessible and Type A units.



Committee Action:            AS            AM            D

1004.11.3.1.3.3-PAARLBERG.doc

## 10-32 – 12

### 1004.11.3.1.3.3

**Proponent:** Robert D. Feibleman, HAND Construction, representing self

**Revise as follows:**

**1004.11.3.1.3.3 Shower Compartment.** If a shower compartment is the only bathing facility, the shower compartment shall have a nominal dimensions of 36 inches (915 mm) ~~minimum~~ in width and 36 inches (915 mm) ~~minimum~~ in depth. ~~A clearance of 48 inches (1220 mm) minimum in length, measured perpendicular from the shower head wall, and 30 inches (760 mm) minimum in depth, measured from the face of the shower compartment, shall be provided. Reinforcing for a shower seat is not required in shower compartments larger than 36 inches (915 mm) in width and 36 inches (915 mm) in depth.~~

Shower stalls of larger sizes and configurations are permitted, even when the shower stall is the only bathing fixture in the covered unit.

**Reason:** As previously written, a shower was required to have a dimension of not less than 36". The inclusion of the word "minimum" inadvertently required showers to have a dimension of not less than 36". This conflicted with the recognized option of switching out tubs and showers in the typical 30" x 60" space. By removing the words minimal and adding nominal, the provider gains and acceptable construction tolerance, whereas the 36" minimum was absolute.

Committee Action:           AS                   AM                   D

1004.11.3.1.3.3 #1-FEIBLEMAN.doc

## 10-33 – 12

### 1004.11.3.1.3.3

**Proponent:** Robert D. Feibleman, HAND Construction, representing self

**Revise as follows:**

**1004.11.3.1.3.3 Shower Compartment.** If a shower compartment is the only bathing facility, ~~the a~~ a square shower compartment shall have dimensions of 36 inches (915 mm) minimum in width and 36 inches (915 mm) minimum in depth. A clearance of 48 inches (1220 mm) minimum in length, measured perpendicular from the shower head wall, and 30 inches (760 mm) minimum in depth, measured from the face of the shower compartment, shall be provided. Reinforcing for a shower seat is not required in shower compartments larger than 36 inches (915 mm) in width and 36 inches (915 mm) in depth.

Shower stalls of larger sizes and configurations are permitted, even where the shower stall is the only bathing fixture in the covered unit, and no minimum dimension of width or depth is required provided the pan area of the shower is not less than 1296 square inches. A shower stall with a dimension of 60 inches in width and 30 inches in depth is allowed.

**Reason:** As previously written, a shower was required to have a dimension of not less than 36 inches in both directions. The inclusion of the words "minimum" inadvertently required larger rectangular showers to have a dimension of not less than 36", whereas the size should also be relative to size in total square inches of pan area, e.g. 36x36=1296sq. This also conflicted with the recognized option of switching out tubs and showers in the typical 30" x 60" space. By removing the words minimal and adding nominal, the provider gains an acceptable construction tolerance, whereas the 36" minimum is absolute. By adding 1004.11.3.1.3.4 non square shower sizes can be allowed with a minimum of less than a 36 inch depth dimension. Chapter 10 needs to be clearer regarding roll-in and transfer showers, and when if ever neither is required. There are lots of water containment issues related to both 0" and ½" dam heights. These requirements are forcing knowledgeable builders to provide tubs in-lieu of showers to not be bound to the dam height requirements. Thus users in need of showers because of mobility issues related to stepping over tub dams are disadvantaged. Water intrusion issues need to be considered when reviewing these issues, and define how shower doors can be allowed. Anyone thinking you can have 0" and ½" dam heights without shower doors, and no leaks, is kidding themselves. Piecing together shower size, dam heights, seats, and closures is a big puzzle that we believe is forcing us to use tubs which are less accessible than showers, and the shower requirements can't be met without water problems in the near and long term.

Committee Action:            AS                            AM                            D

1004.11.3.1.3.3 #2-FEIBLEMAN.doc

# 10-34 – 12

## 1004.12.1.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1004.12.1.2 U-Shaped Kitchens.** In kitchens with counters, appliances, or cabinets on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum.

**EXCEPTION:** Spaces that do not provide a cooktop or conventional range shall not be required to comply with Section 1004.12.1.2 provided there is a 40-inch (1015 mm) minimum clearance between all opposing base cabinets, counter tops, appliances, or walls within work areas.

**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.

When kitchenettes were added into Section 1004.12 of the 2009 standard, it created some inconsistencies between the Type B units and the Accessible units. This causes uncertainty for the Type B units and would appear to make them more restrictive than the Accessible units or general kitchens.

This new exception is copied from Section 804.2. (The reference within the exception has been changed from Section 804.2 to Section 1004.12.1.2.) The intent of adding this exception into the Type B unit requirements is to coordinate with the arrangements that are allowed in an Accessible unit and for a general kitchen. The Accessible units (Section 1002.12) based on the reference to Section 804; and the general kitchens (Section 804.2) are allowed to provide a minimum clearance of 40 inches where a cooktop or conventional range is not provided.

When dealing with the Type B units, however, the requirements are not as clear and, depending upon the interpretation, they may even result in those units being more restrictive than the Accessible units for certain requirements. As stated earlier, when dealing with an Accessible unit, Section 1002.12 clearly provides the reference to Section 804 that will result in the acceptance of the 40 inch clearance. The Type B unit requirements of Section 1004.12 do not provide an equivalent reference or exception.

