ICC A117.1 Comments on 2nd Draft

Proposal list to the 2017 A117.1 for the 2023 edition – 03-30-2025 Chapter 7 to 11

CHAPTER 7 COMMUNICATION ELEMENTS AND FEATURES

07-02 – 2021 overview

Proposal number	Proponent	Standard Sections	Committee Actions	Mtg. Date	Notes; Groups; groupings
07-02	Toji	703.1.3	AM 21-2-6	1-19-2023 6-6-2024	Final Action is AM 2-BC1

Comment 1st draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Dain, AIA	Negative	D 15-1-3	6-6-2024	
BC2	Paarlberg, AIA	Affirmative	AS 7-8-2 failed	6-6-2024	

BC= Ballot Comment, PC= Public comment, **Bold Comment number** is proposed revision below

Comment 2nd draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Bentzen, AERBVI	AM	AM 22-2-1	7-31-25	

07-02 – 2021

703.1.3

Proponent: Sharon Toji, Access Communications

Revise as follows:

SECTION 703
SIGNS

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. Where the visual and raised characters text descriptors are separate signs, only the visual characters shall be required below the pictogram.

Exception: Pictograms that provide information about a room or space, such as "No Smoking," occupant logos, and the International Symbol of Accessibility, shall not be required to have text descriptors.

REASON: We have found great acceptance of so-called "dual purpose signs" where the visual sign text is separated from the tactile and braille text, both by blind people who do not read braille as well as by people with partial vision who want larger, bolder visual text that exceeds tactile standards. Since we promote using pictograms for restrooms, it is difficult to separate them if we are exacting about the standards, which might mean having to keep the pictogram above both the visual and tactile versions, even though those who read solely by touch do not use the pictograms. Therefore, it seems helpful to indicate that pictograms that designate spaces only need to be included above the visual text. It provides for greater access for the partially sighted readers, as well as greater design freedom for sign designers.

07-02 – 2021 Replacement
703.1.3

Proponent: Sharon Toji, Access Communications

Replace and revise as follows:

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

~~**Exception**~~ **Exceptions:**

1. Pictograms that provide information about a room or space, such as "No Smoking," occupant logos, and the International Symbol of Accessibility, shall not be required to have text descriptors.
2. Where room designations with text descriptors for pictograms are provided on separate visual and tactile signs as permitted by Section 703.1, the visual and tactile components of the text descriptor shall be permitted to be displayed separately with the associated visual or tactile sign.

REASON: This modification is offered to clarify that the visual and tactile components of text descriptors for pictograms are permitted to be separated from the pictogram and provided on separate visual and tactile signs. The intent is that the visual text descriptor will remain with the pictogram which is visual only and that the tactile text descriptor will be located on a signs without a visual pictogram.

Committee Action: Approved as Modified 21-2-6

REPORT OF HEARING:

Modification (if any):
Replace and revise as follows:

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

~~**Exception**~~ **Exceptions:**

1. Pictograms that provide information about a room or space, such as "No Smoking," occupant logos, and the International Symbol of Accessibility, shall not be required to have text descriptors.
2. Where room designations with text descriptors for pictograms are provided on separate visual and tactile signs as permitted by Section 703.1, the visual and tactile components of the text descriptor shall be permitted to be displayed separately with the associated visual or tactile sign.

Committee Reason: The modification replaced the original proposal. (This modification was not distributed before the meeting.) The new exception two is consistent with the allowances in Section 703.1 for the visual information to be separate from the raised letters and braille. The intent is to allow the pictogram and visual to be on one sign, and the raised and braille located on another sign without a pictogram.

07-02 – 2021 Ballot Comments

BALLOT COMMENT 1- FIRST DRAFT: Proponent: *Daniel Dain, AIA*
Desired Action: Negative with comment
Modification:
Reason: 703.1 already applies a blanket statement that two separate signs are permitted, which allows 2 signs – 1 would have the pictogram and visual character text descriptor (703.2), the other sign complies with 703.3 has raised character text descriptor and braille only. 703.1.3 does not need to repeat this. It is also unnecessarily repeated as an exception in 703.2.

BALLOT COMMENT 2- FIRST DRAFT: Proponent: *Kimberly Paarlberg ,ICC*
Desired Action: Affirmative with comment
Modification: See Ballot Comment 2

07-02 – 2021 Ballot Comment 2

703.1.3

Proponent: Kimberly Paarlberg, ICC

Further modify as follows:

703.1.3 Pictograms. Where pictograms are provided as designations of permanent interior rooms and spaces, the pictograms shall comply with Section 703.5. Pictograms-shall have text descriptors complying with Sections 703.2 and 703.3 located directly below the pictogram field. Such signs shall be either one sign with the pictograms, visual and tactile characters, or two separate signs, one with the pictogram and visual characters, and one with tactile characters.

~~**Exceptions**~~ **Exception:**

1. ~~~~Pictograms that provide information about a room or space, such as "No Smoking," occupant logos, and the International Symbol of Accessibility, shall not be required to have text descriptors.
2. ~~Where room designations with text descriptors for pictograms are provided on separate visual and tactile signs as permitted by Section 703.1, the visual and tactile components of the text descriptor shall be permitted to be displayed separately with the associated visual or tactile sign.~~

REASON: I found the new wording in Exception 2 confusing. I am suggesting the following revision to simplify. This will coordinate with similar wording for signs without pictograms in Section 703.1. This will also coordinate with the terminology in 07-09-2021.

Committee Action for Ballot Comment 2: AS 7-8-2

REPORT OF HEARING:

Modification (if any):

Committee Reason: The requirement is not needed. This is already addressed in Section 703.1. This proposal should be disapproved.

07-02 – 2021 1st draft Committee Action

Committee Action for First Ballot: Final Action is D 15-1-3

REPORT OF HEARING:

Modification (if any):

Committee Reason: The requirement is not needed. This is already addressed in Section 703.1.

07-02 – 2021 2nd draft Ballot Comment 1
703.1.3

Proponent: Billie L Bentzen, AERBVI
Vote: negative with comment**,** AM

Further revise as follows:
703.1.3 Pictograms. Where pictograms are provided as designations of permanent interior rooms and spaces, the pictograms shall comply with Section 703.5. Pictograms shall have text descriptors complying with Sections 703.2 and 703.3 located directly below the pictogram field. Such signs shall be either one sign with the pictograms, visual and tactile characters, or two separate signs, one with the pictogram and visual characters, and one with tactile characters.

~~Exceptions~~ Exception:

1. ~~1.~~ Pictograms that provide information about a room or space, such as "No Smoking," occupant logos, and the International Symbol of Accessibility, shall not be required to have text descriptors.
2. ~~2. Where room designations with text descriptors for pictograms are provided on separate visual and tactile signs as permitted by Section 703.1, the visual and tactile components of the text descriptor shall be permitted to be displayed separately with the associated visual or tactile sign.~~

REASON: The intent of the Ballot comment 2 was clear, appropriate and helpful. AERBVI believes the proposal should be approved as modified by Paarlberg.

Committee Action on 2nd draft Ballot Comment 1: AM 22-1-2

REPORT OF HEARING:

Modification (if any):

Replace with the following:
703.1.3 Pictograms. Where pictograms are provided as designations of permanent interior rooms and spaces, the pictograms shall comply with Section 703.5. Pictograms shall have text descriptors ~~located directly below the pictogram field and~~ complying with Sections 703.2 and 703.1.4, and where located on the same sign, the text descriptor shall be located directly below the pictogram field.

Exception: Pictograms depicting occupant logos, and the International Symbol of Accessibility, shall not be required to have text descriptors.

Committee Reason: The modification allows for the text descriptor to be moved to a separate sign from the pictogram. Section 703.1 says that the visual characters can be separate from the braille.

07-02 – 2021 2nd draft Committee Action

Committee Action for Second Ballot: AM 2-BC1

REPORT OF HEARING:

Modification (if any):
Replace with the following:
703.1.3 Pictograms. Where pictograms are provided as designations of permanent interior rooms and spaces, the pictograms shall comply with Section 703.5. Pictograms shall have text descriptors ~~located directly below the pictogram field and~~ complying with Sections 703.2 and 703.1.4, and where located on the same sign, the text descriptor shall be located directly below the pictogram field.

Exception: Pictograms depicting occupant logos, and the International Symbol of Accessibility, shall not be required to have text descriptors.

Committee Reason: The modification allows for the text descriptor to be moved to a separate sign from the pictogram. Section 703.1 says that the visual characters can be separate from the braille.

Report for 07-02– 2021		
Committee decision: AM	***Committee Vote at Meeting: 21-2-6***	***Committee Vote on Ballot:38-2-1***
REPORT OF HEARING: Modification (if any): **Replace and revise as follows:** **703.1.3 Pictograms.** Where pictograms are provided as designations of permanent interior rooms and spaces, the pictograms shall comply with Section 703.5. Pictograms ~~and~~ shall have text descriptors ~~located directly below the pictogram field and~~ complying with Sections 703.2 and 703.3 located directly below the pictogram field. ~~**Exception**~~ **Exceptions:** 1. Pictograms that provide information about a room or space, such as "No Smoking," occupant logos, and the International Symbol of Accessibility, shall not be required to have text descriptors. 2. Where room designations with text descriptors for pictograms are provided on separate visual and tactile signs as permitted by Section 703.1, the visual and tactile components of the text descriptor shall be permitted to be displayed separately with the associated visual or tactile sign. Committee Reason: The modification replaced the original proposal. (This modification was not distributed before the meeting.) The new exception two is consistent with the allowances in Section 703.1 for the visual information to be separate from the raised letters and braille. The intent is to allow the pictogram and visual to be on one sign, and the raised and braille located on another sign located without a pictogram.		
Committee decision: D BC1	***Committee Vote at Meeting: 15-1-3***	***Committee Vote on Ballot: 39-1-1***
REPORT OF HEARING – FIRST DRAFT Modification (if any): Committee Reason: The requirement is not needed. This is already addressed in Section 703.1.		

Report for 07-02– 2021		
Committee decision: AM 2-BC1	**Committee Vote at Meeting: 22-1-2**	**Committee Vote on Ballot:**
FINAL ACTION: Approved as modified by 2nd ballot comment 1		
Modification (if any): **Replace with the following:** **703.1.3 Pictograms.** Where pictograms are provided as designations of permanent interior rooms and spaces, the pictograms shall comply with Section 703.5. Pictograms shall have text descriptors ~~located directly below the pictogram field and~~ complying with Sections 703.2 and 703.1.4, and where located on the same sign, the text descriptor shall be located directly below the pictogram field. **Exception**: Pictograms depicting occupant logos, and the International Symbol of Accessibility, shall not be required to have text descriptors.		
Committee Reason: The modification allows for the text descriptor to be moved to a separate sign from the pictogram. Section 703.1 says that the visual characters can be separate from the braille.		

07-06 – 2021 overview

Proposal number	Proponent	Standard Sections	Committee Actions	Mtg. Date	Notes; Groups; groupings
07-06	Toji	Table 703.2.4	D 23-0-2	2-2-2023 6-6-2024	Final Action is D

Comment 1st draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Toji, AHLAA	Negative	AS 2-16-2 failed	6-6-2024	

BC= Ballot Comment, PC= Public comment, **Bold Comment number** is proposed revision below

Comment 2nd draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Bentzen, AERBVI	AM	AS 1-22-5 (D)	8-14-25	

07-06 – 2021
Table 703.2.4

Proponent: Sharon Toji, Access Communications

Revise as follows:

SECTION 703
SIGNS

703.2 Visual characters.

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.

TABLE 703.2.4—VISUAL CHARACTER HEIGHT

Height above Floor to Baseline of Character[1]	Horizontal Viewing Distance	Minimum Character Height
40 inches (1015 mm) to less than or equal to 70 inches (1780 mm)	Less than 6 feet (1830 mm)	~~5/8~~ 1 inch (~~16~~ 25 mm)
	6 feet (1830 mm) and greater	~~5/8~~ 1 inch (~~16~~ 25 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 6 feet (1830 mm)
Greater than 70 inches (1780 mm) to less than or equal to 120 inches (3050 mm)	Less than 15 feet (4570 mm)	2 inches (51 mm)
	15 feet (4570 mm) and greater	2 inches (51 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 15 feet (4570 mm)
Greater than 120 inches (3050 mm)	Less than 21 feet (6400 mm)	3 inches (75 mm)
	21 feet (6400 mm) and greater	3 inches (75 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 21 feet (6400 mm)

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

REASON: The reason, I believe, that 5/8 inch was chosen as the minimum size for all visual signs is because the standard was attempting to compromise between the needs of visual readers and tactile readers, who need small characters so they do not need to trace them. Originally, the same characters were used for both visual and tactile aspects of designation signs. Designers tended to choose the minimum size for all signs, both tactile and visual, so the majority of persons with vision impairments but the ability to read visual signs were ignored. They needed larger, bolder characters with high contrast, the exact opposite of what tactile readers needed. Now that we have a standard that allows the tactile and visual characteristics to be separated, not only is there no reason for the majority of visual signs to be so small, but if the new standard is used, it is important that the visual sign letters be larger than those on the tactile sign, or else there is little point in the separation.

I have done studies at a national convention of the American Council of the Blind with 5/8 inch high visual/tactile characters to see how close persons who were self-identified as legally blind had to approach to read the signs. They walked along a measuring tape on the floor, and stopped when they could read the characters on the signs, which were mounted 60 inches on center, and used uppercase Helvetica with compliant stroke width for six randomly chosen characters. Minimum contrast was 70 percent according to the formula. Most subjects had to approach as

close as two or three inches, and virtually all complained with comments such as “the sign letters are always way too small for me to read.”

I also recently sent out tactile character plaques in a special font designed for tactile reading only, to about 100 blind and partial vision readers. Those who had the ability to read visually sometimes commented that they would like to have tactile signs using this font because it was so easy to read, it would be easier for them than the visual signs they often encountered because the visual characters were so small and had other problems like poor contrast.

When certain types of signs need smaller characters, an exception can be easily written to cover that. However, 1 inch characters are still very small, and we can hope that designers will increase the character size still more where space is available to do so.

07-06 – 2021 Modification
Table 703.2.4

Proponent: Kevin Brinkman, NEII

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**~~ **Exceptions:**

1. 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.
2. Visual characters for elevator landing and car controls shall be permitted to be 5/8 inch (16 mm) minimum in height.

Reason: The exception is needed for visual characters and symbols for elevator hall and car call buttons since the visual and tactile are never two separate signs. For example, the tactile and visual for the phone button are the same character. Users need to be directly in front of the elevator control for operation, so the horizontal viewing distance is significantly less than 6 feet. Also, increasing the size to 1 inch would make the size of the elevator car operating panel much larger and create issues for fitting all of the buttons within the reach ranges. The proponents Reason Statement recognizes that some characters will need to be smaller and notes an exception can be provided for those instances. This is one of those instances.

Committee Action: Disapproval 23-0-2

REPORT OF HEARING:

Modification (if any):

Committee Reason: The proposal was disapproved based on the proponents request that this needed further work. There was concern that signs that were both tactile and visual would have to comply with the additional size requirements for visual, and that would be confusing. There needs to be technical justification.

Table 703.2.4-TOJI.doc

07-06 – 2021 Ballot Comments

BALLOT COMMENT 1- FIRST DRAFT: Proponent: Sharon Toji. HLAA
Desired Action: Negative with Comment
Modification:
Reason: Comments were made that influences some voters, specifically representatives of the American Council of the Blind, that raising the minimum size of visual characters would also increase the size of tactile characters, and also that tactile characters would not be larger and less readable. More time was needed to prepare aids so that those with no vision could better access charts and prepare material to explain the proposal, which was designed specifically to aid those with low vision.

07-06 – 2021 1st draft Committee Action

Committee Action for First Ballot: AS 2-26-2; Final Action is D

REPORT OF HEARING:

Modification (if any):

Committee Reason: This was disapproved to be consistent with the committee's previous action on this proposal. This would increase the size of both visual and raised characters when the sign served as both. This would increase the size of the visual sign by 30%. This could either abbreviate signs or require and alternative location. There was no technical justifications provided.

07-06 – 2021 2nd draft Ballot Comment 1

703.2.4, Table 703.2.4

Proponent: Billie L Bentzen, AERBVI
Vote: negative with comment**,** AM

Replace 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**~~ **Exceptions:**

1. 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.
2. Visual characters for elevator landing and car controls shall be permitted to be 5/8 inch (16 mm) minimum in height.

TABLE 703.2.4—VISUAL CHARACTER HEIGHT

Height above Floor to Baseline of Character[1]	Horizontal Viewing Distance	Minimum Character Height
40 inches (1015 mm) to less than or equal to 70 inches (1780 mm)	Less than 6 feet (1830 mm)	~~5/8~~ 1 inch (~~16~~ 25 mm)
	6 feet (1830 mm) and greater	~~5/8~~ 1 inch (~~16~~ 25 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 6 feet (1830 mm)
Greater than 70 inches (1780 mm) to less than or equal to 120 inches (3050 mm)	Less than 15 feet (4570 mm)	2 inches (51 mm)
	15 feet (4570 mm) and greater	2 inches (51 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 15 feet (4570 mm)
Greater than 120 inches (3050 mm)	Less than 21 feet (6400 mm)	3 inches (75 mm)
	21 feet (6400 mm) and greater	3 inches (75 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 21 feet (6400 mm)

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

REASON: There is no question that visual characters only 5/8" in height require uncomfortably close viewing for many people with low vision. AERBVI does not agree that additional research is needed. 1" height is far better, and will make visual characters much more usable by readers having low vision. Since the same print height does not need to serve both visual and touch

readers, manufacturers and designers can determine which will best serve the needs in any location, allowing for 5/8" raised characters where there can be 1" characters for visual reading.

Some exceptions are appropriate, including the originally proposed exception, and the one for elevator controls proposed by Brinkman.

Committee Action on 2nd draft Ballot Comment 1: AS 1-22-5 (Final result D)

REPORT OF HEARING:

Modification (if any):

Committee Reason: The increase in visual signage would also increase the tactile signage. This would greatly increase the size of instructional signage for areas of refuge. This has already been voted down twice.

07-06 – 2021 2nd draft Committee Action

Committee Action for Second Ballot: Disapproval

REPORT OF HEARING:

Modification (if any):
Further modify as follows:

Committee Reason: The increase in visual signage would also increase the tactile signage. This would greatly increase the size of instructional signage for areas of refuge. This has already been voted down twice.

Report for 07-06– 2021		
Committee decision: D	***Committee Vote at Meeting: 23-0-2***	***Committee Vote on Ballot:42-1-2***
REPORT OF HEARING: Modification (if any):		
Committee Reason: The proposal was disapproved based on the proponents request that this needed further work. There was concern that signs that were both tactile and visual would have to comply with the additional size requirements for visual, and that would be confusing. There needs to be technical justification.		
Committee decision: AS	***Committee Vote at Meeting: 2-16-2 failed***	***Committee Vote on Ballot: 39-1-1***
REPORT OF HEARING – FIRST DRAFT		
Modification (if any):		
Committee Reason: This was disapproved to be consistent with the committee's previous action on this proposal. This would increase the size of both visual and raised characters when the sign served as both. This would increase the size of the visual sign by 30%. This could either abbreviate signs or require and alternative location. There was not technical justifications provided.		
Committee decision: AS	***Committee Vote at Meeting: 1-22-5 failed***	***Committee Vote on Ballot:***
FINAL ACTION: Disapproval		
Modification (if any):		

Report for 07-06– 2021
Committee Reason: The increase in visual signage would also increase the tactile signage. This would greatly increase the size of instructional signage for areas of refuge. This has already been voted down twice.

07-08 – 2021 overview

Proposal number	Proponent	Standard Sections	Committee Actions	Mtg. Date	Notes; Groups; groupings
07-08	Toji	703.2.10, 703.2.10.2, 703.2.10.2 (New), 703.3.12, 703.5.1, 705.3.2, 703.6.2.2	D 26-0-2	2-2-2023 4-25-2024 5-6-2025	Final action AM by PC3, 2-BC2 AS

Comment 1st draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Toji, HLAA	Negative	NA	4-25-2024	
PC1	Campbell, Peskin	AM	NA	4-25-2024	
PC2	Toji, HLAA	AM	NA	4-25-2024	
PC3	Communication task group	AM	AS	4-25-2024	Submitted as compromise between PC1 and PC2

BC= Ballot Comment, PC= Public comment, **Bold Comment number** is proposed revision below

Comment 2nd draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Bentzen, AERBVI; Wagner	AM	D – 18-5-5	5-23-2025	
BC2	Schrader, SEGD	AM	AS 23-1-3	6-5-2025	
BC3	Hall ASID	AM	NA	5-23-2025	

07-08 – 2021

703.1.10, 703.2.10.2, 703.2.10.2(New), 703.3.12, 703.5.1, 705.3.2, 703.6.2.2

Proponent: Sharon Toji, Access Communications

Revise as follows:

SECTION 703
SIGNS

703.2 Visual characters.

703.2.10 Finish and contrast. ~~Characters~~ Visual characters and their background shall have a nonglare finish. ~~Characters~~ Visual characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

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

703.2.10.2 Contrast. The light reflectance value (LVR) of the light or dark characters and their background shall differ by a minimum of 50 points of LRV.

703.3 Raised characters.

703.3.1 General. Raised characters shall comply with Section 703.3, and shall be duplicated in braille complying with Section 703.4.

703.3.12 Finish and contrast. ~~Characters and their background shall have a nonglare finish. Characters shall contrast with their background with either light characters on a dark background, or dark characters on a light background.~~ Where the same characters serve as the visual characters and raised characters, the sign shall comply with the visual character requirement for finish and contrast in Sections 703.2.10, 703.2.10.1 and 703.2.10.2.

Exception: Where separate raised characters and visual characters with the same information are provided, raised characters shall not be required to ~~have nonglare finish or to contrast with their background~~ comply with this section.

703.4 Braille

(Note: Braille does not have finish and contrast requirements)

703.5 Pictograms.

703.5.1 General. Pictograms shall comply with Section 703.5. The text descriptors located below the pictogram shall comply with Section 703.2 and 703.3.

703.5.2 Pictogram field. Pictograms shall have a field 6 inches (150 mm) minimum in height. Characters or braille shall not be located in the pictogram field.

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

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

703.5.3.2 Contrast. The light reflectance value (LVR) of the light or dark pictogram and their field shall differ by a minimum of 50 points of LRV.

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

703.6 Symbols of accessibility.

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

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

703.6.2.2 Contrast. The light reflectance value (LVR) of the light or dark symbol of accessibility and their backgrounds shall differ by a minimum of 50 points of LRV.

REASON: Part of this proposal is organizing the finish and contrast requirements for signs. The raised letters refers back to the visual letters. The text descriptor for the pictograms refers back to the visual and tactile requirements (this is consistent with Section 703.1.3).

Regarding the contrast: I have been trying for some time to move to the simplicity of most of the European countries, and specifically Great Britain, by merely requiring a specific spread between the low LRV and high LRV numbers for the two adjacent colors that would also make sense if you used the Weber 70 percent formula. In my opinion, the British requirement of 70 points for signs is too high, and would be immediately rejected by even those designers who want to provide high contrast.

The extensive exploratory work done by a special committee at NIBS, the National Institute of Building Standards, on architectural standards to aid people with vision impairments who are not functionally blind includes a close look at standards throughout much of the world as well as research by several well known figures in the field. I was shown an early copy of the report, and made extensive comments to the committee. Many of my comments appear to be reflected in the final publication. Two members of our ANSI A117.1 Committee, Marsha Mazz and Eunice Noell-Waggoner, were members of the NIBS committee as well. I believe the NIBS recommendations are well supported by their research.

Their recommendation on contrast, which they do explain is still a work in progress as much more needs to be done to understand how people with such a huge variety and mixture of vision impairments can best access the built environment, is that all signs as well as stair striping use adjacent colors that have LRV differences of at least 50 points. In several instances, they also note the Weber 70 percent formula. I assume this may mean that as I formerly suggested, we start with an LRV for the light color, find the second color, and then apply the formula to determine if the contrast meets a minimum of 70 percent.

In this case, I started with a very dark swatch, with an LRV of 5, compared it with a swatch of 55 to get the 50 points difference, and then also applied the formula. At that end of the scale the

percentage is about 90 percent. I moved upward 5 points at a time. Each move produced a lower percentage when the formula was applied. When I reached a lighter color with an LRV of 70, and compared it with a dark color with an LRV of 20, the contrast percentage was 71 percent. Although my conclusion is that it would be preferable at this point to apply the formula, they do not make that definite recommendation, and although I think it would be well founded, I have not done so either. Moving further up the scale into the lighter colors, and requiring a minimum 50 points of difference will not be ideal, but as a minimum, it is still preferable to many of the fashionable tone on tone signs I have seen lately, such as white letters on an ivory or pale beige background.

In further support, I think it is time for us to join the rest of the world. Virtually every country that has an extensive set of requirements for disabled access takes contrast seriously, and uses light reflectance values, or LRV, to measure adjoining colored surfaces for contrast. Some use the Weber formula, but more use a formula referred to as the Michelson formula. All of them have struggled, I believe, with the same concerns we have, that it is almost impossible to carry out a large scale study because the range of vision and vision impairments is so complex. However, it is certainly true that many forms of vision impairment, from common forms of red/green color blindness or Deuteranopia which affects as many as 8 percent of males in our population to more complex conditions like glaucoma or macular degeneration include some degree of inability to distinguish colors. Therefore, the differences in light reflectance are crucial if signs are to be visually accessible. We have listened to experts in contrast, vision and color and heard a report and recommendation from a subcommittee on contrast that worked together for a year and also included several experts. We came close to passing a measurable standard three times. Once it failed by one vote when the Chair broke a tie. None of these efforts at creating a measurable standard was perfect, but neither are most of our other standards. Who is to say, for instance, that our standard for ramps is exactly what is needed for access by the majority of wheelchair users? Almost every successful standard is some sort of compromise that serves many people quite well, some people fairly well, and some people not at all.

Let us finally move forward to the next step, and add contrast to the many issues where we have a measurable standard, though those standards are not always perfect. That is why we return every several years for revisions. We will not ever be able to move forward on this issue unless we start somewhere. Once we have a standard, we may be able to get grant money and do some meaningful research on how adequate that standard is in providing access to persons with partial vision and a variety of vision impairments.

Here are documents and articles that document the use of LRV to measure contrast in support of disabled access from around the world. The NIBS report is included, which refers to much of that material. There is an extensive article that mentions some of our efforts here, but documents that we do not have a measurable standard. There are two articles in German, which I did read in the original. The Google translation will be accurate if you do not read German, but you will need to break up the articles into several parts. One of those articles is especially interested in contrast for stair striping due to the high percentage of accidents on stairs.

https://www.nibs.org/files/pdfs/NIBS_LVDP_Guidelines_2015.pdf

https://www.anec.eu/images/Publications/technical-studies/ANEC-final-report-1503-1700-Lenoir-et-al.pdf

https://nullbarriere.de/din32975.htm

https://www.pro-retina.de/system/files/artikel/broschure_barrierefrei_2019ua_1_0.pdf

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07-08 – 2021 Replacement
703.1.10, 703.2.10.2, 703.2.10.2(New), 703.3.12, 703.5.1, 705.3.2, 703.6.2.2

Proponent: Kimberly Paarlberg, ICC

Further revise as follows:

Revise as follows:

SECTION 703
SIGNS

703.2 Visual characters.

703.2.10 Finish and contrast. ~~Characters~~ Visual characters and their background shall have a nonglare finish complying with Section 703.2.10.1. ~~Characters~~ Visual characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background complying with 703.2.10.2.

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

703.2.10.2 Contrast. The light reflectance value (LRV) of the light or dark characters and their background shall differ by a minimum of 50 points of LRV.

703.3 Raised characters.

703.3.1 General. Raised characters shall comply with Section 703.3, and shall be duplicated in braille complying with Section 703.4.

703.3.12 Finish and contrast. ~~Characters~~ Raised characters and their background shall have a nonglare finish complying with Section 703.2.10.1. ~~Characters~~ Raised characters shall contrast with their background with either light characters on a dark background, or dark characters on a light background complying with 703.2.10.2.

Exception: Where separate raised characters and visual characters with the same information are provided, raised characters shall not be required to ~~have nonglare finish or to contrast with their background~~ comply with this section.

703.4 Braille
(Note: Braille does not have finish and contrast requirements)

703.5 Pictograms.

703.5.1 General. Pictograms shall comply with Section 703.5.

703.5.2 Pictogram field. Pictograms shall have a field 6 inches (150 mm) minimum in height. Characters or braille shall not be located in the pictogram field.

703.5.3 Finish and contrast. Pictograms and their fields shall have a nonglare finish complying with Section 703.2.10.1. Pictograms shall contrast with their fields, with either a light pictogram on a dark field or a dark pictogram on a light field complying with 703.2.10.2.

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

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

703.6 Symbols of accessibility.

703.6.2 Finish and contrast. Symbols of accessibility and their backgrounds shall have a nonglare finish complying with Section 703.2.10.1. 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 complying with 703.2.10.2.

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

Reason: This is a proposal that has the same intent as the original, but removes redundant language. The specifics for non-glare and LVR should be stated once, so that they will not vary over time. There are two other differences with the original proposal. In Section 703.3.12 the revision says the same thing in the main paragraph and the exception. In Section 703.5.1, you do not need to state that the text descriptors for pictograms have to comply with visual and raised letters, because that is already stated in 703.1.3.

Committee Action: Disapproval 26-0-2

REPORT OF HEARING:

Modification (if any):

Committee Reason: The Communications task group needs additional time for development of LRV requirements.

07-08 – 2021 Ballot Comments

BALLOT COMMENT 1- FIRST DRAFT: Proponent: Sharon Toji. HLAA
Desired Action: Negative with Comment
Modification:
Reason: See proposed modification. Submission of reason statement and examples will follow.

07-08 – 2021 Public Comment 1

106.2.14 thru 106.2.20 (New), 703.1.4(New), 703.2.10, 703.2.10.2(New), 703.3.12, 703.5.1, 705.5.3.2, 703.6.2.2

Proponent: Chris McCampbell, Kenny Peskin

Replace with the following:

106.2.14 Standard for Safety Colors. ANSI/NEMA Z535.1, June 2, 2022, (National Electrical Manufacturers Association 1300 North 17th Street, Suite 900, Rosslyn, VA 22209).

106.2.15 Standard for Fire Safety and Emergency Symbols. NFPA 170, revised 2023-06-16. (National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471).

106.2.16 Graphical Symbols – Safety Colours and Safety Signs. ISO 3864-1:2011, (International Organization for Standardization, Chemin de Blandonnet 8, CP 401 - 1214 Vernier, Geneva, Switzerland,)

106.2.17 Graphical Symbols – Registered Public Information Symbols. ISO 7001:2023. (International Organization for Standardization, Chemin de Blandonnet 8, CP 401 - 1214 Vernier, Geneva, Switzerland,)

106.2.18 Graphical Symbols – Safety Colours and Safety Signs – Registered Safety Signs. ISO 7010:2019. (International Organization for Standardization, Chemin de Blandonnet 8, CP 401 - 1214 Vernier, Geneva, Switzerland,)

106.2.19 Standard for the Safety of Emergency Lighting and Power Equipment. ANSI/UL 924, revised 2022-12-14 (Underwriters Laboratories, LLC, 333 Pfingsten Road, Northbrook, IL 60062).

106.2.20 Standard for Luminous Egress Path Marking Systems. ANSI/UL 1994, revised 2020-07-01 (Underwriters Laboratories, LLC, 333 Pfingsten Road, Northbrook, IL 60062).

SECTION 703 SIGNS

703.1 General.

703.1.4 Contrast. The contrast required by Sections 703.2.10.2, 703.5.3.2, and 703.6.2.2 between the materials of adjacent sign surfaces shall be documented by the suppliers of these materials, and is limited to measurement of the sign's primary surface at the supplier's place of manufacture or by a testing agency, and as determined by Equation 7-1.

Contrast = [(B1 - B2)/B1] x 100 Equation 7-1

where B1 = light reflectance value (LRV) of the lighter surface; and
B2 = light reflectance value (LRV) of the darker surface.

Exceptions: The following signs are not subject to the documentation requirements in 703.1.4 or the calculation of contrast specified in Equation 7-1. Instead, visual characters, pictograms, and symbols of accessibility for the following signs shall contrast with their background as specified in 703.2.10, 703.5.3, and 703.6.2:

1. Photoluminescent signage that incorporates photoluminescent paint coatings that are prepared and applied in the field.
2. Exit signage required by the authority having jurisdiction, including UL924-listed or UL924-conforming Exit Signs.
3. Safety signage and markings, including UL924-conforming Safety Signs and UL1994-listed or UL1994-conforming Egress Path Markings.
4. Inserts that are placed behind a translucent protective cover or signage graphics applied to the subsurface (also known as the second surface) of translucent material.
5. Signage characters, pictograms, and symbols of accessibility installed directly onto wall surfaces.
6. Signage with colors, graphics, and images applied onto the subsurface of transparent or translucent sign material.
7. Signage with colors, graphics, and images produced with CMYK or process color printing processes.
8. Directional map signs.
9. Directional signs composed of three or more colors.
10. Pictograms and Symbols of Accessibility as specified under ANSI/NEMA Z535.1 (Standard for Safety Colors), ISO 3864 (Graphical Symbols – Safety Colours and Safety Signs), ISO 7001 (Graphical Symbols – Registered Public Information Symbols), or ISO 7010 (Graphical Symbols – Safety Colours and Safety Signs – Registered Safety Signs).

11. Pictograms and Symbols of Accessibility as specified under NFPA 170 (Standard for Fire Safety and Emergency Symbols), or the Federal Highway Administration's Manual on Uniform Traffic Control Devices.

703.2 Visual characters.

703.2.10 Finish and contrast. ~~Characters~~ Visual characters and their background shall have a nonglare finish. ~~Characters~~ Visual characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

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

703.2.10.2 Contrast. Characters and their background shall contrast 65 percent minimum as determined in accordance with Equation 7-1.

703.3 Raised characters.

703.3.1 General. Raised characters shall comply with Section 703.3, and shall be duplicated in braille complying with Section 703.4.

703.3.12 Finish and contrast. ~~Characters and their background shall have a nonglare finish. Characters shall contrast with their background with either light characters on a dark background, or dark characters on a light background.~~ Where the same characters serve as the visual characters and raised characters, the sign shall comply with the visual character requirement for finish and contrast in Section 703.2.10.

Exception: Where separate raised characters and visual characters with the same information are provided, raised characters shall not be required to ~~have nonglare finish or to contrast with their background~~ comply with this section.

703.4 Braille.

(Note: Braille does not have finish and contrast requirements)

703.5 Pictograms.

703.5.1 General. Pictograms shall comply with Section 703.5. The text descriptors located below the pictogram shall comply with Section 703.2 and 703.3.

703.5.2 Pictogram field. Pictograms shall have a field 6 inches (150 mm) minimum in height. Characters or braille shall not be located in the pictogram field.

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

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

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

703.5.3.2 Contrast. Pictograms and their fields shall contrast 65 percent minimum as determined in accordance with Equation 7-1.

703.6 Symbols of accessibility.

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

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

703.6.2.2 Contrast. Symbols or accessibility and their background shall contrast 65 percent minimum as determined in accordance with Equation 7-1.

REASON: This modification seeks to ensure that visual signs are accessible to all persons, including persons with low vision, while stating these new requirements through a means that encourages wide acceptance and adoption by users of the Standard.

This modification proposes to incorporate a contrast formula, based on Weber contrast (referred to as Equation 7-1) to factory-measure contrast for signs covered under the ICC A117.1 Standard, except for those signs named under the proposed exceptions, understanding that signs under the proposed exceptions list will remain covered under the light-on-dark and dark-on-light contrast provisions already in the Standard.