Because of these inconsistencies, users must decide to either be code literal and make the Type B units more restrictive and provide better access than required for the Accessible units and general kitchens, or they must use their judgment to permit the Type B units to use the exceptions that are allowed for an Accessible unit. Because an Accessible unit is considered as the higher level of accessibility, I believe it is appropriate to add this exception in the Type B requirements or provide some type of similar exception which allows compliance with Sections 1002.12 or 804.

For the format to be consistent with Section 804.2 the exception should probably be placed directly under Section 1004.12.1. However, because the exception will only affect the U-shaped kitchenettes (that would initially require a 60 inch clearance) built using Section 1004.12.1.2, I felt it was more appropriate to place the exception in Section 1003.12.1.2.

I know that the argument will be made the U-shaped requirements only apply to "kitchens" based on the fact that "kitchenettes" are not mentioned in Section 1004.12.1.2. Sounds great until you look at previous section (for minimum clearance and it also says "kitchen work areas." So we are either stuck saying the 60 inches does apply to kitchenettes or we have to say the 40 inches does not apply. If we say the clearance requirements only apply to "kitchens" (because kitchenettes are not mentioned in those two paragraphs) that would seem to mean that a kitchenette could go back to using simply a 36 inch accessible route between the cabinet and any obstruction. That clearly was not the intent and because we wanted the Accessible and Type A units to meet the 40 inch requirement from Fair Housing that led us to revising the exception in 804.2 and including "kitchenettes" in both the Accessible and Type A unit provisions.

Committee Action:            AS                    AM                    D

1004.12.1.2-PAARLBERG.doc

## 10-35 – 12

### 1004.12.2.5, 1004.12.2.5.1 (New), 1004.12.2.5.2 (New), 1004.12.2.5.3 (New)

**Proponent:** Cheryl Kent, representing U.S. Department of Housing and Urban Development

**Revise as follows:**

**1004.12.2.5 Refrigerator/Freezer.** ~~A clear floor space, positioned for a parallel approach to the refrigerator/freezer, shall be provided. The centerline of the clear floor space shall be offset 24 inches (610 mm) maximum from the centerline of the appliance. The refrigerator/freezer shall comply with Section 1004.12.2.5.~~

**1004.12.2.5.1 Approach.** A clear floor space positioned for a parallel or forward approach to the refrigerator/freezer shall be provided.

**1004.12.2.5.2 Forward Approach.** Where the clear floor space is positioned for a forward approach, the centerline of the clear floor space shall be offset 15 inches (380 mm) maximum from the centerline of the appliance.

**1004.12.2.5.3 Parallel Approach.** Where the clear floor space is positioned for a parallel approach, the centerline of the clear floor space shall be offset 24 inches (610 mm) maximum from the centerline of the appliance.

**Reason:** HUD's Fair Housing Accessibility Guidelines permit either a parallel or a forward approach at the refrigerator. In the past, HUD has submitted proposals for centering of the clear floor space, and those proposals were rejected; however, the language that is currently in Section 1004.12.2.5 was accepted. HUD wishes to provide greater flexibility for designers and builders and permit either a parallel or forward approach, and the above revised language is intended to address the forward approach, and uses the same format as what is currently shown for Section 1004.12.2.3 Cooktop.

Committee Action:           AS                   AM                   D

1004.12.2.5-KENT.doc

## 10-36 – 12

### 1005.7

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1005.7 Food Preparation Area.** At a minimum, the food preparation area shall include a sink, a cooking appliance, and a refrigerator. Clearances between all opposing base cabinets, counter tops, appliances or walls within the food preparation area shall be 40 inches (1015 mm) minimum ~~in width~~.

**EXCEPTION:** Spaces that do not provide a cooktop or conventional range shall be permitted to provide a clearance of 36 inches (915 mm) minimum ~~in width~~.

**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 is intended simply as a coordination of the text with similar text other sections. Sections 804.2, 1003.12, and 1004.12 and their subsections do not have “in width” with either the pass through or U-shaped kitchen provisions. Deleting the wording here in Section 1005.7 will make the text consistent with the provisions for Accessible, Type A and Type B units.

If the committee does not agree with the deletion of the wording “in width” in Section 1005.7, then that phrasing should be added in the other sections to make all of the sections consistent.

Committee Action:           AS                   AM                   D

1005.7-PAARLBERG.doc

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## 10-37 – 12

### 1006.5.1

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

**Revise as follows:**

**1006.5.1 Notification.** A hard-wired electric doorbell shall be provided. A button or switch shall be provided on the public side of the unit primary entrance. Activation of the button or switch shall initiate an audible tone within the unit. Where visible doorbell signals are located in sleeping areas, controls shall be provided to deactivate the signal.

**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 for 1006.5.1:** ADA provides the text similar to that shown underlined in Section 809.5.5.1. It is part of the ADA residential dwelling unit requirements.

Committee Action:      AS                      AM                      D

1006.5.1-ROETHER.doc

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# 11-1- 12

## 1101.2.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1101.2 .1 General Exceptions.** The following shall not be required to be accessible or to be on an accessible route:

1. Raised structures used solely for refereeing, judging, or scoring a sport.
2. Water Slides.
3. Animal containment areas that are not for public use.
4. Raised boxing or wrestling rings.
5. Raised diving boards and diving platforms.
6. Bowling lanes that are not required to provide wheelchair spaces.
7. Mobile or portable amusement rides
8. Amusement rides that are controlled or operated by the rider.
9. Amusement rides designed primarily for children, where children are assisted on and off the ride by an adult.
10. Amusement rides that do not provide amusement ride seats.
11. Shooting facilities with firing positions on free-standing platforms that are elevated above grade 12 feet (3660 mm) minimum provided that the aggregate area of elevated firing positions is 500 square feet (46 m2) maximum.