Committee Action Public Comment 1: NA – see PC3

REPORT OF HEARING:

Modification (if any):

Committee Reason:

07-07 Toji Campbell.doc

07-08 – 2021 Public Comment 2

703.1.10, 703.2.10.2, 703.2.10.2(New), 703.3.12, 703.5.1, 705.3.2, 703.6.2.2

Proponent: Sharon Toji

Replace with the following:

SECTION 703
SIGNS

703.2 Visual characters.

703.2.10 Finish and contrast. ~~Characters~~ Visual characters and their background shall have a nonglare finish. ~~Characters~~ Visual characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

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

703.2.10.2 Contrast. The stated light reflectance value (LVR) of the light and dark characters and their background shall differ by a minimum of 65 points of LRV, as measured by a spectrophotometer under CIE D65 illuminant.

703.3 Raised characters.

703.3.1 General. Raised characters shall comply with Section 703.3, and shall be duplicated in braille complying with Section 703.4.

703.3.12 Finish and contrast. ~~Characters and their background shall have a nonglare finish. Characters shall contrast with their background with either light characters on a dark background, or dark characters on a light background.~~ Where the same characters serve as the visual characters and raised characters, the sign shall comply with the visual character requirement for finish and contrast in Sections 703.2.10, 703.2.10.1 and 703.2.10.2.

Exception: Where separate raised characters and visual characters with the same information are provided, raised characters shall not be required to ~~have nonglare finish or to contrast with their background~~ comply with this section.

703.4 Braille

(Note: Braille does not have finish and contrast requirements)

703.5 Pictograms.

703.5.1 General. Pictograms shall comply with Section 703.5. The text descriptors located below the pictogram shall comply with Section 703.2 and 703.3.

703.5.2 Pictogram field. Pictograms shall have a field 6 inches (150 mm) minimum in height. Characters or braille shall not be located in the pictogram field.

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

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

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

703.6 Symbols of accessibility.

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

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

REASON: Having performed the Weber Formula on every possible choice of light and dark color combinations, ranging from a black with LRV 3 to a bright white with LRV 93, I have determined that separating the two LRVs by 65 points provides us with a contrast ratio of 70 percent and higher for every combination. It also sets the lighter color at minimum 68 LRV, quite firmly in the lighter section of the range of colors. It is my impression that the organized blindness community in the United States is in favor of a contrast ratio of at least 70 percent, which this meets, but they do not favor having to perform mathematical formulas to test contrast. By requiring a simple difference of 65 LRV points, we have met both of those preferences.

Committee Action Public Comment 2: NA, see PC3

REPORT OF HEARING:

Modification (if any):

Committee Reason:

07-08 Toji.doc

07-08 – 2021 Public Comment 3

703.2.10, 703.2.10.1, 703.2.10.2(New), 703.2.10.2.1(New), 703.2.10.2.2(New), 703.2.10.2.2.1(New)

Proponent: Communications task group

Replace with the following:

SECTION 703 SIGNS

703.2 Visual characters.

703.2.10 Finish and contrast. ~~Characters and their background shall have a nonglare finish. Characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.~~ The finish and contrast for visual characters shall comply Sections 703.2.10.1 and 703.2.10.2.

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

703.2.10.2 Contrast. Contrast for signs shall comply with Section 703.2.10.2.1 or 703.2.10.2.2, as applicable.

703.2.10.2.1 Dark and light signs. For the following sign types, visual characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

1. Inserts that are placed behind a translucent protective cover or signage graphics applied to the subsurface, also known as the second surface, of translucent material.
2. Signage with colors, graphics, and images applied onto the subsurface of transparent or translucent sign material.
3. Signage with colors, graphics, and images produced with Cyan Magenta, Yellow, Black (CMYK) or process color printing processes.
4. Maps.
5. Directional signs with color coded information.

703.2.10.2.2 High contrast signs. Visual characters on all other signs shall have high contrast of 65 percent minimum with their background as determined by the following equation:

Contrast = [(B1 - B2)/B1] x 100
where B1 = light reflectance value (LRV) of the lighter surface; and
B2 = light reflectance value (LRV) of the darker surface.

703.2.10.2.2.1 Compliance. Compliance with the Section 703.2.10.2.2 shall be determined by at least one of the following:

1. Documentation provided by the signage manufacturer based on information from the supplier of the material.
2. Documentation of compliance by a testing agency
3. Field measurement.

703.3 Raised characters.

703.3.1 General. Raised characters shall comply with Section 703.3 and shall be duplicated below the corresponding text in braille complying with Section 703.4.

703.3.12 Finish and contrast. Where raised characters also serve as visual characters, they shall comply with Section 703.2.10.2.
~~Characters and their background shall have a nonglare finish. Characters shall contrast with their background with either light characters on a dark background, or dark characters on a light background.~~

~~**Exception:** Where separate raised characters and visual characters with the same information are provided, raised characters shall not be required to have nonglare finish or to contrast with their background.~~

REASON: This proposal seeks to ensure that visual signs are accessible to all persons, including persons with low vision, while stating these new requirements through a means that encourages wide acceptance and adoption by users of the Standard.

This proposal proposes to incorporate a contrast formula, based on Weber contrast, to factory-measure or field-measure contrast for "LRV signs", except for those signs named under the "Dark and light signs" section, understanding that signs included in 703.2.10.2.1 must comply with "high contrast" provisions.

Use of 65% Minimum Contrast (Weber)

In the consensus proposal 01-05 (establishing 4 definitions for contrast terms) proposed by the Communications task group, the Reason statement cites two papers authored by Gregorio Feigusch and Isabella Tiziana Steffan in 2018 and 2021. In recent correspondence, Dr Feigusch is clear that he supports the use of ratio formulas (like this proposed formula) and opposes establishing a fixed lower limit for LRV difference between the visual characters and their background as 65 points minimum:

> In our opinion, **the substitution of simple difference formulas** (as in the previous edition of 21542) **with ratio formulas** (by Weber and/or Michelson) **was a great improvement, since ratio formulas better match the behaviour of human vision.** I don't understand if the proposals now under discussion deal only with text information. In any case, ISO 21542 (both in the 2011 edition and in the 2021 edition) specifies different requirements for large area surfaces, potential hazards and text information.
>
> **Above all, a lower limit of 65 for the LRV difference between characters and background is uselessly too limiting: such a requirement compels designers to choose only a few colors for the lighter surface and for the darker one."**
>
> -Gregorio Feigusch, 4/2/24 email (emphasis added)

This proposal's rules are consistent with the analysis of researcher Dr. Aries Arditi: (a) This formula is more specific than current "light on dark or dark on light"; (b) 65% minimum contrast (Weber) consistently applied across all colors vs. a simple difference of LRVs that could equate to a requirement for 90+% contrast when selecting black (or other colors with low LRV); (c)

without a fixed requirement for a specific numerical value for the lighter of two colors (which could exclude certain color families from use with either black or white).

Examples and information from Kenny Peskins - 07-08 Reason (Consensus version).pdf
Glen Dea's LVR and Munsell Lightness Scales presentation - LRV-and-Munsell_Lightness-Scales_2024-04-25.pdf

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Committee Action Public Comment 3: AS 24-4-4
Modification to add minimum LRV for lighter color failed, 12-14-3

REPORT OF HEARING:

Modification (if any):

Committee Reason:
703.2.10.2.1 - There are types of signs that cannot meet the equation, so the exceptions that fall to the previous option of light on dark is appropriate.
Color coding is important for wayfinding and needs to be an available option.

703.2.10.2.2 - The Weber formula is suited for specifying contrast.
The formula allows for standard warning and hazard sign colors with dark or light characters.
The LRV difference is older technology and would prohibit some very readable signs.
This is an improvement over the current requirements since it provides a measurable option for determining contrast.

703.2.10.2.2.1 – This is good because it provides options for compliance.

07-08 Communication.doc

07-08 – 2021 1st draft Committee Action

Committee Action for First Ballot: Final action is AM by PC3 24-4-4

REPORT OF HEARING:

Modification (if any):

Committee Reason:
PC3 - 703.2.10.2.1 - There are types of signs that cannot meet the equation, so the exceptions that fall to the previous option of light on dark is appropriate.
Color coding is important for wayfinding and needs to be an available option.

703.2.10.2.2 - The Weber formula is suited for specifying contrast.
The formula allows for standard warning and hazard sign colors with dark or light characters.

The LRV difference is older technology and would prohibit some very readable signs.
This is an improvement over the current requirements since it provides a measurable option for determining contrast.

703.2.10.2.2.1 – This is good because it provides options for compliance.

07-08 – 2021 2nd draft Ballot Comment 1

703.2.10.2.2

Proponent: Billie L Bentzen, AERBVI; Eunice Noel Wangner; negative with comment
Vote: negative with comment**,** AM

Further revise as follows:
703.2.10.2.2 High contrast signs. Visual *characters* on all other signs shall have high contrast of 65 percent minimum with their background as determined by the following equation:
Contrast = [(B1 - B2)/B1] x 100
where B1 = *light reflectance value* (*LRV*) of the *light* surface; and
B2 = *light reflectance value* (*LRV*) of the *dark* surface.
The light surface shall have a minimum light reflectance value (LRV) of 70.

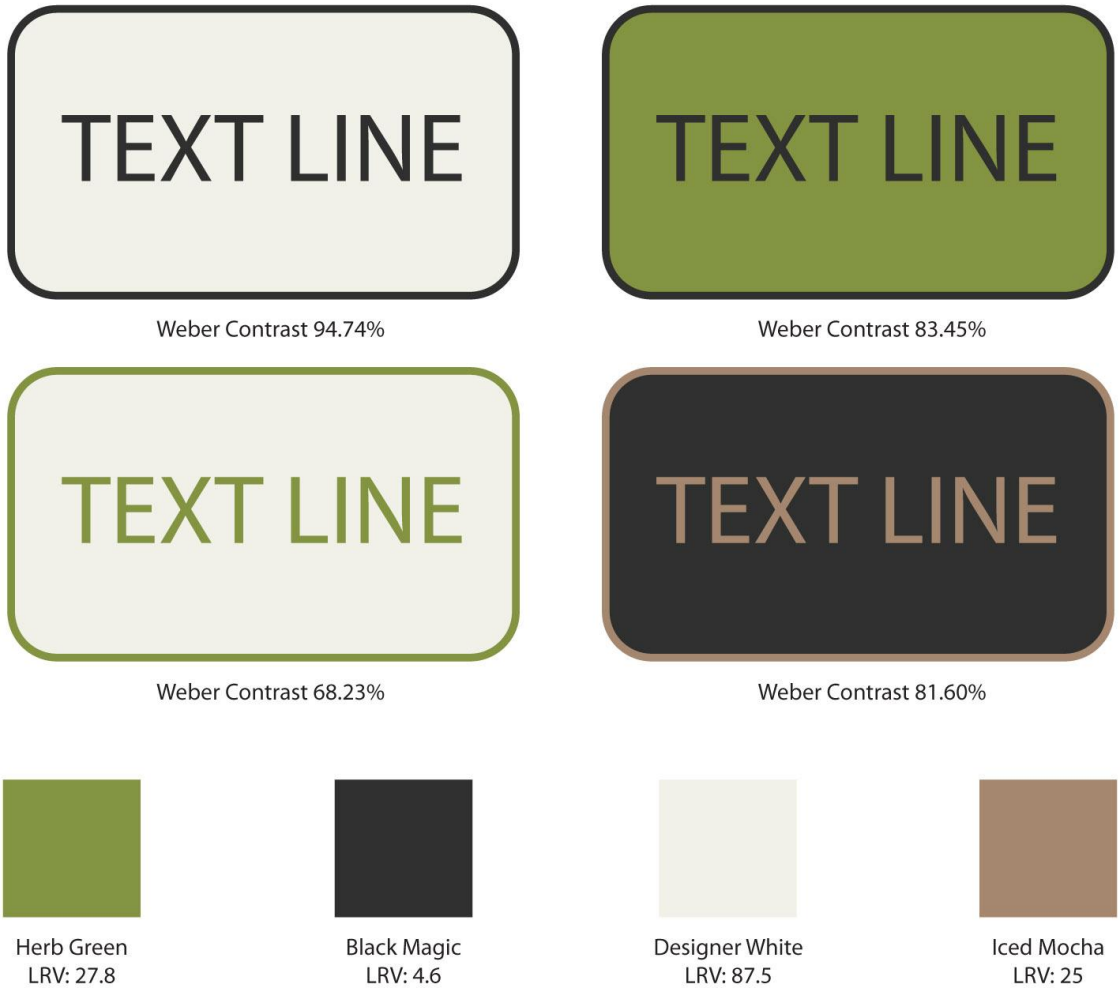
REASON:
BEEZY: AERBVI does not formally disapprove use of the Weber contrast formula to determine that contrasts in LRV of characters and their background are an acceptable minimum of 65%. However, it is well recognized that contrasts of 65% or greater can be achieved by pairing two quite dark colors and be hard to read. Thus signs that meet the 65% contrast by using a relatively dark color on a darker color, say Green Herb (LRV 27.8) on Black Magic (LRV 4.6), are quite hard to read, even by younger people having normal visual acuity when illumination is less than optimal. AERBVI is strongly opposed to use of the Weber formula without a lower limit for the LRV of the lighter color. A lower limit of 70 LRV is our recommendation.

Cheri Harbour who presented a webinar on visual contrast to the Communications Task Force on May 20, 2023, provided some interesting statistics on loss of contrast sensitivity with aging. Decrease in contrast sensitivity begins at 40-60 years of age. A person aged 75 needs twice as much contrast to see as well as a person 23 years old. Now consider that a person 80 years old needs a whopping ten times as much light to see as well as a 23 year old. While we are only dealing with contrast in this proposal, we have to recognize that illumination is often less than optimal and often variable where people need to read signs for wayfinding. Therefore it is essential to maximize contrast for signs.

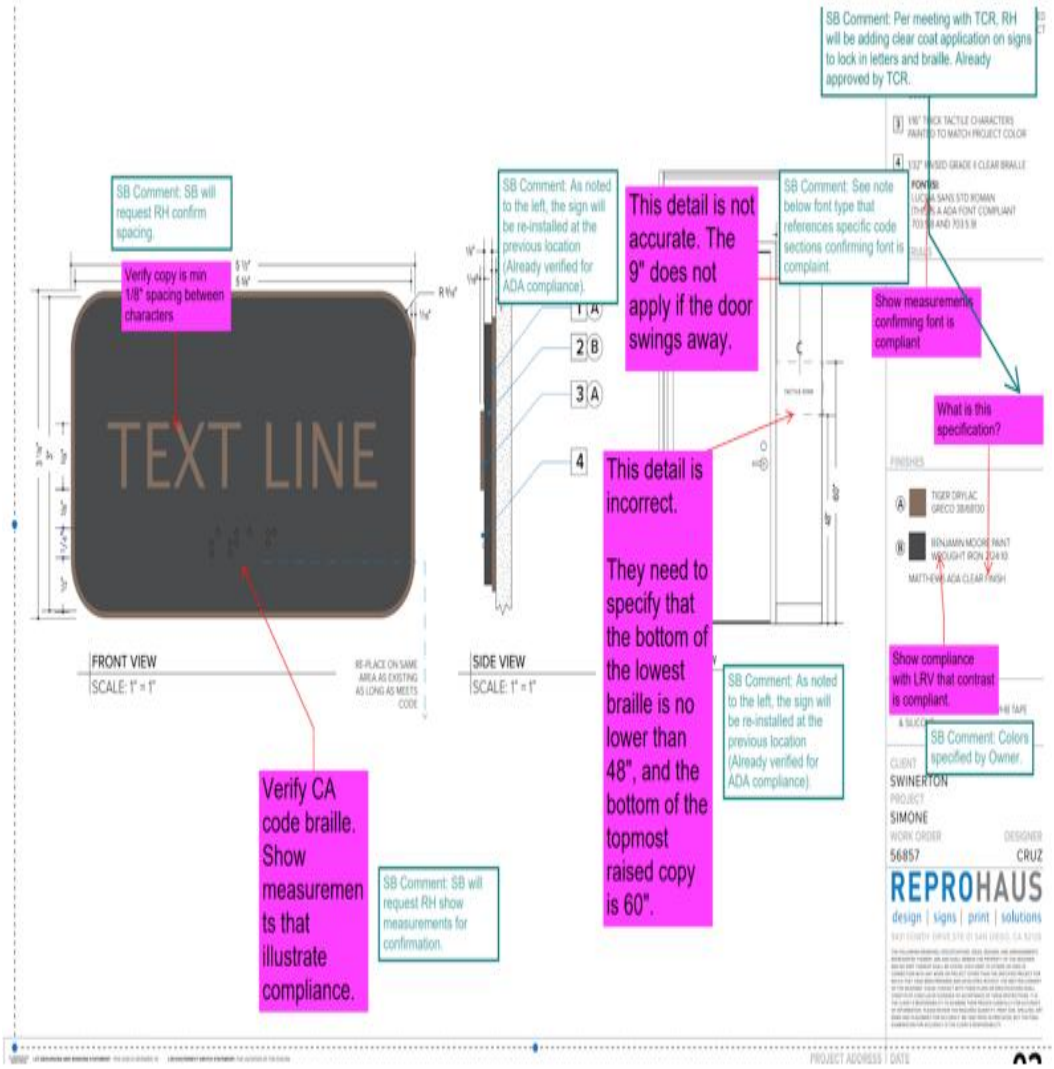
Signs are to be read. They are necessary for wayfinding. They are especially necessary for people who have limited ability to see other wayfinding cues in the environment. To prioritize the decorativeness of signs over their legibility is absurd. How many of us want to have a harder time getting around as we age not only because of changes in qualities such as strength, balance,

and agility, but because we have a hard time reading signs that help us confirm where we are or figure out which way we need to go.

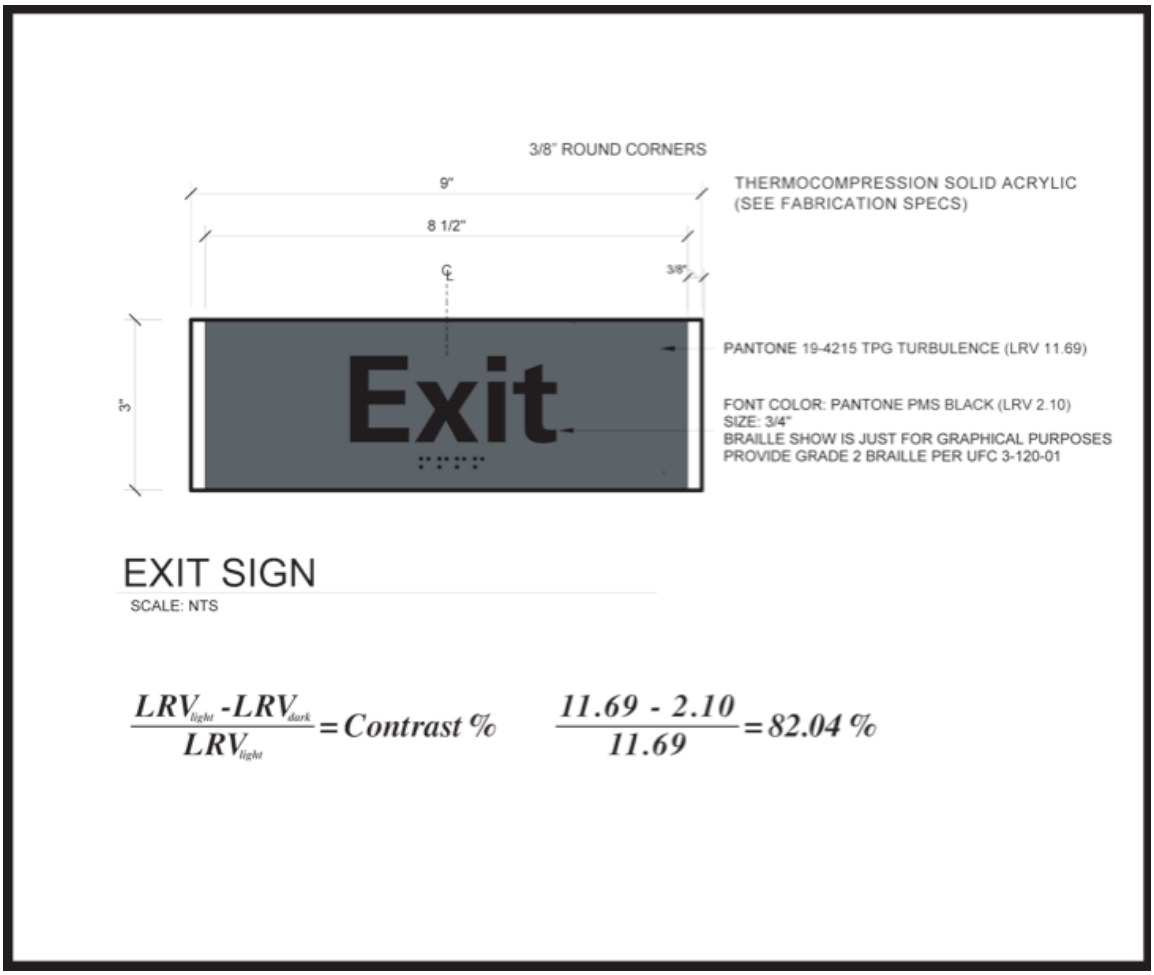
The Weber formula can optimize contrast for people having low vision, as well as people who have reduced contrast sensitivity only if it is qualified by a minimum LRV for the lighter surface. The following figures show how the Weber contrast (without qualification) can readily be 65% or greater when signs are comprised of two relatively dark colors, and not appear to the human eye as having high contrast. Black Magic on Green Herb, and Iced Mocha on Black Magic both contrast by more than 80%, well above the required 65%. Nonetheless, they are not perceived as having high contrast.



Signs meeting 65% (“Weber) contrast, that are nonetheless hard to read, are being designed and ordered. Here is an example of signage specifications that includes questions by the inspector in magenta. The lighter color is Tiger Drylac Greco 38/68130, which might be described as chocolate brown, and the darker color is black, Benjamin Moore Paint Wrought Iron 2124-10. The inspector asks for documentation of compliance with contrast, but does not specify what the contrast should be. The sign appears to be a (Weber) contrast much greater than 65%, yet the sign does not appear to be high in contrast, and it would be minimally legible in low illumination.



Here is another example of sign specifications, in which the LRV of the gray lighter color is 11.69, and the LVR of the black is 2.10. The resulting (Weber) contrast is 82.4%, far greater than the 65%; nonetheless the sign is not highly legible. Ironically, the designer is requesting exit signs, whose legibility may often be reduced by smoke, that are minimally legible.



Without qualifying the (Weber) contrast requirement of 65%, we are making it very simple for designers and manufacturers to design and manufacture signs that are minimally legible. We have not succeeded in creating a standard that will consistently result in signs that are legible to people with low vision, or to people with reduced contrast sensitivity. We have simply made it easy for designers and manufacturers whose products might have been disapproved by inspectors, based on their own perception, using the unquantified, hence unmeasurable, "light on dark or dark on light," to state that signs that are minimally legible have high numeric contrast and pass a requirement for 65% contrast.

The ISA website (11-22-2024) shows readers how to take advantage of the 65% (Weber) contrast requirement in the Proposal 07-08-2021.

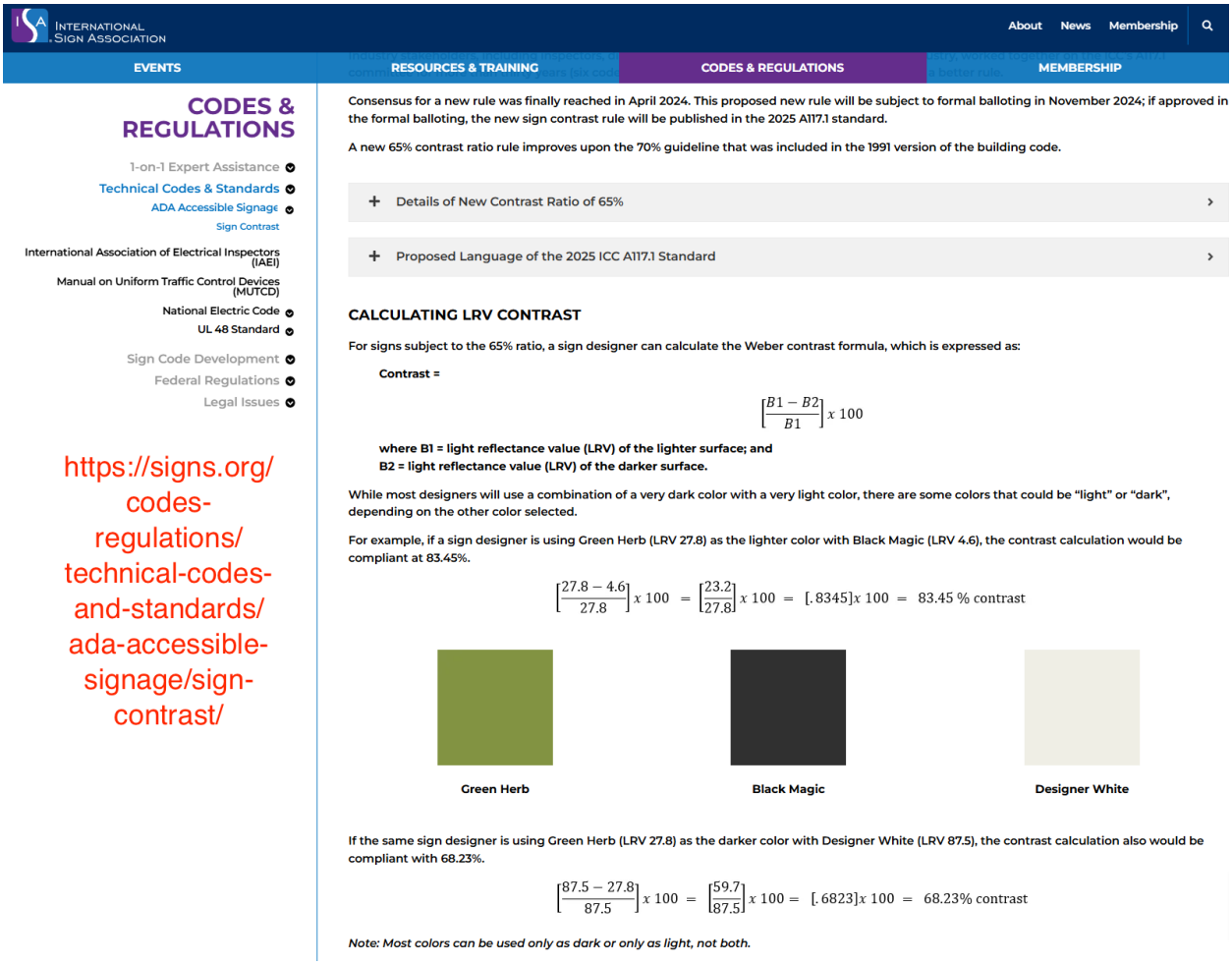
Proposal 07-08-2021 D/AMPC3
703.2.10.2.2 High contrast signs. Visual *characters* on all other signs shall have high contrast of 65 percent minimum with their background as determined by the following equation:
Contrast = [(B1 - B2)/B1] x 100
where B1 = *light reflectance value* (*LRV*) of the *light* surface; and
B2 = *light reflectance value* (*LRV*) of the *dark* surface.

The ISA website snippet below says “While most designers will use a combination of a very dark color with a very light color, there are some colors that could be "light" or "dark", depending on the other color selected.” It goes on to show that the color “Green Herb” (LRV 27.8) can be either a light color or a dark color, depending on what color it is paired with. The page concludes with the following “Note: Most colors can be used only as dark or only as light, not both.”

In fact, any color having an LRV of approximately 14 or above can be paired with Black Magic (LRV 4.6) and result in a (Weber) contrast that is greater than 65%. So there are a great many colors that can be paired with very dark colors having an LRV of approximately 5. Of course the number of colors that can be used as the “light” color decreases as the LRV of the “dark” color increases. Nonetheless, although the ISA website says that “Most colors can be used only as dark or only as light, not both,” this is simply not true. A great many combinations are possible that, although they meet the 65% (Weber) contrast, are not perceived by the human eye as being high contrast.

The heading of this paragraph is “High contrast signs,” but by providing only the Weber formula and the requirement that signs have a 65% minimum contrast, with no specification for the minimum contrast of the lighter color, we are providing a way for the signage and graphics industry to produce a great many signs that inspectors will approve that are not, in fact, perceived as very high contrast at all.

We are creating a standard that is likely to result in more signs that are perceived as having low contrast than we now have under the unmeasurable “light-on-dark or dark-on-light standard” that we have lived with for many years. The American Council of the Blind has advocated for many years for a standard that will ensure that signs have high contrast. Adopting this proposal without specifying a minimum contrast for the lighter color does not accomplish this. It could have the unintended consequence of reducing the proportion of newer signs that are highly legible because the perceived contrast is, in fact, quite low.



INTERNATIONAL SIGN ASSOCIATION

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EVENTS RESOURCES & TRAINING CODES & REGULATIONS MEMBERSHIP

CODES & REGULATIONS

1-on-1 Expert Assistance
Technical Codes & Standards
ADA Accessible Signage
Sign Contrast
International Association of Electrical Inspectors (IAEI)
Manual on Uniform Traffic Control Devices (MUTCD)
National Electric Code
UL 48 Standard
Sign Code Development
Federal Regulations
Legal Issues

https://signs.org/codes-regulations/technical-codes-and-standards/ada-accessible-signage/sign-contrast/

Consensus for a new rule was finally reached in April 2024. This proposed new rule will be subject to formal balloting in November 2024; if approved in the formal balloting, the new sign contrast rule will be published in the 2025 A117.1 standard.

A new 65% contrast ratio rule improves upon the 70% guideline that was included in the 1991 version of the building code.

+ Details of New Contrast Ratio of 65%

+ Proposed Language of the 2025 ICC A117.1 Standard

CALCULATING LRV CONTRAST

For signs subject to the 65% ratio, a sign designer can calculate the Weber contrast formula, which is expressed as:

Contrast =

$$\left[\frac{B1 - B2}{B1}\right] x\ 100$$

where B1 = light reflectance value (LRV) of the lighter surface; and
B2 = light reflectance value (LRV) of the darker surface.

While most designers will use a combination of a very dark color with a very light color, there are some colors that could be "light" or "dark", depending on the other color selected.

For example, if a sign designer is using Green Herb (LRV 27.8) as the lighter color with Black Magic (LRV 4.6), the contrast calculation would be compliant at 83.45%.

$$\left[\frac{27.8 - 4.6}{27.8}\right] x\ 100 = \left[\frac{23.2}{27.8}\right] x\ 100 = [.8345] x\ 100 = 83.45\ \%\ \text{contrast}$$

Green Herb **Black Magic** **Designer White**

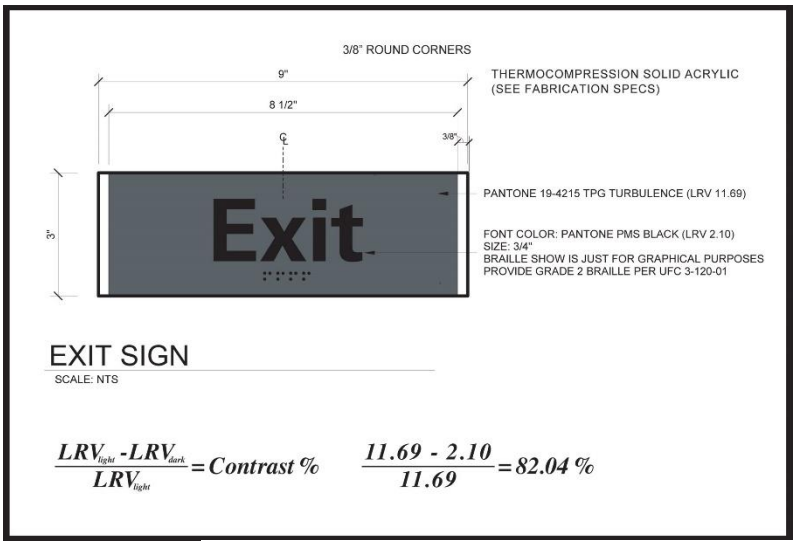
If the same sign designer is using Green Herb (LRV 27.8) as the darker color with Designer White (LRV 87.5), the contrast calculation also would be compliant with 68.23%.

$$\left[\frac{87.5 - 27.8}{87.5}\right] x\ 100 = \left[\frac{59.7}{87.5}\right] x\ 100 = [.6823] x\ 100 = 68.23\%\ \text{contrast}$$

Note: Most colors can be used only as dark or only as light, not both.

NOEL WAGNER

If approved as drafted, this code revision will negatively impact people with low vision, older people and those with loss of contrast sensitivity, by failing to define the light reflectance value of the lighter surface to be LRV of 70 or above, as established in 2021 by International Organization for Standardization (ISO) 21542:2021(E) Building Construction – Accessibility and usability of the built environment. This ISO document is focused on the same principles as ICC A117, and it was discussed during the Communications Task Group meetings. As currently approved, the language for 703.2.10.2.2 High Contrast Signs would allow the signage industry to take advantage of the flaw in the Weber Formula which shows a faulty high percentage of contrast between two dark surfaces, which is not what the human eye sees, as demonstrated in the Exit Sign below. That is why the lower limit of 70 LRV for the lighter surface needs to be established in this proposal. See examples:



Weber Contrast 68.23%

Weber Contrast 83.45%

Weber Contrast 68.23%

Weber Contrast 81.60%


Herb Green
LRV: 27.8


Black Magic
LRV: 4.6

Designer White
LRV: 87.5


Iced Mocha
LRV: 25

Currently dark colors are in vogue and signs installed today will last longer than the dark color fad. Little do the designers currently selecting these dark colors realize that these signs may be negatively impacting older friends, relatives and eventually themselves in the future. Any revision made in 2024 for signage requirements should reflect the needs of the broadest audience including those currently with vision impairment and those who will be developing the loss of contrast sensitivity.

The Importance of Contrast for the Aging Population and Age-Related Vision Changes: Sensory loss is the most common aspect of aging; however, perception problems e.g. vision are not easily recognized by others.

Low Vision is prevalent in the older population and increases dramatically at the age of 70. Defined as 20/60 in the better seeing eye, and cannot be corrected with glasses, contact lenses, medicine, or surgery. (National Eye Institute, Low Vision 2010) We see by visual contrast and as people age, they experience a loss of contrast sensitivity**.**

Projections for Low Vision (2010-2030-2050) (in thousands) https://nei.nih.gov/learn-about-eye-health/eye-health-data-and-statistics/low-vision-data-and statistics/-low-vision tables

Year	All	White	Black	Hispanic	Others
2010	2,907,691	2,336,035	189,553	251,365	130,738
2030	5,000,055	3,577,277	365,637	729,604	327,537
2050	8,913,397	5,794,719	624,657	1,750,069	743,952
Total Population:					
	142,648,393	103,846,437	15,190,777	14,901,369	8,709,810

What causes a decrease in contrast sensitivity?

(*Euin Cheong, OD, Why is Contrast Sensitivity Important? February 1 2024. Optometry Times Journal Digital edition 2024, 16: 1.)*

There are various ocular illnesses and diseases that have the potential to impact contrast sensitivity:

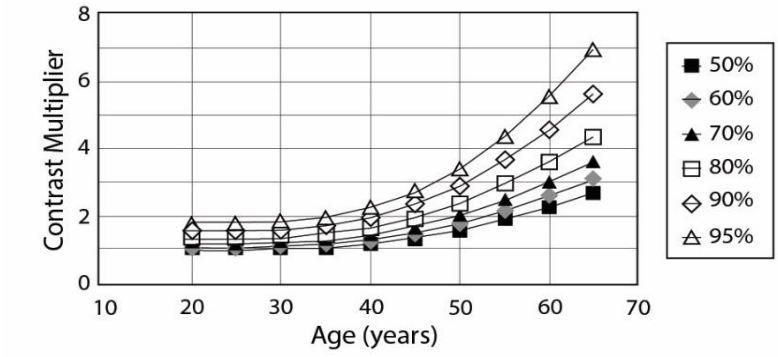
Cataracts: Result in diminished light transmission and the increased light scatter within the eye. This may result in a reduction in contrast sensitivity and visual blurring.