**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.

Firing positions may be elevated to allow people to practice shooting from a tree blind. The exception is intended to be consistent with what is permitted for press boxes by the IBC and ADA.

Committee Action:                    AS                    AM                    D

1101.2.1 (New)-PAARLBERG.doc

## 11-2 – 12

### 1101.2.3, 1103.2.1, 1103.2.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

~~**1101.2.3 Recreational Boating Facilities.** Operable parts of cleats and other boat securement devices shall not be required to comply with Section 308.~~

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

**EXCEPTIONS:**

1. Where an existing gangway or series of gangways is replaced or altered, an increase in the length of the gangway shall not be required to comply with Section 1103.2.
2. Gangways shall not be required to comply with the maximum rise specified in Section 405.6.
3. Where the total length of a gangway or series of gangways serving as part of a required accessible route is 80 feet (24 m) minimum, gangways shall not be required to comply with Section 405.2.
4. Where facilities contain fewer than 25 boat slips and the total length of the gangway or series of gangways serving as part of a required accessible route is 30 feet (9145 mm) minimum, gangways shall not be required to comply with Section 405.2.
5. Where gangways connect to transition plates, landings specified by Section 405.7 shall not be required.
6. Where gangways and transition plates connect and are required to have handrails, handrail extensions shall not be required. Where handrail extensions are provided on gangways or transition plates, the handrail extensions shall not be required to be parallel with the floor.
7. The cross slope specified in Sections 403.3 and 405.3 for gangways, transition plates, and floating piers that are part of accessible routes shall be measured in the static position.
8. Changes in level complying with Sections 303.3 and 303.4 shall be permitted on the surfaces of gangways and boat launch ramps.
9. Cleats and other boat securement devices shall not be required to comply with Section ~~309.3~~ 308.

**1103.2.2 Boarding Piers at Boat Launch Ramps.** An accessible route shall serve boarding piers.

**EXCEPTIONS:**

1. Accessible routes serving floating boarding piers shall be permitted to use Exceptions 1, 2, 5, 6, 7, ~~and 8~~ and 9 in Section 1103.2.1.
2. Where the total length of the gangway or series of gangways serving as part of a required accessible route is 30 feet (9145 mm) minimum, gangways shall not be required to comply with Section 405.2.

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

**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 matches ADA 205.1 Exception 7. The idea is that cleats, on boat slips or boarding piers, are not required to meet reach ranges. The revision eliminated a repeat in 1101.2.3 and leaves it in the more specific location under boat slips in 1103.2.1. The addition in 1103.2.2 adds it to boarding piers. The change from 309.3 to 308 is just a more direct reference.

Committee Action:           AS                   AM                   D

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1101.2.3-PAARLBERG.doc

# 11-3 – 12

## 1102.4.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1102.4.3 Gaps.** Floors of amusement rides with wheelchair spaces and floors of load and unload areas shall be coordinated so that, when amusement rides are at rest in the load and unload position, the vertical difference between the floors shall be within plus or minus  $\frac{5}{8}$  inch (16 mm) and the horizontal gap shall be 3 inches (75 mm) maximum under normal passenger load conditions.

**EXCEPTION:** Where complying is not operationally or structurally feasible, ramps, bridge plates, or similar devices complying with the applicable requirements of 36 CFR 1192.83(c), listed in Section 105.2.11, shall be provided. Handrails on the ramps, bridge plates or similar devices are permitted to comply with either the requirements of Section 505 or the requirements of 36 CFR 1192.83(c).

**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.

Whether this proposal is needed is dependent upon the enforcement agency's interpretation of the requirements in federal regulations and Sections 104.5 and 105.1 of the A117.1 standard.

The CFR requirements which are specified include several items which would create confusion or conflict between the A117 standard and the referenced standard. These problems may be ignored by some jurisdictions based on the provisions of Section 105 which state that "Where criteria in this standard differ from those of these referenced documents, the criteria of this standard shall apply." On the other hand because the CFR provisions are presented as an exception, other users may view the CFR as a specific set of requirements to be used as an alternate to those of the A117.1.

This particular section in the A117 standard is really focused on the gap in the floor surface between an amusement ride and the load and unload area. Therefore the handrail issue is a minor aspect and should not create any problems which could not be easily resolved. The difficulty that lead to the submission of this proposal is the fact that the CFR will allow (a) the handrails to be as low as 30 inches while the A117.1 requires a minimum height of 34 inches, and (b) the gripping surface of the CFR handrail is limited to a maximum of 1 ½ inches while the A117.1 will accept a 2 inch maximum cross section. I was told that the CFR provisions were really developed based on iron pipe size (IPS) and that the 1 ½ inch IPS will have a nominal cross section that is more like 1.9 inches. However because the CFR does not specifically state this, an inspector had turned down a handrail on a bridge/ramp because it was larger than the 1 ½ inches even though it was less than the 2 inches that the A117.1 standard will accept.

While this proposal does address this specifically identified conflict between the A117.1 and the referenced CFR standard I hate to begin the precedence of needing to amend the A117 for each identified conflict versus simply relying on Section 105.1 unless there are very unique circumstances. I personally see no unique or compelling circumstances to specifically address this one identified conflict other than the fact that it has been brought to our attention and did create a problem on one known project.

The committee should decide whether to approve this proposal or rely on Section 105.1 and its guidance.