Glaucoma: refers to a collection of ocular disorders resulting in potential harm to the optic nerve. It has the potential to impact contrast sensitivity, which can happen in conjunction with peripheral vision loss.

Age-related macular degeneration (AMD):Is a pathological disorder that impacts the macula, which is the central region of the retina responsible for central vision. AMD is a frequent cause of a significant decrease in contrast sensitivity due to its detrimental effect on the macula.

Diabetic retinopathy: Is a condition that arises due to alterations in the retinal blood vessels as a consequence of diabetes, which can cause a temporary or permanent reduction of contrast sensitivity.

Contrast Multiplier by Age



This summary plot of contrast multiplier vs. age for various population ages shows how much the contrast of a task needs to be increased to compensate for reduced image quality on the eye's retina, because of filtering changes in the aged human lens. For example, an average (50% population curve) 60 y/o requires about 2.3 times as much contrast to have the same image contrast on the retina as does a 20 y/o. If 95% of 60 y/o are to be accommodated, the contrast needs to be increased by 5.5 times. (Reference: ANSI/IES RP-28-20, Figure 2-1)

Committee Action on 2nd draft Ballot Comment 1: D 18-5-5

REPORT OF HEARING:

Modification (if any):

Committee Reason: No new information was provided. The committee approved the formula knowing the could be signs could possible not be the best contrast all the time.

07-08 – 2021 2nd draft Ballot Comment 2

703.2.10.2.1

Proponent: Jessica Schrader, SEGD
Vote: affirm with comment, AM

Further revise as follows:
703.2.10.2.1 Dark and light signs. For the following sign types, visual characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

1. Inserts that are placed behind a translucent protective cover or signage graphics applied to the subsurface, also known as the second surface, of translucent material.
2. Signage with colors, graphics, and images applied onto the subsurface of transparent or translucent sign material.
3. Signage with colors, graphics, and images produced with Cyan Magenta, Yellow, Black (CMYK) or process color printing processes.
4. Maps.
5. Directional signs with color coded information.
6. Signage mounted to ~~natural~~ naturally variegated material.

REASON: We agree with the committee's actions, however, the committee should consider consistency between sections of the overall code. 05-13 – 2021 Public Comment 4 adds in exemptions for when the background material of a sign cannot be accurately measured, such as a naturally variegated material, which can also apply to signage in the built environment. Page 47 ICC (ASC A117) 2nd Ballot on Committee Action –Due Nov. 25, 2024

Further modify this proposal by adding similar language to the approved language from the second exception in 05-13 2021 Public Comment 4 to the exemptions list.

Committee Action on 2nd draft Ballot Comment 2: AM 23-1-3

REPORT OF HEARING:

Modification (if any):
Further revise as follows:
703.2.10.2.1 Dark and light signs. For the following sign types, visual characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

1. Inserts that are placed behind a translucent protective cover or signage graphics applied to the subsurface, also known as the second surface, of translucent material.
2. Signage with colors, graphics, and images applied onto the subsurface of transparent or translucent sign material.
3. Signage with colors, graphics, and images produced with Cyan Magenta, Yellow, Black (CMYK) or process color printing processes.
4. Maps.
5. Directional signs with color coded information.
6. Signage installed on ~~mounted to natural~~ naturally variegated material.

Committee Reason: Allowing for naturally variegated materials for a sign background was approved for stripes on stairways by 05-13. Future considerations might be to include other materials such as brick, which is not naturally occurring. Currently this would allow for attachment direct to wall to a sign of the same material. Modification is consistent with language used elsewhere in the standard.

07-08 – 2021 2nd draft Ballot Comment 3

703.2.10.2.1

Proponent: Angeline Arandanas Hall ASID
Vote: affirm with comment, AM

Further revise as follows:
703.2.10.2.1 Dark and light signs. For the following sign types, visual characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

1. Inserts that are placed behind a translucent protective cover or signage graphics applied to the subsurface, also known as the second surface, of translucent material.
2. Signage with colors, graphics, and images applied onto the subsurface of transparent or translucent sign material.
3. Signage with colors, graphics, and images produced with Cyan Magenta, Yellow, Black (CMYK) or process color printing processes.
4. Maps.
5. Directional signs with color coded information.

REASON: This question is to request clarification: Exception 1 specifically uses the terms "translucent protective cover". Is "translucent" the correct word vs. "transparent" or "clear"

(absence of color)? If "translucent" is intended, then there needs to be more qualifier language for "translucent".

Request the committee provide clarification that "translucent" is the correct term, and indicate minimal diffusion of light (minimal cloudiness) to permit the sign contrast desired with the main proposal.

Committee Action on 2nd draft Ballot Comment 3: NA

REPORT OF HEARING:

Modification (if any):

Committee Reason: No action. There were no suggestion for a change to Section 703.2.10.1. Translucent is an industry term that is understood. This allows for non-glare finish options.

07-08 – 2021 2nd draft Committee Action

Committee Action for Second Ballot: Approval as modified by 1st ballot public comment 3; AM 2nd ballot comment 2

REPORT OF HEARING:

Modification (if any):
Further modify as follows:

Committee Reason: Allowing for naturally variegated materials for a sign background was approved for stripes on stairways by 05-13. Future considerations might be to include other materials such as brick, which is not naturally occurring. Currently this would allow for attachment direct to wall to a sign of the same material. Modification is consistent with language used elsewhere in the standard.

Report for 07-08– 2021		
Committee decision: D	***Committee Vote at Meeting: 26-0-2***	***Committee Vote on Ballot: 42-1-2***
REPORT OF HEARING: Modification (if any):		
Committee Reason: The Communications task group needs additional time for development of LRV requirements.		
Committee decision: AM PC3	***Committee Vote at Meeting: 24-4-4***	***Committee Vote on Ballot:37-3-1***
REPORT OF HEARING – FIRST DRAFT		
Modification (if any):		
Committee Reason: **PC3 -** 703.2.10.2.1 - There are types of signs that cannot meet the equation, so the exceptions that fall to the previous option of light on dark is appropriate. Color coding is important for wayfinding and needs to be an available option. 703.2.10.2.2 - The Weber formula is suited for specifying contrast.		

Report for 07-08– 2021		
The formula allows for standard warning and hazard sign colors with dark or light characters. The LRV difference is older technology and would prohibit some very readable signs. This is an improvement over the current requirements since it provides a measurable option for determining contrast. 703.2.10.2.2.1 – This is good because it provides options for compliance.		
Committee decision: 2-BC2 AM	***Committee Vote at Meeting:*** 23-3-1	***Committee Vote on Ballot:***
FINAL ACTION: *Approval as modified by 1st ballot public comment 3; AM 2nd ballot comment 2*		
Modification (if any):		
Committee Reason: Allowing for naturally variegated materials for a sign background was approved for stripes on stairways by 05-13. Future considerations might be to include other materials such as brick, which is not naturally occurring. Currently this would allow for attachment direct to wall to a sign of the same material. Modification is consistent with language used elsewhere in the standard.		

07-19 – 2021 overview

Proposal number	Proponent	Standard Sections	Committee Actions	Mtg. Date	Notes; Groups; groupings
07-19	Toji	705.3	D 25-0-1	2-2-2023 6-6-2024 9-12-2024	Communications - 01-05, 05-13, 07-08 and 07-19 Final action is AM by BC2 & PC2/AM 2-BC1

Comment 1st draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Sheehan, ACB	Affirmative	NA	6-6-2024	
BC2	Bentzen, AERBV	Affirmative	AM 17-7-2	6-6-2024	
BC3	Toji, HLAA	Negative	NA	6-6-2024	
BC4	Dea, ISA	Negative	NA	6-6-2024	
BC5	Schrader, SEGD	Negative	NA	6-6-2024	
PC1	Communications	AM	AS 5-14-0 failed	6-6-2024	
PC2	Lozano	AM	AM 17-7-2	6-6-2024	Errata
Reconsideration	Paarlberg	AM	AS 5-16-1 failed	9-12-2024	

BC= Ballot Comment, PC= Public comment, **Bold Comment number** is proposed revision below

Comment 2nd draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Paarlberg, ICC	AM	AM 28-2-3	8-14-25	

07-19 – 2021
705.3

Proponent: Sharon Toji, Access Communications

Revise as follows:

SECTION 705
DETECTABLE WARNING SURFACES

705.3 Contrast. Detectable warning surfaces shall contrast visually with adjacent surfaces, either light-on-dark or dark-on-light. <u>The light reflectance value (LVR) of the light or dark detectable warning surfaces and their adjacent surfaces shall differ by a minimum of 50 points of LRV.</u>

REASON: I have been trying for some time to move to the simplicity of most of the European countries, and specifically Great Britain, by merely requiring a specific spread between the low LRV and high LRV numbers for the two adjacent colors that would also make sense if you used the Weber 70 percent formula. In my opinion, the British requirement of 70 points for signs is too high, and would be immediately rejected by even those designers who want to provide high contrast.

The extensive exploratory work done by a special committee at NIBS, the National Institute of Building Standards, on architectural standards to aid people with vision impairments who are not functionally blind includes a close look at standards throughout much of the world as well as research by several well known figures in the field. I was shown an early copy of the report, and made extensive comments to the committee. Many of my comments appear to be reflected in the final publication. Two members of our ANSI A117.1 Committee, Marsha Mazz and Eunice Noell-Waggoner, were members of the NIBS committee as well. I believe their recommendations are well supported by their research.

Their recommendation on contrast, which they do explain is still a work in progress as much more needs to be done to understand how people with such a huge variety and mixture of vision impairments can best access the built environment, is that all signs as well as stair striping use adjacent colors that have LRV differences of at least 50 points. In several instances, they also note the Weber 70 percent formula. I assume this may mean that as I formerly suggested, we start with an LRV for the light color, find the second color, and then apply the formula to determine if the contrast meets a minimum of 70 percent.

In this case, I started with a very dark swatch, with an LRV of 5, compared it with a swatch of 55 to get the 50 points difference, and then also applied the formula. At that end of the scale the percentage is about 90 percent. I moved upward 5 points at a time. Each move produced a lower percentage when the formula was applied. When I reached a lighter color with an LRV of 70, and compared it with a dark color with an LRV of 20, the contrast percentage was 71 percent. Although my conclusion is that it would be preferable at this point to apply the formula, they do not make that definite recommendation, and although I think it would be well founded, I have not done so either. Moving further up the scale into the lighter colors, and requiring a minimum 50 points of difference will not be ideal, but as a minimum, it is still preferable to many of the fashionable tone on tone signs I have seen lately, such as white letters on an ivory or pale beige background.

In further support, I think it is time for us to join the rest of the world. Virtually every country that has an extensive set of requirements for disabled access takes contrast seriously, and uses light reflectance values, or LRV, to measure adjoining colored surfaces for contrast. Some use the Weber formula, but more use a formula referred to as the Michelson formula. All of them have struggled, I believe, with the same concerns we have, that it is almost impossible to carry out a large scale study because the range of vision and vision impairments is so complex. However, it is certainly true that many forms of vision impairment, from common forms of red/green color blindness or Deuteranopia which affects as many as 8 percent of males in our population to more complex conditions like glaucoma or macular degeneration include some degree of inability to distinguish colors. Therefore, the differences in light reflectance are crucial

if signs are to be visually accessible. We have listened to experts in contrast, vision and color and heard a report and recommendation from a subcommittee on contrast that worked together for a year and also included several experts. We came close to passing a measurable standard three times. Once it failed by one vote when the Chair broke a tie. None of these efforts at creating a measurable standard was perfect, but neither are most of our other standards. Who is to say, for instance, that our standard for ramps is exactly what is needed for access by the majority of wheelchair users? Almost every successful standard is some sort of compromise that serves many people quite well, some people fairly well, and some people not at all.

Let us finally move forward to the next step, and add contrast to the many issues where we have a measurable standard, though those standards are not always perfect. That is why we return every several years for revisions. We will not ever be able to move forward on this issue unless we start somewhere. Once we have a standard, we may be able to get grant money and do some meaningful research on how adequate that standard is in providing access to persons with partial vision and a variety of vision impairments.

Here are documents and articles that document the use of LRV to measure contrast in support of disabled access from around the world. The NIBS report is included, which refers to much of that material. There is an extensive article that mentions some of our efforts here, but documents that we do not have a measurable standard. There are two articles in German, which I did read in the original. The Google translation will be accurate if you do not read German, but you will need to break up the articles into several parts. One of those articles is especially interested in contrast for stair striping due to the high percentage of accidents on stairs.

https://www.nibs.org/files/pdfs/NIBS_LVDP_Guidelines_2015.pdf

https://www.anec.eu/images/Publications/technical-studies/ANEC-final-report-1503-1700-Lenoir-et-al.pdf

https://nullbarriere.de/din32975.htm

https://www.pro-retina.de/system/files/artikel/broschure_barrierefrei_2019ua_1_0.pdf

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Committee Action: Disapproval 25-0-1

REPORT OF HEARING:

Modification (if any):

Committee Reason: The Communications task group needs additional time for development of LRV requirements.

Figure 705.3-TOJI.doc

07-19 – 2021 Ballot Comments

BALLOT COMMENT 1- FIRST DRAFT: Proponent: Pat Sheehan, ACB
Desired Action: Affirmative with comment
Modification:
Reason: A117.1 Committee Actions report 5-11-2023 Chapter 7 to 11 w comments draft
BALLOT COMMENT 2- FIRST DRAFT: Proponent: Billie Bentzen, Association for the Education and Rehabilitation of the Blind and Visually Impaired
Desired Action: Affirmative with comment
Modification: **See Ballot Comment 2**
BALLOT COMMENT 3- FIRST DRAFT: Proponent: Sharon Toji. HLAA
Desired Action: Negative with Comment
Modification:
Reason: Contrast sub group has prepared modifications and I will submit my proposed modification.
BALLOT COMMENT 4- FIRST DRAFT: Proponent: Glenn Dea, ISA
Desired Action: Negative with Comment
Modification:
Reason: The ISA supports and participated in development of a consensus modification recommended for approval by the Communications Task Group at its July 26, 2023 meeting.
BALLOT COMMENT 5- FIRST DRAFT: Proponent: Jessica Schrader, Society for Experiential Graphic Design
Desired Action: Negative with comment
Modification:
Reason: SEGD supports and participated in development of a consensus modification for approval by the Communications Task Group at its meeting held on July 26, 2023.

07-19 – 2021 Ballot Comment 2

106.2.14(New), 705.3

Proponent: Billie Bentzen, Association for the Education and Rehabilitation of the Blind and Visually Impaired

Replace with the following:

SECTION 106
REFERENCED DOCUMENTS

106.2.14 Aerospace Material Specification - (R) Colors Used in Government Procurement. AMS-STD-595A, revised 2017-02. (SAE International, 400 Commonwealth Drive, Warrendale, PA 15096).

SECTION 705
DETECTABLE WARNING SURFACES

705.3 ~~Contrast.~~ Color. Detectable warning surfaces shall ~~contrast visually with adjacent surfaces, either light-on-dark or dark-on-light.~~ be yellow and approximate Color ID 33538 (Yellow International) of SAE AMS-STD-595A.

REASON: "... light-on-dark or dark-on-light" has been found to be unsatisfactory because it is a totally subjective judgment. Two colors that are the same hue can be said to be dark-on-light or light-on-dark because they differ by a shade. Thus the intent of the existing standard has not been achieved.

Detectable warnings, according to the 1990 and 2010 ADAAG, DWS are “a standardized surface feature built in or applied to walking surfaces or other elements to warn of hazards on a circulation path.” I emphasize "to warn of hazards." Yellow International, or simply yellow, is used in the US and internationally to warn of hazards, so travelers worldwide associate the color yellow with danger or a warning. The MUTCD requires "yellow" to be used for warning indications. Detectable warnings are traffic control devices for people who are vision disabled, functioning much like stop bars for drivers. They mean "Stop, and assess the situation. Stay here until it is safe to proceed." As such, these traffic control devices, detectable warning surfaces, have a standard texture. They also need to have a standard color. Most people who are vision disabled have sufficient vision to see relatively large "patches" of yellow at a useful distance to determine where they should go to wait to cross the street they wish to cross, and to spot where the end of the crosswalk is, as they cross the street. Yellow is highly salient, even in somewhat low contrast situations or somewhat low illumination. It is the single color recommended for detectable warnings by Jenness and Singer (2006). It is the color that is required or used by the most states--and the most countries.

The use of a contrast formula for detectable warning surfaces is inherently unenforceable. Contrast values are greatly affected by illumination, moisture content of the surrounding surface, and age of the two surfaces. Any measured contrast between a detectable warning surface and its surround represents only contrast under specific conditions that can change from moment to moment. Therefore the contrast between any detectable warning color and the surrounding pavement will always vary. This is, of course, also true for International Yellow--but yellow will still be yellow.

Permitting Detectable warning surfaces to be in hues other than yellow, regardless of their contrast with the surround, means that the population they are designed to assist must figure out,

in any environment, what color is being used for detectable warnings. Cognitive processing is required, and tactile exploration of the surface may also be required to determine that, in a particular environment, for example, detectable warnings are red. Meanwhile, the traveler with low vision, who is used to relying primarily on visual cues for wayfinding and safety, who is not used to paying attention to tactile cues, may have entered a crosswalk without stopping to be sure it is a safe time to cross because she didn't realize she was stepping into the street. Indications of hazards need to be quickly recognized as indicating hazards. Permitting multiple colors will simply not result in the immediate communication of hazards. Permitting multiple colors will decrease the safety benefit of detectable warnings for the vulnerable population they are intended to serve. The color of detectable warnings that is selected for a specific project or neighborhood because it is aesthetically pleasing is likely to mean that, however high the contrast, the detectable warnings are less likely to be perceived as indicating hazards.

There has always been the understanding that detectable warning products needed to be slip resistant. However, there has been some variability in slip resistance, and some products that require coatings in order to be International Yellow have been somewhat slippery. However, the manufacturing challenges of producing detectable warning products, even in cast iron (preferred in cold climates), have been overcome, and products in current production meet a requirement for slip resistance. Materials currently being installed, and preferred by many jurisdictions, are all now slip resistant. Lack of slip-resistance in older products is not a valid argument against requiring detectable warning surfaces for new construction and alterations to be International Yellow.