The relevant text from the referenced federal standard is included below:

PART 1192 - AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES FOR  
TRANSPORTATION VEHICLES  
subpart d - LIGHT RAIL VEHICLES AND SYSTEMS

1192.83 - Mobility aid accessibility.  
(c) Vehicle ramp or bridge plate

(8) Handrails. If provided, handrails shall allow persons with disabilities to grasp them from outside the vehicle while starting to board, and to continue to use them throughout the boarding process, and shall have the top between 30 inches and 38 inches above the ramp surface. The handrails shall be capable of withstanding a force of 100 pounds concentrated at any point on the handrail without permanent deformation of the rail or its supporting structure. The handrail shall have a cross-sectional diameter between 1 ¼ inches and 1 ½ inches or shall provide an equivalent grasping surface, and have eased edges with corner radii of not less than 1/8 inch. Handrails shall not interfere with wheelchair or mobility aid maneuverability when entering or leaving the vehicle.

Committee Action:           AS                   AM                   D

1102.4.3-PAARLBERG.doc

## 11-4 – 12

### 1102.5, 1102.6

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1102.5 Amusement Ride Seats Designed for Transfer or transfer devices.** Amusement ride seats designed for transfer or transfer devices shall comply with Section 1102.5 when positioned for loading and unloading.

**1102.5.1 Clear Floor Space.** A clear floor space complying with Section 305 shall be provided in the load and unload area adjacent to the amusement ride seats designed for transfer or transfer devices.

**1102.5.2 Transfer Height.** The height of amusement ride seats designed for transfer or transfer devices shall be 14 inches (355 mm) minimum and 24 inches (610 mm) maximum measured from the surface of the load and unload area.

**1102.5.4 Wheelchair Storage Space.** Wheelchair storage spaces complying with Section 305 shall be provided in or adjacent to unload areas for each required amusement ride seat designed for transfer or transfer devices and shall not overlap any required means of egress or accessible route.

~~**1102.6 Transfer Devices for Use with Amusement Rides.** Transfer devices for use with amusement rides shall comply with Section 1102.6 when positioned for loading and unloading.~~

~~**1102.6.1 Clear Floor Space.** A clear floor space complying with Section 305 shall be provided in the load and unload area adjacent to the transfer device.~~

~~**1102.6.2 Transfer Height.** The height of transfer device seats shall be 14 inches (355 mm) minimum and 24 inches (610 mm) maximum measured from the load and unload surface.~~

~~**1102.6.3 Wheelchair Storage Space.** Wheelchair storage spaces complying with Section 305 shall be provided in or adjacent to unload areas for each required transfer device and shall not overlap any required means of egress or accessible route.~~

**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 does not seem to be a reason for repeating the exact same requirements for amusement ride seats designed for transfer and transfer devices. The only difference is transfer openings (1102.5.3) however, transfer devices are a type of mobility devices, so there still needs to be an opening on the ride for people to move into.

Committee Action:           AS                   AM                   D

1102.5-PAARLBERG.doc

# 11-5 – 12

## 1103.2.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

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

**EXCEPTIONS:**

1. Where an existing gangway or series of gangways is replaced or altered, an increase in the length of the gangway shall not be required to comply with Section 1103.2.
2. Gangways shall not be required to comply with the maximum rise specified in Section 405.6.
3. Where the total length of a gangway or series of gangways serving as part of a required accessible route is 80 feet (24 m) minimum, gangways shall not be required to comply with Section 405.2.
4. Where facilities contain fewer than 25 boat slips and the total length of the gangway or series of gangways serving as part of a required accessible route is 30 feet (9145 mm) minimum, gangways shall not be required to comply with Section 405.2.
5. Where gangways connect to transition plates, landings specified by Section 405.7 shall not be required.
6. Where gangways and transition plates connect and are required to have handrails, handrail extensions shall not be required. Where handrail extensions are provided on gangways or transition plates, the handrail extensions shall not be required to be parallel with the floor.
7. The cross slope specified in Sections 403.3 and 405.3 for gangways, transition plates, and floating piers that are part of accessible routes shall be measured in the static position.
8. Changes in level complying with Sections 303.3 and 303.4 shall be permitted on the surfaces of gangways and ~~boat launch ramps~~ piers.
9. Cleats and other boat securement devices shall not be required to comply with Section 309.3.

**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 is to correct a mistake for accessible routes along boat slips. Accessible routes are not required on boat launch ramps. The accessible route is the gangways and piers. It is arguable that this allowance is not even needed since ¼" and ½" changes are already permitted by Chapter 4.

If this exception is deleted, the reference to Item 8 should be removed from Section 1103.2.1 and 1105.1.

Committee Action:           AS                   AM                   D

1103.2.1-PAARLBERG.doc

# 11-6 – 12

## 1103.3.1, 1103.3.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1103.3.1 Boat Slip Clearance.** At Boat slips and on boarding piers at boat launch ramps shall provide clear pier space 60 inches (1525 mm) minimum in width that extend the full length of the boat slips or boarding pier. Each 10 feet (3050 mm) of linear pier edge serving boat slips or boarding pier shall contain at least one continuous clear opening 60 inches (1525 mm) minimum in width.

### **EXCEPTIONS:**

1. Clear pier space shall be permitted to be 36 inches (915 mm) minimum in width and 24 inches (610 mm) maximum in length, provided that multiple 36-inch (915 mm) wide segments are separated by segments that are 60 inches (1525 mm) minimum in width and 60 inches (1525 mm) minimum in length.
2. Edge protection shall be permitted at the continuous clear openings, provided the edge protection is 4 inches (100 mm) maximum in height and 2 inches (51 mm) maximum in width.
3. In existing piers for boat slips, clear pier space shall be permitted to be located perpendicular to the boat slip and shall extend the width of the boat slip, where the facility has at least one boat slip complying with Section 1103.3, and further compliance with Section 1103.3 would result in a reduction in the number of boat slips available or result in a reduction of the widths of existing slips.