Committee Action for Ballot comment 1: AM 17-7-2
Modification 24-0-1

REPORT OF HEARING:

Modification (if any):
Further modify as follows:
705.3. Color. Detectable warning surfaces shall be yellow ~~and approximate~~ Color ID 33538 (Yellow International) of SAE AMS-STD-595A to the maximum extent practicable.

Committee Reason: The modification removes unenforceable language and matches phrases used elsewhere in the standard. Safety yellow is recognized internationally as a warning color. Some states only allow yellow for detectable warnings currently.

07-19 Bentzen.doc

07-19 – 2021 Public Comment 1

106.2.14(New), 705.3, 705.3.1(New), 705.3.2(New), Table 705.3.2 (New), 705.3.3 (New), Table 705.3.2(New)

Proponent: Sharon Toji, representing the Communications Task Group

Replace with the following:

SECTION 106
REFERENCED DOCUMENTS

…..

106.2.14 Aerospace Material Specification - (R) Colors Used in Government Procurement. AMS-STD-595A, revised 2017-02. (SAE International, 400 Commonwealth Drive, Warrendale, PA 15096).

…..

SECTION 705
DETECTABLE WARNING SURFACES

……

705.3 Contrast and Color. Detectable warning surfaces shall comply with Section 705.3.1 or shall contrast visually with adjacent surfaces, either light-on-dark in compliance with Section 705.3.2 or dark-on-light in compliance with Section 705.3.3.

705.3.1 Color. The color of detectable warning surfaces shall be Yellow International (Color ID 33538) as specified in AMS-STD-595A.

705.3.2 Light-on-Dark Contrast. The color of detectable warning surfaces shall be one of the AMS-STD-595A colors listed in Table 705.3.2, provided that the light reflectance values (LRV) of adjacent walking surfaces that border detectable warning surfaces do not exceed the maximum values stated in Table 705.3.2.

Table 705.3.2 - Allowable Detectable Warning Surface Colors other than Yellow International (Color ID 33538 of SAE AMS-STD-595A) to Achieve Light-on-Dark Contrast

AMS-STD-595A Color ID	AMS-STD-595A Color Group or Name	Common Alternate Color Name	Maximum LRV of adjacent walking surfaces that border the detectable warning surface
37722	Misc	Alabaster White	17
37875	White International	Insignia White	17

705.3.3 Dark-on-Light Contrast. The color of detectable warning surfaces shall be one of the AMS-STD-595A colors listed in Table 705.3.3, provided that the light reflectance values (LRV) of adjacent walking surfaces that border detectable warning surfaces meet or exceed the minimum values stated in Table 705.3.3.

Table 705.3.3 - Allowable Detectable Warning Surface Colors other than Yellow International (Color ID 33538 of SAE AMS-STD-595A) to Achieve Dark-on-Light Contrast

AMS-STD-595A Color ID	AMS-STD-595A Color Group or Name	Common Alternate Color Name	Minimum LRV of adjacent walking surfaces that border the detectable warning surface
20109	F. S. Seminal Brown	Colonial Red	57
22144	Orange	Brick Red	57
31350	Red	Safety Red	57
36118	Gunship Gray	Gray	57
37038	Black International	Black	57

REASON: This proposed modification to 07-19-2021 requires the color of detectable warning surfaces in the ICC A117.1 Standard to be Yellow International (formerly termed "federal yellow") as this color “provides a high level of conspicuity for a given level of luminance contrast” (Jenness and Singer, 2006, p. 65). The modification also permits the option for detectable warning surface installations to be from a limited number of colors other than Yellow International, provided that the light reflectance values (LRV) of adjacent walking surfaces meet specific thresholds named in this modification. The colors named in this modification were selected following a review of the Federal Highway Administration (FHWA) final report, “Visual Detection of Detectable Warning Materials by Pedestrians with Visual Report” (Jenness and Singer, 2006, available via this US Access Board link https://www.access-board.gov/files/research/dw-visual-detection.pdf), including Tables 3, 4, and 15, and identifying possible DWS colors in wide use in the US that correlate with color selections that were found in the Jenness and Singer report to be highly detectable by persons who have low vision.

Committee Action for Public Comment 1: AS 5-14-0

REPORT OF HEARING:

Modification (if any):

Committee Reason: The committee preferred the option in BC2.

07-19 Toji.doc

07-19 – 2021 Public Comment 2
106.2.14, 705.3

Proponent: Eugene Lozano, Jr., California Council of the Blind

Replace with the following:

SECTION 106
REFERENCED DOCUMENTS

106.2.14 Aerospace Material Specification - (R) Colors Used in Government Procurement. AMS-STD-595A, revised 2017-02. (SAE International, 400 Commonwealth Drive, Warrendale, PA 15096).

SECTION 705
DETECTABLE WARNING SURFACES

705.3 Contrast. Detectable warning surfaces shall contrast visually with adjacent surfaces, either light-on-dark or dark-on-light. Detectable warning surfaces shall be yellow and approximate Color ID 33538 (Yellow International) of SAE AMS-STD-595A.

REASON: The California Council of the Blind (CCB) is in opposition to the Communications Task Group and Contrast Subcommittee (CTGCS) 07-19-2021 submission.

We are submitting an alternative text for Item 07-19-2021 to modify section 705.3 “Contrast.”, to require the color of detectable warning surfaces (DWS) in the ICC A117.1 Standard to be Yellow International (also known as "federal yellow") as this color “provides a high level of conspicuity for a given level of luminance contrast” [p. 65 of Jenness, J. and Singer, J. (May 24, 2006). Visual Detection of Detectable Warning Materials by Pedestrians with Visual Impairments, Final Report, (Task Order 18 under Project DTFH61-01-C-00049). Westat, Rockville, MD. Federal Highway Administration, Washington, DC].

The CCB’s position is based on detectable warning and color research; July 8, 2023 presentation from Dr. Qasim Zaidi to the CTGCS; American Council of the Blind Resolution 2011-06 “Detectable Warning Specifications”; Council of Citizens with Low Vision International Resolution 90-06; and CCB Resolutions 2000B-7 “Detectable Warning Specifications” and 2012 B-4 “Federal Yellow”.

Additionally, attached to this public comment modification form are three documents for your information:

- A document containing excerpts from the DOT 1992 Equivalent Facilitation report;
- Don Kimble’s Excel sheet “State DOTS's – revised”; and

- A synthesis of work providing the reader the rationale for requiring Yellow International as the single solid color to be used for DWS installations. The reader will find in this attachment a compilation of available general facts as well as excerpts from articles, correspondence, and studies for requiring yellow.

Under the 2010 ADA Access Standards, in Section 106 “Definitions”, Subsection 106.5 “Defined Terms.”, DWS are defined as “a standardized surface feature built in or applied to walking surfaces or other elements to warn of hazards on a circulation path.”

Below are excerpts taken from a report by the U.S. Department of Transportation (DOT), Federal Transit Administration report “Assessment of Detectable Warning Devices for Specification Compliance or Equivalent Facilitation (Spiller & Multer, 1992)”, explaining the importance of consistency in the defining of DWS as “a standardized surface”:

- “3. HUMAN PERFORMANCE CONSIDERATIONS SUPPORTING THE DEVELOPMENT OF DETECTABLE WARNINGS

Consistency

In order to facilitate unambiguous interpretations, the detectable warning should serve a single, designated function. If a warning surface conveys more than one meaning, the message communicated will be ambiguous and open to interpretation. This may lead to situations in which the surface is detected, but is associated with the incorrect interpretation. The outcome may be an increased likelihood that the visually impaired fail to avoid edge drop-offs. In addition, it is paramount that there be consistency in the design of the warning device. Consistency is important in facilitating expectations in the general population, including the disabled. Consistency in design helps the individual to develop expectations about what constitutes a detectable warning. The ADA guidelines recognize the importance of this concept in the definition of a detectable warning as "a standardized surface feature." This principle also guides the development of traffic control systems in general (Federal Highway Administration, 1983). The Manual on Uniform Traffic Control Devices recognizes the absolute importance of uniformity as a nationwide objective to achieve effective traffic control results, economy in the manufacture, installation, maintenance and administration of control devices, and as a defense against adverse judgements in tort liability cases. The concept of uniformity extends to:

  - uniformity in design, which aids in instant recognition and comprehension; (control device design includes shape, color, size, symbol, wording, lettering, illumination and reflectorization);
  - uniformity in meaning, which aids in complying with the device;
  - uniformity in application, which promotes observance and avoids excessive or unwarranted use of the control devices;
  - uniformity in location, which reduces the possibility of not "seeing" a control device (critical for hazard warning devices!).

Blind travelers also emphasize the importance of consistency of design and layout for navigation both within a transit system and between transit systems (Peck and Bentzen, 1987).” (pp. 3-2 – 3-3).

- “4. APPLICATION OF EQUIVALENT FACILITATION TO DETECTABLE WARNINGS

4.1 CONFLICT BETWEEN A STANDARDIZED WARNING AND EQUIVALENT DESIGN ALTERNATIVES

Consistency in design helps the individual to develop expectations about what constitutes a detectable warning. The more unique the detectable warning is from adjacent surfaces, the more quickly the visually impaired person can recognize it and act to avoid a potential hazard. However, the availability of more than one warning surface places additional information processing demands upon the visually impaired to determine whether a surface represents a detectable warning. Encountering multiple surfaces that are intended to serve as detectable warnings within or between transit systems, or at street intersections in different localities, increases the opportunity for the visually impaired to fail to recognize a detectable warning where one exists and to mistake a surface for a detectable warning where one does not exist.” (p. 4-1).

Accepting the CTGCS 07-19-2021 submission will violate the requirement that DWS are to be a standardized warning surface, as stated above, since it “… permits the option for newly constructed or newly altered detectable warning surface installations to provide detectable warning surfaces of a limited number of colors other than [Yellow International] …”. Therefore, for a DWS to be an effective warning surface, there must be uniformity in its tactile, auditory, and visual/color cues, i.e., CCB’s 07-19-2021 submission.

CCB’s submission will facilitate unambiguous interpretations in color meaning by requiring the use of Yellow International for all DWS, including those at curb ramps and islands or cut-through medians. Otherwise, if a DWS color conveys more than one meaning, as does CTGCS’ submission, the message communicated will be ambiguous and open to interpretation, as well as having safety and access ramifications for people with full or low vision.

CCB’s position for the use of Yellow International has been repeatedly substantiated over the decades by scientific research. Further, the usage of yellow has been integrated into international (ISO 3864-4) and national [ANSI Z535.1 and the Federal Highway Administration (FHWA), Manual on Uniform Traffic Control Devices (MUTCD), Chapter 1A General, Section 1A.12 Color Code) standards, which assign this color to be used for warning, caution signs, and alerts of physical hazards including those concerning falling, tripping, and striking, and designating caution.

More specific DWS color research has found:

1. Using a 70 percent minimum visual contrast is not readily achievable in providing high visual detectability and adequate visual contrast of the DWS with adjacent walking surfaces that use a variety of paving materials in the built environment. Physiologically,

yellow is near the peak of the human photopic luminosity function, and thus is the color that appears brightest to the human eye.

2. Standardizing the light reflectance value of a warning surface should be separate from the light reflectance value of the paving material used for the approach surface.
3. Specifying a single solid color would result in DWS being universally recognized as warnings, reliably visually detectable, and highly salient to people having low vision.
4. Specifying Yellow International as the single solid color would result in a distinct and easily differentiated color from the adjoining walking surfaces, as well as being a unique color to encounter in one's environment, which invariably denotes risk, warning, and the need for caution. This is because yellow or colors close to it are rarely used for walking surfaces. Alternative warning colors, such as black, white, gray, and brown are more likely to lose conspicuousness against certain commonplace backgrounds, as walking surfaces are most commonly of neutral colors; while orange and red are often found in decorative colored pavements.

Furthermore, federally funded research has looked at which detectable warning colors and patterns are visually detectable and conspicuous to pedestrians with visual impairments, such as Jenness and Singer (2006). The general conclusion from research agrees that a standardized color scheme is needed for single-color DWS, and that Yellow International is the best choice.

Additionally, over the last few decades, there has been a serious movement in architectural design towards a user-oriented design approach that emphasizes human needs (physical access) as much as aesthetics.

Nevertheless, despite credible color research and support from color safety codes, the user-oriented design approach with a human needs emphasis has not always been followed by local public works departments, architects, property owners, elected officials, and others in the selection of a single solid predictable color used for DWS. Instead, there has been a favoring in selecting DWS with colors of high aesthetic quality, as found in CTGCS' submission, over the use of Yellow International to minimize these warning surfaces' supposed visual impact to adjoining building designs and the value of these properties.

The use of multiple solid colors (black, blue, green, brown, red, yellow, gray, etc.) for more aesthetically appealing DWS leads to ambiguous interpretations and the unfounded assumption that there is no differential meaning for each color.

In actuality, there is a differential meaning for each color. Furthermore, the CTGCS' submission proposed alternative colors to yellow are already defined as safety code colors in the FHWA MUTCD 2009 Edition with Revisions No. 1, 2, and 3 Incorporated, dated July 2022, Part 1, Chapter 1A, Section 1A.12 "Color Code"; for example, black and white for regulations, brown for recreational and cultural interest areas, orange for temporary traffic control, and red for stop or prohibition.

On the other hand, what safety code color has the FHWA MUTCD (2009) already officially associated with "warnings" and caution/warnings signs? Yellow.

That is to say, regardless of how one may use a DWS as a wayfinding system, their purpose is, as a reminder, “to warn of hazards on a circulation path”, i.e., detectable warnings are used for warnings and to denote caution to pedestrians. This is because DWS function in the same way that caution/warning signs do for pedestrians and motorists.

The ambiguity of the use of multiple colors, many of which already have distinct meanings assigned to them, as previously exemplified, can contribute to an increased likelihood for people with low vision to lose the instant recognition and comprehension of DWS, increasing the potential of not seeing edge drop-offs or unknowingly entering vehicular traffic areas. Thus, it is paramount there is consistency in the color of DWS throughout the country, which would achieve an effective uniform warning/caution so as to avoid any potential incidents.

Uniformity of color helps pedestrians with full or low vision to understand quickly the message of a DWS to take caution as they are approaching a surface with a pattern of truncated domes, so to avoid trips and falls, as well as prior to entering a vehicular area. Consistency and predictability are important for pedestrians’ attention, respect, and recognition and for proper reaction to the DWS.

Traditionally, color has been used to code safety information because of its ability to attract attention and evoke a rapid response. For ANSI to assign a standard color for all DWS is analogous to the typical highway application for color coding traffic signals, safety information and directions to allow a motorist to see and recognize a color and respond immediately with the desired action, thus further supporting the need for all DWS applications to have a single standardized color, to serve a similar purpose for pedestrians.

To further support the above analogy and the use of a single color, a 2017 study by Eugene A. Bourquin, DHA, COMS, found that, with regards to visual cognition, besides the salience of the color white for long canes, the ubiquity of it and ultimately, the strong memory and association of white canes to people who are blind highly influenced drivers’ likeliness to notice and yield to them, which was 22% to 46% greater compared to other colors.

Applying that same logic to DWS, yellow is already the most commonly used and/or required color, not only in California, but also in at least 21 other states, as per Don Kimble’s Excel sheet “State DOTS's – revised”. In other words, the association of yellow with warning/caution, in general, and also with DWS, to pedestrians is already well-established.

Why break down that recognizability by allowing other colors to be used? This will result in losing the strong recognizability and association of certain colors with distinct messages (e.g., yellow with warning/caution and DWS). Also, by adding more colors to memorize for DWS, it puts more demand on the memory of the aging population with vision loss, whose own memory is often in decline. What then is the point of choice when it risks the safety of the very pedestrians the Standard is to protect and provide access?

Lastly, the prescriptive color of Yellow International will not only work as a defense against adverse judgment in tort liability cases, but also bring about economy in the manufacture of this warning surface. It would be more cost effective for manufacturers to utilize only one color, and

as far as the CCB is aware, there has been no opposition from manufacturers to just using one color.

Thus, we support yellow not only for the purpose of maintaining universality and the scientific research that substantiates its use as a warning/caution color, but also ensuring safety to pedestrians and saving manufacturers from any amount of cost that multiple colors would yield.

Our opposition to allowing the use of multiple colors for the aesthetics of state and local DOT, as well as adjacent property owners, is also based on the larger message that this can send regarding any signs or surface features. Allowing state and local DOT, adjacent property owners, etc., the option to choose any color they want for DWS can be easily extended to and made as an argument for allowing the option for any color to be used for other caution signs/tapes, traffic signs/signals, and other surface features, many of which whose color associations, like DWS, are already well-established de jure or de facto.

In closing, CCB urges the ICC A117.1 Standards Committee to consider and approve the CCB's 07-19-2021 submission for inclusion into the next edition of the Standard, which has the potential to result in color uniformity for all single contiguous detectable warning surface installation sites throughout the country, to ensure the actual safety of all pedestrians, especially those with low vision, and to prevent the breakdown of color associations to distinct meanings for all other surface features.

Three additional documents were submitted.
07-09 CCB DWS – A Synthesis of Work for the Use of Federal Yellow 7-31-23 (Revised)
07-09 CCB Excerpts from DOT 1992 Equivalent Facilitation
07-09 CCB State DOT's - revised

Committee Action for Public Comment 2: There was an errata in this modification. The proponent stated that this should have read the same as BC2.

REPORT OF HEARING:

Modification (if any):

Committee Reason: See the committee action on BC2.

07-19 Lozano.doc

07-19– 2021 Reconsideration

705

Proponent: Kimberly Paarlberg, ICC

07-19 was disapproved in first round, and Ballot Comment 2 was approved in the second round (see Section 705.3)

FURTHER MODIFY BALLOT COMMENT 2 AS FOLLOWS:

SECTION 705
DETECTABLE WARNING SURFACES

705.1 General. Detectable warning surfaces shall comply with Section 705.

705.2 Standardization. Detectable warning surfaces shall be standard within a building, facility, site, or complex of buildings.

705.3 Color. Detectable warnings in interior locations shall be the color in Section 705.3.1. Detectable warning in exterior locations shall be a color in Section 705.3.1 or 705.3.2.
~~**705.3 Color**~~ **705.3.1 Yellow.** Detectable warning surfaces shall be yellow ~~and~~ as indicated for Color ID 33538 (Yellow International) of SAE AMS-STD-595A listed in Section 106.2.1 to the maximum extent practicable.
705.3.2 Dark-on-Light Contrast. The color of detectable warning surfaces shall be one of the colors listed in Table 705.3.3, as indicated in AMS-STD-595A listed in Section 106.2.1 to the maximum extent practicable. Detectable warning surfaces shall contrast visually with adjacent surfaces, dark-on-light.

Table 705.3.3 - Allowable Detectable Warning Surface Colors to Achieve Dark-on-Light Contrast

AMS-STD-595A Color ID	AMS-STD-595A Color Group or Name	Common Alternate Color Name
20109	F. S. Seminal Brown	Colonial Red
22144	Orange	Brick Red
31350	Red	Safety Red
36118	Gunship Gray	Gray
37038	Black International	Black

705.4 Interior locations. Detectable warning surfaces in interior locations shall differ from adjoining walking surfaces in resiliency or sound-on-cane contact.

Reason: Since this change came in the 2nd review and is in a substantially different direction than the original proposal, there has not the same availability of pubic comments on this issue. Therefore, I am asking for reconsideration based on the comments I have received from code officials and city planners.

To provide separate requirements for inside an outside would not be out of line as we already have requirements specific to interior locations in Section 705.4. The committee were concerned about consistency in a color choice – that is already addressed in 705.2.

I am not suggesting removing the requirement for yellow for interior locations. However, there are issues with yellow for outside. Many northern jurisdictions say that they need metal or brick to deal with the weather and to resist snow removal equipment damage. Yellow paint has been proven to rust off or not stay on concrete.

Technical background provided to the Communications task group (below) showed that many states are using colors other than yellow; or are asking for contrast between the adjacent sidewalk and detectable warnings. While yellow might be the best color, this is a minimum standard, not a best practice document. An issue has not been identified in the states using other colors. We should not mandate a change where we have no information saying these other colors are not working.

The report from the Federal Highway Administration, dated May 24, 2006, indicated that the when comparing Federal Yellow, Orange-Red and Black, each contrasted against the same adjacent surface material (a White sidewalk), brick red and black DWS panels have a higher level of contrast than federal yellow.

During the 2nd review discussion, it was stated that yellow was the most common or required color in 21 states. For that reason (among others), it was argued that yellow should be the single color required nationwide. But a deeper look at the compilation of state DOT materials/colors choices shows that the largest group of states (21 states; 119 million people) do not use Yellow for their detectable warning surfaces.

DOT Permitted Colors	**# of States**	**Total Population Within These States**	**% of US Population**
Yellow Only	11	94.1 million	28%
Other Colors Only, Not Yellow	21	118.9 million	36%
2+ Colors, including Yellow	10	80.1 million	24%
“Contrasting” or “Dark-on-Light”	6	36.8 million	11%

The consensus proposal that emerged from the Communications task group aimed to serve the greatest number of people with a solution that would recognize the current choices made with regard to detectable warning surface color, so long as those choices were evaluated to have high conspicuity. The consensus proposal took the existing DOT color/material choices and compared that to the findings of the Jenness & Singer study. Among the current DOT color choices that would be excluded under this reconsideration proposal are:

DWS Color	**States Currently Permitted**
Only “Contrast With Adjoining”	4 (Illinois, Iowa, Maryland, Mississippi)
Only “Dark-on-Light”/”Light-on-Dark”	2 (Michigan, Nebraska)
Blue	South Carolina
Forest Green	South Carolina
Orange	South Carolina

This proposal for reconsideration would eliminate color choices that either are poor performing or impossible to measure. Instead, it would allow states and jurisdictions to continue specifying the high-contrast colors currently in use.

STATE	**MATERIAL(S)**	**COLOR(S)**
ALABAMA	POLYMER	BRICK RED
	GALVANIZED STEEL	BRICK RED
	CAST IRON	BRICK RED
ALASKA	CAST IRON	YELLOW
ARIZONA	CAST IRON	NATURAL / PATINA
	POLYMER / CONCRETE	COLONIAL RED
	POLYMER	COLONIAL RED
ARKANSAS	POLYMER	YELLOW
CALIFORNIA	POLYMER	YELLOW
	URETHANE MOLDED	YELLOW
	GALVANIZED STEEL	YELLOW
	CAST IRON	YELLOW
COLORADO	POLYMER	COLONIAL RED
	GALVANIZED STEEL	POWDER COATED RUST
		COLONIAL RED
	CAST IRON	POWDER COATED RUST
		COLONIAL RED
Connecticut	POLYMER	BRICK RED
	CAST IRON	BRICK RED
DELAWARE	CONCRETE PAVERS	NATURAL / PATINA
DAKOTA (NORTH)	POLYMER	YELLOW

(both colors / all materials)	GALVANIZED STEEL	BRICK RED
	CAST IRON	both colors
	STAINLESS STEEL	both colors
	CONCRETE PAVERS	both colors
DAKOTA (SOUTH)	CAST IRON	NATURAL / PATINA
FLORIDA	POLYMER	YELLOW
(all colors / all materials)	URETHANE	BRICK RED
	GALVANIZED STEEL	COLONIAL RED
	CAST IRON	BLACK
GEORGIA	POLYMER	YELLOW
	GALVANIZED STEEL	YELLOW
	CAST IRON	YELLOW
HAWAII	POLYMER	YELLOW
	URETHANE	YELLOW
ILLONOIS	POLYMER	Contrast with adjoining material
	GALVANIZED STEEL	Contrast with adjoining material
	CAST IRON	Contrast with adjoining material
INDIANA	POLYMER	BRICK RED
	CAST IRON	BRICK RED
IOWA	POLYMER	Contrast with adjoining material
	GALVANIZED STEEL	Contrast with adjoining material
	CAST IRON	Contrast with adjoining material
KANSAS	POLYMER	BRICK RED
	CONCRETE PAVERS	BRICK RED
	POLYMER CONCRETE	BRICK RED
KENTUCKY	CONCRETE PAVERS	BRICK RED

LOUISIANA	POLYMER	YELLOW
	GALVANIZED STEEL	YELLOW
MAINE	CAST IRON	NATURAL / RUST
MARYLAND	POLYMER	Contrast with adjoining material
	CAST IRON	Contrast with adjoining material
	BRICK PAVERS	Contrast with adjoining material
MASSACHUSETTS	POLYMER	YELLOW
	GALVANIZED STEEL	YELLOW
	CAST IRON	YELLOW
MICHIGAN	GALVANIZED STEEL	Dark on Light / Light on Dark
(both materials)	CAST IRON	Dark on Light / Light on Dark
MINNESOTA	CAST IRON	NATURAL / RUST
MISSISSIPPI	POLYMER	Contrast with adjoining material
	GALVANIZED STEEL	Contrast with adjoining material
MISSOURI	POLYMER	BRICK RED
	GALVANIZED STEEL	BRICK RED
	CAST IRON	BRICK RED
MONTANA	CAST IRON	NATURAL / RUST
NEBRASKA	POLYMER	Dark on Light / Light on Dark
	GALVANIZED STEEL	Dark on Light / Light on Dark
	CAST IRON	Dark on Light / Light on Dark
NEVADA	CONCRETE PAVERS	COLONIAL RED
	CAST IRON	COLONIAL RED
	CAST IRON	NATURAL / RUST
NEW JERSEY	POLYMER	SAFETY RED
	GALVANIZED STEEL	SAFETY RED
	CAST IRON	SAFETY RED

NEW YORK	POLYMER	GRAY
	CONCRETE PAVERS	GRAY
	GALVANIZED STEEL	GRAY
	CAST IRON	GRAY
		NATURAL / RUST
North Carolina	POLYMER	YELLOW
(both colors/all materials)	GALVANIZED STEEL	BLACK
	CAST IRON	both colors
South Carolina	POLYMER	YELLOW
(all colors/all materials)	GALVANIZED STEEL	BRICK RED
		BLACK
		BLUE
		FOREST GREEN
		ORANGE
OHIO	POLYMER	YELLOW
	GALVANIZED STEEL	YELLOW
	CAST IRON	YELLOW
OKLAHOMA	POLYMER	YELLOW
(both colors/all materials)	GALVANIZED STEEL	BRICK RED
	CAST IRON	both colors
OREGON	POLYMER	YELLOW
	CAST IRON	NATURAL / RUST
PENNSYLVANIA	POLYMER	YELLOW
(both colors/all materials)		BRICK RED
	GALVANIZED STEEL	both colors
	CAST IRON	both colors
RHODE ISLAND	CAST IRON	NATURAL / RUST
TENNESSEE	POLYMER	YELLOW
(both colors/all materials)	GALVANIZED STEEL	BRICK RED
	CAST IRON	both colors

TEXAS	POLYMER	BRICK RED
	GALVANIZED STEEL	BRICK RED
	CAST IRON	BRICK RED
UTAH	POLYMER	YELLOW
	CAST IRON	NATURAL / RUST
VERMONT	CAST IRON	NATURAL / RUST
VIRGINIA	POLYMER	YELLOW
(two colors/two materials)	GALVANIZED STEEL	BRICK RED
	CAST IRON	NATURAL / RUST
WEST VIRGINIA	POLYMER	YELLOW
WASHINGTON	POLYMER	YELLOW
	GALVANIZED STEEL	YELLOW
	CAST IRON	YELLOW
WISCONSIN	CAST IRON	YELLOW
WYOMING	CAST IRON	BRICK RED
		NATURAL / RUST

Committee Action for Reconsideration: AS 5-16-1 failed

REPORT OF HEARING:

Modification (if any):

Committee Reason: Yellow has been shown to provide the best visibility. No other options should be permitted. If treated properly, metal, brick and concrete should be able to be provided and maintain the color safety yellow.

07-19 – 2021 1st draft Committee Action

Committee Action for First Ballot: Final action is AM by BC2 & PC2– 17-7-2

REPORT OF HEARING:

Modification (if any):
Further modify BC2 as follows:

705.3. Color. Detectable warning surfaces shall be yellow ~~and approximate~~ Color ID 33538 (Yellow International) of SAE AMS-STD-595A to the maximum extent practicable.

Committee Reason:
BC2 - The modification removes unenforceable language and matches phrases used elsewhere in the standard. Safety yellow is recognized internationally as a warning color. Some states only allow yellow for detectable warnings currently.

07-19 – 2021 2nd draft Ballot Comment 1

705.3

Proponent: Kimberly Paarlberg, ICC
Vote: negative with comment, AM

Further revise as follows:
705.3 Color. Detectable warning surfaces shall be yellow as indicated for ~~and~~ Color ID 33538 (Yellow International) of SAE AMS-STD-595A listed in Section 106.2.1 to the maximum extent practicable or other color designated by the administrative authority. Detectable warning surfaces shall contrast visually with adjacent surfaces, either light-on-dark or dark-on-light.

REASON: I understand that yellow is the best color and should be used where jurisdiction to not provide requirements, however, The A117.1 provides minimum code requirements. It is not a best design practice. Multiple states approve a variety of colors for detectable warnings (see reason for reconsideration), and there are not more accidents in those states that those that use yellow. The A117.1, should not be used to over ride state regulations.
In addition, the proponent expressed how important contrast was. Yellow does not contrast the best with white concrete. The last sentence restores that contrast requirements for both yellow and other approved colors that is in the 2017 text.

Committee Action on 2nd draft Ballot Comment 1: AM 28-2-3

REPORT OF HEARING:

Modification (if any):
Further modify the comment:

705.3 Color. Detectable warning surfaces shall be yellow as indicated for Color ID 33538 (Yellow International) of SAE AMS-STD-595A listed in Section 106.2.1 to the maximum extent practicable or other color designated by the administrative authority. Where the color is other than yellow, detectable warning surfaces shall contrast visually with adjacent surfaces, either light-on-dark or dark-on-light.

Committee Reason: This will allow for jurisdictions to use current designated colors. The modification is because yellow does not always meet contrast requirements, but it is the preferred color.

07-19 – 2021 2nd draft Committee Action

Committee Action for Second Ballot: AM 2-BC1 28-2-3

REPORT OF HEARING:

Modification (if any):
Further modify current text as follows:

705.3 Color. Detectable warning surfaces shall be yellow as indicated for ~~and~~ Color ID 33538 (Yellow International) of SAE AMS-STD-595A listed in Section 106.2.1 to the maximum extent practicable or other color designated by the administrative authority. Where the color is other than yellow, detectable warning surfaces shall contrast visually with adjacent surfaces, either light-on-dark or dark-on-light.

Committee Reason: This will allow for jurisdictions to use current designated colors. The modification is because yellow does not always meet contrast requirements, but it is the preferred color.

Report for 07-19– 2021		
Committee decision: D	***Committee Vote at Meeting: 25-0-1***	***Committee Vote on Ballot:41-2-2***
REPORT OF HEARING: Modification (if any):		
Committee Reason: The Communications task group needs additional time for development of LRV requirements.		
Committee decision: AM BC2 & PC2	***Committee Vote at Meeting: 17-7-2***	***Committee Vote on Ballot: 39-1-1***
REPORT OF HEARING – FIRST DRAFT		
Modification (if any): **Further modify BC2 as follows:** **705.3. Color.** Detectable warning surfaces shall be yellow ~~and approximate~~ Color ID 33538 (Yellow International) of SAE AMS-STD-595A to the maximum extent practicable.		
Committee Reason: **BC2 -** The modification removes unenforceable language and matches phrases used elsewhere in the standard. Safety yellow is recognized internationally as a warning color. Some states only allow yellow for detectable warnings currently.		
Committee decision: AM 2-BC1	***Committee Vote at Meeting: 28-2-3***	***Committee Vote on Ballot:***
FINAL ACTION: *Approval as modified by ballot comment 2 and public comment 2; AM 2nd ballot comment 1*		
Modification (if any): **Further modify current text as follows:** **705.3 Color.** Detectable warning surfaces shall be yellow as indicated for ~~and~~ Color ID 33538 (Yellow International) of SAE AMS-STD-595A listed in Section 106.2.1 to the maximum extent practicable or other color		

Report for 07-19– 2021
designated by the administrative authority. Where the color is other than yellow, detectable warning surfaces shall contrast visually with adjacent surfaces, either light-on-dark or dark-on-light.
Committee Reason: This will allow for jurisdictions to use current designated colors. The modification is because yellow does not always meet contrast requirements, but it is the preferred color.

CHAPTER 8
SPECIAL ROOMS AND SPACES

08-06 – 2021 overview

Proposal number	Proponent	Standard Sections	Committee Actions	Mtg. Date	Notes; Groups; groupings
08-06	Mazz	804.3	AM 17-5-3	3-16-2023 5-23-2024	Final Action is AMBC1/AM 2-BC1

Comment 1st draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Paarlberg, ICC	Affirmative	AS 8-6-3	5-23-2024	
BC2	Buuck, NAHB	Affirmative	NA	5-23-2024	
PC1	Buuck, NAHB	AM	NA	5-23-2024	

BC= Ballot Comment, PC= Public comment, **Bold Comment number** is proposed revision below

Comment 2nd draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Buuck, NAHB	AM	AM 27-0-4	8-14-25	

08-06 – 2021
804.3

Proponent: Marsha Mazz, representing United Spinal Association

Revise as follows:

SECTION 804
KITCHENS

804.3 Work surface. At least one accessible work surface 30 inches minimum in length shall be provided in accordance with Section 902. The work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3. The space above the leading 10 inches (255 mm) of the work surface shall be unobstructed. From 10 inches (255 mm) back from the leading edge to the wall or backsplash the space above the work surface shall be unobstructed to a height of 14 inches (355 mm) minimum.

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

REASON: The purpose of the kitchen work surface is to provide one countertop in the kitchen where someone using a wheelchair might prepare a meal. None of the other countertops are required to be at the appropriate height nor are they required to provide a forward approach which enables a person to use both hands to perform a task. Our inspectors frequently find microwaves or other equipment installed on the work surface defeating its intended purpose.

We believe that keeping the work surface clear is not only reasonable but fair. However, our proposal would allow a deep cabinet, shelf, or other element 12-14 inches deep to be installed above the work surface because it will not interfere with the usability of the work surface and could prove useful as a place to install countertop lighting.

08-06 – 2021 Replacement
804.3

Proponent: Marsha Mazz, representing United Spinal Association

Replace the proposal and revise as follows:

804.3 Work surface. At least one accessible work surface 30 inches minimum in length shall be provided in accordance with Section 902. The work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3. Microwaves, cabinets, and shelving installed at the work surface shall be installed 14 inches (355 mm) minimum above the work surface.

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

REASON: Our original proposal would have required the space on a work surface to be unobstructed to specified heights. However, if approved, A117 task group proposals addressing receptacle outlets will require the operable parts of such receptacle outlets to be installed in these locations. Rather than exempt the outlets, we are proposing to prohibit the installation of microwaves, cabinets, and shelves on the worksurface and to a height of 14 inches above the countertop. This will still permit typical over counter cabinets and shelves as well as receptacle outlets in or above the work surface.

Committee Action: Approval as modified 17-5-3

REPORT OF HEARING:

Modification (if any):
Replace the proposal and revise as follows:

804.3 Work surface. At least one accessible work surface 30 inches minimum in length shall be provided in accordance with Section 902. The work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3. Where located above the worksurface, microwaves, cabinets, and shelving shall be installed 14 inches (355 mm) minimum above the work surface.

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

Committee Reason: The movement of "where located above the worksurface' to the front of the added sentence adds some clarity. This clarifies that permanent items should be installed high enough above the accessible work surface that the person at that work space can use common small appliances, like blenders or mixers. There was concern that including microwaves would be misleading since installed microwaves have to have controls within the reach ranges.

804.3-MAZZ.doc

08-06 – 2021 Ballot Comments

BALLOT COMMENT 1- FIRST DRAFT: Proponent: Kimberly Paarlberg, ICC
Desired Action: Affirmative with comment
Modification: See Ballot Comment 1
BALLOT COMMENT 2- FIRST DRAFT: Proponent: Dan Buuck, NAHB
Desired Action: Affirmative with comment
Modification:
Reason: See the public comment from NAHB.