~~**1103.3.2 Boarding Pier Clearances.** Boarding piers at boat launch ramps shall provide clear pier space 60 inches (1525 mm) minimum in width and shall extend the full length of the boarding pier. Every 10 feet (3050 mm) of linear pier edge shall contain at least one continuous clear opening 60 inches (1525 mm) minimum in width.~~

### **EXCEPTIONS:**

- ~~1. The clear pier space shall be permitted to be 36 inches (915 mm) minimum in width and 24 inches (610 mm) maximum in length provided that multiple 36-inch (915 mm) wide segments are separated by segments that are 60 inches (1525 mm) minimum in width and 60 inches (1525 mm) minimum in length.~~
- ~~2. Edge protection shall be permitted at the continuous clear openings provided the edge protection is 4 inches (100 mm) maximum in height and 2 inches (51 mm) maximum in width.~~

**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 requirements are the same for boat slips and boarding piers, so why repeat?

Committee Action:           AS                   AM                   D

1103.3-PAARLBERG.doc

## 11-7 – 12

**1105.2, 1105.2.1, 1105.2.1.1, 1105.3.1, 1105.3.1, 1105.3.2, 1105.4**

**Proponent:** Kim Paarlberg, International Code Council

### Revise as follows:

**1105.2 Railings.** Where provided along the perimeter of fishing piers or platforms, railings, barriers, or guards, ~~or handrails~~ shall comply with Section 1105.2.

**1105.2.1 Height.** A minimum of 25 percent of the railings, guards or barriers, ~~or handrails~~ shall be 34 inches (865 mm) maximum above the ground or deck surface.

**EXCEPTION:** Where a guard complying with the applicable building code is provided, the guard shall not be required to comply with Section 1105.2.1.

**1105.2.1.1 Dispersion.** Railings, guards or barriers, ~~or handrails~~ required to comply with Section 1105.2.1 shall be dispersed throughout the fishing pier or platform.

**1105.3 Edge Protection.** Where railings, guards or barriers, ~~or handrails~~ complying with Section 1105.2 are provided, edge protection complying with Section 1105.3.1, or 1105.3.2 or 1105.3.3 shall be provided.

**1105.3.1 Curb or Barrier.** Curbs ~~or barriers~~ shall extend be a minimum of 2 inches (51 mm) minimum in height above the surface of the fishing pier or platform.

**1105.3.2 Barrier.** Barriers shall be constructed so that the barrier prevents the passage of a 4-inch (100 mm) diameter sphere where any portion of the sphere is within 4 inches (100 mm) of the floor.

**1105.3.3 ~~1105.3.2~~ Extended Ground or Deck Surface.** The ground or deck surface shall extend 12 inches (305 mm) minimum beyond the inside face of the railing. Toe clearance shall be provided and shall be 30 inches (760 mm) minimum in width and 9 inches (230 mm) minimum in height above the ground or deck surface beyond the railing.

**1105.4 Clear Floor Space.** At each location where there are railings, guards or barriers, ~~or handrails~~ complying with Section 1105.2.1, a clear floor space complying with Section 305 shall be provided. Where there are no railings, barriers or guards, ~~or handrails~~, at least one clear floor space complying with Section 305 shall be provided on the fishing pier or platform.

**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 purpose is to use terms consistent with building codes.

Guards are a subset of barriers. Barriers are considerably more than just a curb.

Guards are required by the building code to have a minimum height of 42 inches. Therefore, a 'guard' cannot be 34" maximum in height and provide an accessible fishing location.

If the exception says guard can be high enough so that there are no 34" high locations, there are no locations to disperse. Handrails are required along ramps and stairs. With the fishing location required to be level, there will not be a handrail at these accessible fishing locations.

Edge protection should be handled similar ramp requirements. This clarification for separating curbs and barriers is important. I am assuming that the difference (i.e., 2 inches) is based on the boat dock edge limitations and the old ADA 2 inch curbs. If the intent is to protect the small front wheels, the appropriate opening limitation is 4 inches. This would be consistent with guard openings (based on the size of a child's head) and may be used in a barrier where the pier owners were concerned about child falls.

Committee Action:           AS                   AM                   D

1105-PAARLBERG.doc



## 11-8 – 12

### 1106.2, 1106.2.1 (New), 1106.2.2 (New), 1106.2.3 (New), 1106.4

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

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

**EXCEPTIONS:**

1. Handrails shall not be required on golf courses. Where handrails are provided on golf courses, the handrails shall not be required to comply with Section 505.
2. Accessible golf car passages in accordance with Section 1106.3 shall be permitted to be used for all or part of accessible routes required by this section.

**1106.2.1 Teeing Grounds.** Where one teeing ground is provided for a hole, the teeing ground shall be designed and constructed so that a golf car can enter and exit the teeing ground. Where two teeing grounds are provided for a hole, the teeing ground closest to the hole shall be designed and constructed so that a golf car can enter and exit the teeing ground. Where three or more teeing grounds are provided for a hole, at least two teeing grounds, including the teeing ground closest to the hole, shall be designed and constructed so that a golf car can enter and exit each teeing ground.

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

**1106.2.2 Putting Greens.** Putting greens shall be designed and constructed so that a golf car can enter and exit the putting green.

**1106.2.3 Practice Putting Greens, Practice Teeing Grounds, and Teeing Stations at Driving Ranges.** At least 5 percent, but no fewer than one, of practice putting greens, practice teeing grounds, and teeing stations at driving ranges shall be designed and constructed so that a golf car can enter and exit.

**1106.4 1106.2.4 Weather Shelters.** Where provided, weather shelters shall be designed and constructed so that a golf car can enter and exit the weather shelter. A clear floor space 60 inches (1525 mm) minimum by 96 inches (2440 mm) minimum shall be provided within weather shelters.

**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 IBC code development committee stated that they did not want requirements for the grounds in a golf course to be in the building code because it is not part of the built environment. Since the elements deal with accessible route, it would be within the technical purview of ICC A117.1 to contain these requirements. This would continue the coordination with the 2010 ADA Standard.

Clarifying that the exterior route is where the 48" width is required is consistent with the Public-rights of way suggestions and what I found in the ADA advisory pamphlets.

Committee Action:                    AS                    AM                    D

1106.1-PAARLBER.doc

# 11-9 – 12

## 1106.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

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

~~**EXCEPTION:** Handrails shall not be required on golf courses. Where handrails are provided on golf courses, the handrails shall not be required to comply with Section 505.~~

**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.

Handrails in Section 505 are only applicable at ramps and stairways. Section 403.6 only deals with handrails provided along the sides of corridors. Since the scope of handrails in the ICC A117.1 is different from 2010 ADA Standard, the exception for handrails is not applicable and should be deleted if it is intended to deal with the cart route. If the exterior route is a ramp where people may be walking, the exception for compliance with Section 505 is inappropriate and may be a safety hazard.

Handrails in an outdoor environment would not narrow an accessible route any more than any other guard or barrier, so what is the justification for the wider route specific to handrails? The sentence should be changed to deal with areas with barriers or guards running along the accessible route, not just handrails.

Committee Action:           AS                   AM                   D

1106.2-PAARLBERG.doc

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# 11-10 – 12

## 1107.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1107.2 Accessible Routes.** Accessible routes serving holes on miniature golf courses shall comply with Chapter 4.

**EXCEPTIONS:**

Accessible routes located on playing surfaces of miniature golf holes shall be permitted to comply with the following:

1. Playing surfaces shall not be required to comply with Section 302.2.
2. Where accessible routes intersect playing surfaces of holes, a curb that is 1 inch (25 mm) maximum in height and 32 inches (815 mm) minimum in width shall be permitted.
3. A slope of 1:4 maximum shall be permitted for a rise of 4-inches (100 mm) maximum.
4. Ramp landing slopes specified by Section 405.7.1 shall be permitted to be 1:20 maximum.
5. Ramp landing length specified by Section 405.7.3 shall be permitted to be 48 inches (1220 mm) minimum.
6. Ramp landing size at a change in direction specified by Section 405.7.4 shall be permitted to be 48 inches (1220 mm) minimum by 60 inches (1525 mm) minimum.
7. ~~Handrails shall not be required along ramps located on the playing surface on holes. Where handrails are provided on holes, the handrails shall not be required to comply with Section 505.~~

**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 exception is clarified to allow for no required handrails on ramps that were part of the hole playing surface. However, if handrails are provided, the handrails should comply with Section 505 for safety reasons. Remember that the scope of handrails in ICC A117.1 is only along corridors, stairways and ramps; not where provided as in 2010 ADA Standard.

Committee Action:           AS                   AM                   D

1107.2-PAARLBERG.doc

# 11-11 – 12

## 1108.3.2.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1108.3.2.1 Ground Level Play Components.** Accessible ground level play components shall be provided in the number and types required by Section 1108.3.2.1.1 or 1108.3.2.1.2, whichever is greater. ~~Ground level play components that are provided to comply with Section 1108.3.2.1.1 shall be permitted to satisfy the additional number required by Section 1108.3.2.1.2 if the minimum required types of play components are satisfied. Where two or more required~~ Accessible ground level play components are provided, they shall be dispersed throughout the play area and integrated with other play components.

**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 clarifies confusing language.

Committee Action:           AS                   AM                   D

1108.3.2.1 (REVISED)-PAARLBERG.doc

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# 11-12 – 12

## 1108.4, 1108.4.1, 1108.4.1.1, 1108.4.1.2, 1108.4.1.3

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1108.4 Accessible Routes Within Play Areas.** Accessible routes within play areas shall comply with Section 1108.4.

**1108.4.1 Accessible Routes.** Accessible routes serving play areas shall comply with Chapter 4 and Section 1108.4.1 ~~and shall be permitted to use the exceptions in Sections 1108.4.1.1 through 1108.4.1.3.~~ Where accessible routes serve ground level play components, the vertical clearance shall be 80 inches (2030 mm) minimum in height.

**EXCEPTIONS:**

1. Accessible routes serving ground level play components and elevated play components shall be permitted to use transfer systems complying with Section 1108.4.2. The transfer systems shall be permitted to connect elevated play components except where 20 or more elevated play components are provided no more than 25 percent of the elevated play components shall be permitted to be connected by transfer systems.
2. Where transfer systems are provided on the accessible routes serving ground level play components and elevated play components, an elevated play component shall be permitted to connect to another elevated play component as part of an accessible route.
3. Accessible routes serving soft contained play structures shall be permitted to use transfer systems complying with Section 1108.4.2 as part of an accessible route.
4. Where the surface of the accessible route, clear floor spaces, or turning spaces serving water play components is submerged, complying with Sections 302, 403.3, 405.2, 405.3, and 1108.4.1.6 shall not be required.
5. Accessible routes serving water play components shall be permitted to use transfer systems complying with Section 1108.4.2 to connect elevated play components in water.

~~**1108.4.1.1 Ground Level and Elevated Play Components.** Accessible routes serving ground level play components and elevated play components shall be permitted to use the exceptions in Section 1108.4.1.1.~~

**EXCEPTIONS:**

1. ~~Transfer systems complying with Section 1108.4.2 shall be permitted to connect elevated play components except where 20 or more elevated play components are provided no more than 25 percent of the elevated play components shall be permitted to be connected by transfer systems.~~
2. ~~Where transfer systems are provided, an elevated play component shall be permitted to connect to another elevated play component as part of an accessible route.~~

~~**1108.4.1.2 Soft Contained Play Structures.** Accessible routes serving soft contained play structures shall be permitted to use the exception in Section 1108.4.1.2.~~

~~**EXCEPTION:** Transfer systems complying with Section 1108.4.2 shall be permitted to be used as part of an accessible route.~~

~~**1108.4.1.3 Water Play Components.** Accessible routes serving water play components shall be permitted to use the exceptions in Section 1108.4.1.3.~~

**EXCEPTIONS:**

- ~~1. Where the surface of the accessible route, clear floor spaces, or turning spaces serving water play components is submerged, complying with Sections 302, 403.3, 405.2, 405.3, and 1108.4.1.6 shall not be required.~~
- ~~2. Transfer systems complying with Section 1108.4.2 shall be permitted to connect elevated play components in water.~~

Renumber remaining sections of 1108.4.1 as indicated.

**1108.4.1.4 1108.4.1.1 Clear Width.**

~~**1108.4.1.4.1 1108.4.1.1.1 Ground Level.**~~

~~**1108.4.1.4.2 1108.4.1.1.2 Elevated.**~~

**1108.4.1.5 1108.4.1.2 Ramps**

~~**1108.4.1.5.1 1108.4.1.2.1 Ground Level**~~

~~**1108.4.1.5.2 1108.4.1.2.2 Elevated**~~

~~**1108.4.1.5.3 1108.4.1.2.3 Handrails**~~

~~**1108.5.1.5.3.1 1108.5.1.2.3.1 Handrail Gripping Surfaces**~~

~~**1108.5.1.5.3.2 1108.5.1.2.3.2 Handrail Height**~~

**1108.4.1.6 1108.4.1.3 Ground Surfaces**

~~**1108.4.1.6.1 1108.4.1.3.1 Surface Condition**~~

~~**1108.4.1.6.2 1108.4.1.3.2 Use Zones**~~

**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 is intended to be an editorial revision without any technical changes being made. The purpose of the proposal is to revise the section into the format that is common for the standard and eliminate references to the exceptions within the section. Instead of referencing and saying that the exceptions can be used, simply show them as exceptions which will allow them to be used and accomplish the same thing in the normal format.

The format change should make the provisions less confusing and easier to follow.

Committee Action:           AS                   AM                   D

1108.4-PAARLBERG.doc

## 11-13 – 12

### 1108.4.1, 1108.4.1.1, 1108.4.1.2, 1108.4.1.3

**Proponent:** Kim Paarlberg, International Code Council

#### Revise as follows:

**1108.4.1 Accessible Routes.** Accessible routes serving play areas shall comply with Chapter 4 and Section 1108.4.1.1 through 1108.4.1.6.2 and shall be permitted to use the exceptions in Sections 1108.4.1.1 through 1108.4.1.3.

**1108.4.1.1 Ground level play components.** Accessible routes serving ground level play components shall comply with Chapter 4. ~~Where accessible routes serve ground level play components, the vertical clearance shall be 80 inches (2030 mm) minimum in height.~~

**1108.4.1.1 1108.4.1.2 Ground Level and Elevated Play Components.** Accessible routes serving ground level play components and elevated play components shall comply with Chapter 4 ~~be permitted to use the exceptions in Section 1108.4.1.1.~~

#### EXCEPTIONS:

1. ~~Where 20 or more elevated play components are provided, transfer systems complying with Section 1108.4.2 shall be permitted to be used as part of an accessible route for a maximum of 25 percent of the play components connect elevated play components except where 20 or more elevated play components are provided no more than 25 percent of the elevated play components shall be permitted to be connected by transfer systems.~~
2. Where fewer than 20 elevated play components are provided, transfer systems complying with Section 1108.4.2 shall be permitted to be used as part of an accessible route.
3. Where transfer systems are provided, An elevated play component shall be permitted to connect to another elevated play component as part of an accessible route.
4. Where accessible routes serve elevated level play components, the vertical clearance is not required to comply with Section 307.

**1108.4.1.2 1108.4.1.3 Soft Contained Play Structures.** Accessible routes serving soft contained play structures shall comply with Chapter 4 ~~be permitted to use the exception in Section 1108.4.1.2.~~

#### EXCEPTIONS:

1. Transfer systems complying with Section 1108.4.2 shall be permitted to be used as part of an accessible route.
2. Where accessible routes serve the soft contained play components, the vertical clearance is not required to comply with Section 307..

**1108.4.1.4 Water Play Components.** Accessible routes serving water play components shall comply with Chapter 4 ~~be permitted to use the exceptions in Section 1108.4.1.3.~~

#### EXCEPTIONS:

1. Where the surface of the accessible route, clear floor spaces, or turning spaces serving water play components is submerged, complying with Sections 302, 403.3, 405.2, 405.3, and 1108.4.1.6 shall not be required.

2. Transfer systems complying with Section 1108.4.2 shall be permitted to be used as part of an accessible route to connect elevated play components in water.
3. Where accessible routes serve elevated level play components, the vertical clearance is not required to comply with Section 307.

**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.

Remove redundant language. When you reference a section you don't have to also say they can use the exceptions. The main text should state requirements, not be there just to allow for exceptions.

Chapter 4 requires vertical clearance. Rather than repeating that for ground level accessible routes, there should be exceptions for the route within the play components.

Committee Action:           AS                   AM                   D

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## 11-14 – 12

### 1108.4.1.5

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1108.4.1.5 Ramps.** Within play areas, ramps connecting ground level play components and ramps connecting elevated play components shall comply with Section 405 except as modified by Section 1108.4.1.5.

**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 addition would pick up cross slope, edge protection, landings – all of which are currently not directly required. This would also pick up rise for ground ramps and slope for elevated ramps.

Committee Action:           AS                   AM                   D

1108.4.1.5-PAARLBERG.doc

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# 11-15 – 12

## 1108.4.1.5.3, 1108.4.5.3.1

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1108.4.1.5.3 Handrails.** ~~Where Handrails are required on both sides of ramps serving play components, and~~ the handrails shall comply with Section 505 except as modified by Section 1108.4.1.5.3.

**EXCEPTIONS:**

1. Handrails shall not be required on ramps located within ground level use zones.
2. Handrail extensions shall not be required.

**1108.4.1.5.3.1 Handrail ~~Gripping Surfaces~~ Cross section.** Handrail ~~gripping surfaces~~ with a circular cross section shall have an outside diameter of 0.95 inch (24 mm) minimum and 1.55 inches (39 mm) maximum. Where the shape of the ~~gripping surface handrail cross section~~ is non-circular, the handrail shall provide an equivalent gripping surface.

**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 ADA guidelines for playgrounds says that handrails are required on all elevated ramps within playground structures. The provisions for ramps say only when there is greater than a 6 inch rise. The literal code text says 'where required' but does not require it anywhere.

The change handrail gripping surface if for consistent terminology with handrails in Section 505.7.

Committee Action:            AS                            AM                            D

1108.4.1.5.3-PAARLBERG.doc

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# 11-16 – 12

## 1109.3.1, 1109.3.3

**Proponent:** Kim Paarlberg, International Code Council

### Revise as follows:

**1109.3.1 Sloped Entry Route.** Sloped entries shall comply with ~~Chapter 4~~ Sections 402, 402 and 405 except as modified by Sections 1109.3.1 through 1109.3.3.

**EXCEPTION:** Where sloped entries are provided, the surfaces shall not be required to be slip resistant.

**1109.3.3 Handrails.** At least two handrails complying with Section 505 shall be provided on the sloped entry where the sloped entry has a slope greater than 1:20. The clear width between required handrails shall be 33 inches (840 mm) minimum and 38 inches (965 mm) maximum.

### EXCEPTIONS:

1. Handrail extensions specified by Section 505.10.1 shall not be required at the bottom landing serving a sloped entry.
2. Where a sloped entry is provided for wave action pools, leisure rivers, sand bottom pools, and other pools where user access is limited to one area, the handrails shall not be required to comply with the clear width requirements of Section 1109.3.3.
3. ~~Sloped entries in wading pools shall not be required to provide handrails complying with Section 1109.3.3. If provided, handrails on sloped entries in wading pools shall not be required to comply with Section 505.~~ Where sloped entries are required to have handrails in wading pools, handrails are permitted to be located at the height appropriate for the age level the pool is designed for.

**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.

A reference to chapter 4 is too broad – this includes doors, elevators and platform lifts. The reference should be to walking surfaces and ramps.

Handrails are appropriate for ramps, but not for sloped walks. Having two handrails at a width of 33"-38" apart on a pool that chooses to have a large sloped walk entry is not necessary. This is very common in large pool settings where there may be areas or play that transition over to deeper pool areas for swimming. This is very common in family water parks. The exception for only one entry is not valid in these situations (1109.3.3 Exception 2). There is also a scoping issue between ADA and ICC A117.1 – 505.1 only requires handrails on ramps and stairs.

Typically a wading pool is a sloped walk, not a ramp slope, so handrails would not be required by 505.1. If handrails are required, the only thing that is appropriate to be deleted as a requirement is height. For small hands the designer can choose the smaller diameter permitted.

Committee Action:           AS                   AM                   D

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## 11-17 – 12

### 1109.6.1, 1109.6.2

**Proponent:** Kim Paarlberg, International Code Council

**Revise as follows:**

**1109.6.1 Pool Stairs.** Pool stairs shall comply with Sections ~~504~~ 504.2 through 504.5.

**EXCEPTION:** Pool step risers shall not be required to be 4 inches (100 mm) minimum and 7 inches (180 mm) maximum in height provided that riser heights are uniform.

**1109.6.2 Handrails.** At least two handrails complying with Section 505 shall be provided on the pool stairs. The width between handrails shall be 20 inches (510 mm) minimum and 24 inches (610 mm) maximum.

**EXCEPTION:** Handrail extensions required by Section 505.10.3 shall not be required at the bottom on pool stairs.

**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 change to Section 1109.6.1 is to revise the reference to only include appropriate sections. Pools stairs should comply with treads and riser dimensions, open risers, tread surface, nosings and handrails. The requirements for visual contrast, wet conditions, lighting and stair level identification are not appropriate for these stairs.

The change in Section 1109.6.2 is consistent with the style used for pool sloped entries in Section 1109.3.3. The direct reference to handrails through 505 is better than through 504.6.

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## 11-18 – 12

### 1110.2 (New)

**Proponent:** Kim Paarlberg, International Code Council

**Add new text as follows:**

**1110.2 Firing position counters.** Where a firing position requires shooting over a counter or wall, the top of the counter or wall shall be 34 inches maximum in height above the floor surface. If counter surfaces are provided at other firing positions of the same type, equivalent counter surfaces shall be provided at the accessible firing position.

**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.

Typical interior ranges are set up as firing positions separated by walls. The shooter fires over a wall or shelf at the target. Since the typical shooter is standing, the typical shelf height would obstruct the shooter in a seated position.



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