08-06 – 2021 Ballot Comment 1

102.1

Proponent: Kimberly Paarlberg, ICC

Further revise as follows;

804.3 Work surface. At least one accessible work surface 30 inches minimum in length shall be provided in accordance with Section 902. The work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3. ~~Where located above the worksurface, microwaves, cabinets, and shelving~~ Vertical clearance above the work surface to any obstruction shall be ~~installed~~ 14 inches (355 mm) minimum ~~above the work surface~~.

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

REASON: In an Accessible or Type A unit, a microwave needs to be installed with the controls within reach range, so including it here would be confusing. This proposal will help clarify clearance over the work surface, without providing a list.

Committee Action for Ballot Comment 1: AS 8-6-3

REPORT OF HEARING:

Modification (if any):

Committee Reason: The modification would remove the possible conflict with microwaves being over the work surface and therefore not have the controls within reach range. By saying 'obstruction', this would allow for interpretation for items such as shelves or upper cabinets without a laundry list.

08-06 Paarlberg.doc

08-06 – 2021 Public Comment 1
804.3

Proponent: Dan Buuck, National Association of Home Builders (NAHB)

Further revise as follows:

SECTION 804
KITCHENS

804.3 Work surface. At least one accessible work surface 30 inches minimum in length shall be provided in accordance with Section 902. The work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3. Where located above the required work surface, fixed microwaves, cabinets, and shelving shall be installed 14 inches (355 mm) minimum above the work surface.

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

REASON: In this change the word "required" was added in front of work surface where establishing a minimum height above the surface for fixed cabinets and shelving. The word "fixed" was added in front of microwave so it's understood that countertop appliances can be placed anywhere in the kitchen space. This change is necessary because without limiting the minimum height requirement to only above the portion of the countertop providing the required work surface, it could be interpreted to limit other popular kitchen features like appliance garages and spice racks that are often above the countertop but wouldn't meet this minimum height.

Committee Action Public comment 1: No action

REPORT OF HEARING:

Modification (if any):

Committee Reason:

08-06

Buuck.doc

08-06 – 2021 1st draft Committee Action

Committee Action for First Ballot: AFM by PC1

REPORT OF HEARING:

Modification (if any):

Committee Reason: BC1 - The modification would remove the possible conflict with microwaves being over the work surface and therefore not have the controls within reach range. By saying 'obstruction', this would allow for interpretation for items such as shelves or upper cabinets without a laundry list.

08-06 – 2021 2nd draft Ballot Comment 1

804.3

Proponent: Dan Buuck NAHB
Vote: negative with comment, AM

Further revise as follows:
804.3 Work surface. At least one accessible work surface 30 inches (760 mm) minimum in length shall be provided in accordance with Section 902. The work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3. Vertical clearance above the work surface to ~~any obstruction~~ a cabinet, appliance or similar obstruction above shall be 14 inches (355 mm) minimum.

REASON: Referring to "any obstruction" isn't clear where that obstruction would be located and it's an all-inclusive term. It could be interpreted to be a small projection, like a switch toggle, or other device mounted on the back wall, like a paper towel dispenser. I believe that the obstructions of concern here are overhead cabinets that if set too low above the work surface would make it unusable. This proposed change clarifies that it's overhead obstructions like a cabinet or appliance above a work surface that are prohibited below 14-inches.

Committee Action on 2nd draft Ballot Comment 1: AM 27-0-4

REPORT OF HEARING:

Modification (if any):
Further modify:
804.3 Work surface. At least one accessible work surface 30 inches (760 mm) minimum in length shall be provided in accordance with Section 902. The work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3. Vertical clearance above the work surface to a cabinet, shelf, appliance or similar obstruction above shall be 14 inches (355 mm) minimum.

Committee Reason: The more specific language will allow for small items like switches to not be considered an obstruction. The modification is to add shelves as similar to cabinets. Editorial to look at if this all should be singular or plural.

08-06 – 2021 2nd draft Committee Action

Committee Action for Second Ballot: Approval as further modified by 1st ballot comment 1; AM 2nd ballot comment

REPORT OF HEARING:

Modification (if any):
Further modify current text as follows:

804.3 Work surface. At least one accessible work surface 30 inches (760 mm) minimum in length shall be provided in accordance with Section 902. The work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3. Vertical clearance above the work surface to ~~any obstruction~~ a cabinet, shelf, appliance or similar obstruction above shall be 14 inches (355 mm) minimum.

Committee Reason: The more specific language will allow for small items like switches to not be considered an obstruction. The modification is to add shelves as similar to cabinets. Editorial to look at if this all should be singular or plural.

Report for *08-06– 2021*		
Committee decision: AM	***Committee Vote at Meeting: 17-5-3***	***Committee Vote on Ballot:41-2-2***
REPORT OF HEARING: Modification (if any): **Replace the proposal and revise as follows:** **804.3 Work surface.** At least one accessible work surface 30 inches minimum in length shall be provided in accordance with Section 902. The work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3. Where located above the worksurface, microwaves, cabinets, and shelving shall be installed 14 inches (355 mm) minimum above the work surface. **Exception:** Spaces that do not provide a cooktop or conventional range shall not be required to provide an accessible work surface.		
Committee Reason: The movement of "where located above the worksurface' to the front of the added sentence adds some clarity. This clarifies that permanent items should be installed high enough above the accessible work surface that the person at that work space can use common small appliances, like blenders or mixers. There was concern that including microwaves would be misleading since installed microwaves have to have controls within the reach ranges.		
Committee decision: AS BC1	***Committee Vote at Meeting: 8-6-3***	***Committee Vote on Ballot: 39-1-1***
REPORT OF HEARING – FIRST DRAFT		
Modification (if any):		

Report for *08-06– 2021*		
Committee Reason: BC1 - The modification would remove the possible conflict with microwaves being over the work surface and therefore not have the controls within reach range. By saying 'obstruction', this would allow for interpretation for items such as shelves or upper cabinets without a laundry list.		
Committee decision: AM 2-BC1	***Committee Vote at Meeting: 27-0-4***	***Committee Vote on Ballot:***
FINAL ACTION: Approval as further modified by 1st ballot comment 1; AM 2nd ballot comment		
Modification (if any): **Further modify current text as follows:** **804.3 Work surface.** At least one accessible work surface 30 inches (760 mm) minimum in length shall be provided in accordance with Section 902. The work surface shall be located in accordance with Section 804.5.5.2 or 804.5.5.3. Vertical clearance above the work surface to ~~any obstruction~~ a cabinet, shelf, appliance or similar obstruction above shall be 14 inches (355 mm) minimum.		
Committee Reason: The more specific language will allow for small items like switches to not be considered an obstruction. The modification is to add shelves as similar to cabinets. Editorial to look at if this all should be singular or plural.		

CHAPTER 9
FURNISHINGS AND EQUIPMENT

09-03 – 2021 overview

Proposal number	Proponent	Standard Sections	Committee Actions	Mtg. Date	Notes; Groups; groupings
09-03	Paarlberg	904.4.2, 904.4.3, 904.4.5 (New)	AM 29-1-2	3-2-2023 7-18-2024 9-12-2024	Final Action AFM BC1 and PC1/AS 2-PC1

Comment 1st draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Williams, Gillilland, WABO	Affirmative	AS 21-1-1	7-18-2024	
PC1	Terminology	AM	Editorial	9-12-2024	Editorial
PC2	Ditman	AM	NA	7-18-2024	

BC= Ballot Comment, PC= Public comment, **Bold Comment number** is proposed revision below

Comment 2nd draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Mazz, USA	AM	AS 28-0-2	8-14-25	

09-03 – 2021
904.4.2, 904.4.3, 904.4.5(New)

Proponent: Kimberly Paarlberg, International Code Council

Revise as follows:

SECTION 904
SALES AND SERVICE COUNTERS AND WINDOWS

904.4 Checkout aisles. Checkout aisles shall comply with Section 904.4.

904.4.1 Aisle. Aisles shall comply with Section 403.

904.4.2 <u>Cashier serviced check-out</u> counters. <u>Where cashier serviced check-out counters are provided,</u> the checkout counter surface shall be 38 inches (965 mm) maximum in height

above the floor. The top of the counter edge protection shall be 2 inches (51 mm) maximum above the top of the counter surface on the aisle side of the checkout counter.

904.4.3 Self-service check-out counters. Where self-service check-out counters are provided, the check-out counter surface and built-in scanner shall be 38 inches (965 mm) maximum in height above the floor. The operable parts, touch screen are permitted to be located 54 inches (1372 mm) maximum above the floor. Key pads shall comply with Sections 707.5 and 707.6.

~~**904.4.3**~~ **904.4.4 Check Writing Surfaces.** Where provided, check writing surfaces shall comply with Section 902.4.

904.4.5 Self-bagging surfaces. Self bagging surfaces, where provided, shall be located within the reach ranges in accordance with Section 308.

REASON: The intent of this proposal is to provide criteria for the self-service style check out aisles.

Committee Action: Approved as Modified – 29-1-2

Modification to 1st sentence – 25-1-2
Modification to 2nd sentence – 29-0-2

REPORT OF HEARING:

Modification (if any):
Further modify as follows:

904.4.3 Self-service check-out counters. Where self-service check-out counters are provided, the check-out counter surface and built-in scanner shall be ~~38~~ 34 inches (~~965~~ 864 mm) maximum in height above the floor. The operable parts, and the operable parts of touch screens ~~are permitted to~~ shall be located 48 ~~54~~ inches (~~1372~~ 1219 mm) maximum above the floor. Key pads shall comply with Sections 707.5 and 707.6.

Committee Reason: The modification to the scanner height is to allow for standard side reach over the scanner and that the 38 inches is not needed to accommodate the belt and edge on a typical check out counter.
The modification to the operate parts would allow for the control area of the touch screen to be within standard reach, but also allow for larger screens for viewing above the reach. Screens on the market are programmable to have the control buttons at the bottom or the top of the screen. This item was approved because provisions are needed to address this common type of check-out aisles.

904.4-PAARLBERG.doc

09-03 – 2021 Ballot Comments

BALLOT COMMENT 1- FIRST DRAFT: Proponent: Williams, Gilliland, WABO
Desired Action: Affirmative with comment
Modification: See Ballot Comment 1

09-03 – 2021 Ballot Comment 1
904.4.3

Proponent: Williams, Gilliland, WABO

Further modify as follows:

904.4.3 Self-service check-out counters. Where self-service check-out counters are provided, the check-out counter surface and built-in scanner shall be 34 inches (864 mm) maximum in height above the floor. The operable parts, and the operable parts of touch screens shall be located ~~48 inches (1219 mm) maximum above the floor~~ within reach ranges in accordance with Section 308. Key pads shall comply with Sections 707.5 and 707.6.

REASON: The original proposal sets a maximum height of 48” for operable parts and the operable height of touch screens. This 48”maximum height correlates with the high side reach range maximum specified in Section 308.3.2 where the reach depth over the obstruction (most likely a scanner) is 10” maximum. 308.3.2 also sets a 46” maximum high side reach range where the reach depth over the obstruction is over 10”. However, the original proposal doesn’t account for the impact of an obstruction with a reach depth that exceeds 10” on the optimal height of the operable parts or the operable height of the touchscreen. In addition, the maximum reach depth over the obstruction could theoretically be more than 24" in depth since no maximum reach depth is specified. The addition of a reference to 308 aligns the placement of operable parts and the operable parts of touch screens with generally accepted reach ranges already established in A117.1.

The assumption often is that these self-service checkout counters will always be accessed using a parallel approach with a side reach. Adding a general reference to 308 Reach Ranges allows for an increase in the variety of configurations of the self-service check-out counter using accepted reach ranges.

Committee Action for Ballot Comment 1: AS 21-1-1

REPORT OF HEARING:

Modification (if any):

Committee Reason: The revision would address both unobstructed and obstructed reach to the touch screen.

102.1-CARPENTER.doc

09-03 – 2021 Public Comment 1
904.4.5

Proponent: Marsha Mazz, representing the Terminology Task Group

Further revise as follows:

SECTION 904
SALES AND SERVICE COUNTERS AND WINDOWS

904.4.5 Self-bagging surfaces. Self bagging surfaces, where provided, shall be located within the applicable reach ranges ~~in accordance with Section 308~~.

REASON: This is part of a proposal from the Terminology task group to define the building blocks so that a reference is not required. This public comment is included here because it was part of new text. Please see the complete proposal for additional information.

Committee Action for Public Comment 1: Editorial

REPORT OF HEARING:

Modification (if any):

Committee Reason:

09-03 Terminology.doc

09-03 – 2021 Public Comment 2

904.4.3

Proponent: Tim Ditman

Further revise as follows:

SECTION 904
SALES AND SERVICE COUNTERS AND WINDOWS

904.4.3 Self-service check-out counters. Where self-service check-out counters are provided, the tops of the check-out counter surface and built-in scanner shall be 28 inches (710 mm) minimum and 34 inches (865 mm) maximum in height above the floor. The operable parts, and the operable parts of touch screens shall be located within the reach ranges in accordance with Section 308 ~~48 inches (1372 mm) maximum above the floor~~. Key pads shall comply with Sections 707.5 and 707.6.

904.4.5 Self-bagging surfaces. Where self ~~Self~~ bagging surfaces are~~, where~~ provided, the tops of the self-bagging surfaces shall be ~~within the reach ranges in accordance with Section 308~~ 28 inches (710 mm) minimum and 34 inches (865 mm) maximum in height above the floor.

REASON:
For Section 904.4.3: A117.1 design standards need an appropriate design range that includes a minimum height. Using A117.1 – 2017 Section 902.4 as guidance, the counter surface should have a minimum height of 28 inches. Additionally, A117.1 Section 308 needs to be updated so that there is one general design standard for operable parts that is based on current research of lower and upper reach ranges.

The ICC needs to update the unobstructed low reach to "24 inches (610 mm) minimum above the floor" in ICC A117.1 Sections 308.2.1 and 308.3.1, along with any other low reach limit requirements. Section 308 of the 2024 A117.1 update should reflect current research from 2010 rather than continue to use standards derived from antiquated research conducted almost fifty years ago. The ICC established an Electrical Receptacles Task Group for A117.1 2024 and was, among other things, assigned to "7. Review available data on the reach ranges of individuals using wheeled mobility devices." (https://www.iccsafe.org/wp-content/uploads/asc_a117_1/Residential-Receptacles-Task-Group-Scope-and-Objectives-2022-03-09-FIN.pdf) Despite being providing with the following information in March of 2023, which clearly highlights the importance of raising the lower reach range to a height that is safe for individuals using wheeled mobility devices, the only change that came from this task group was clarification for where to measure for operable parts, which does nothing to improve the safety of electrical receptacles.

"The technical requirements of the ICC/ANSI A117.1 (1998) Accessible and Usable Buildings and Facilities (ICC/ANSI) were generated from research completed from 1974 -1978 using a research sample that included about 60 individuals who used wheelchairs (see Steinfeld et al., 1979)." *See* The 2010 Anthropometry of Wheeled Mobility Project final report, December 31, 2010, PDF page 5 of 173, *available at* http://idea.ap.buffalo.edu/wp-content/uploads/sites/110/2020/01/AnthropometryofWheeledMobilityProject_FinalReport.pdf). The 2010 research study had a sample of 495 wheeled mobility devices ("WhMD") users, and documented that **none** of the WhMD users could safely achieve the unobstructed low reach of 15 inches. (*See* PDF page 71 of 173, Figure 3-15 and PDF page 73 of 173, Figure 3-16) Below are two key observations with respect to minimum low reach.

1. PDF page 9 of 173, "12. Reach limits: A majority of WhMD users cannot complete a forward reach to the minimum forward reach height in U.S. standards on a vertical plane in front of their anterior most point (toes or device). The current high side reach limit accommodates WhMD users. The low reach limit, as defined, is currently **inappropriate for safety reasons**." (emphasis added)

2. PDF page 70 of 173, "The lower limit of the U.S. standard would need to be raised from 380 mm (15 in.) to at least 600 mm (23.6 in.) in order to accommodate over 70%, 50% and 38% of our study's manual wheelchair users, powered chair users and scooter users, respectively."

Electrical outlets are just one example of operable parts that WhMD users encounter. In the December 2017 issue of Consumer Reports' magazine, the article entitled, "Make Your Home Elder-Friendly" (*available at* https://www.consumerreports.org/home-improvement-remodeling/elder-friendly-home/) addresses affordable upgrades using universal design when renovating a home. The article noted that design and construction upgrades could benefit persons with mobility disabilities by stating, "These [universal] design elements can also make a big difference if you lose mobility—after all, more than 35 percent of people age 65 and older in the U.S. are disabled, according to a 2016 report from the University of New Hampshire's Institute on Disability." Consumer Reports addressed minimum height of electrical receptacles and recommended, "setting new electrical outlets 24 inches off the floor instead of the usual 12 to 18" which would, "eliminate the stooping usually required to plug in a vacuum". Consumer Reports added that there is, "no cost for resetting outlets" at this accessible location.

Additionally, there should not be any child safety concerns about raising the receptacles to an accessible height for mobility-impaired individuals because Tamper Resistant (TR) receptacles have been mandated in dwelling units since 2008 to address this potential issue (*See* National Electrical Code (NEC) 2008 Section 406.12, Tamper-Resistant Receptacles in Dwelling Units).

When amending the Fair Housing Act in 1988, Congress clearly intended to cover 'persons with mobility impairments' by stating that 'switches and other controls must be in convenient locations', Congress also did not want mobility-impaired persons going through the financial burden and inconvenience of resetting outlet heights when they could have been set at an actual accessible and safe height at the time of construction for **zero** cost.

> "Because persons with mobility impairments need to be able to get into and around a dwelling unit (or else they are in effect excluded because of their handicap), the bill requires that in the future covered multifamily dwellings be accessible and adaptable. This means that the doors and hallways must be wide enough to accommodate wheelchairs, switches and other controls must be in **convenient** locations, most rooms and spaces must be on an accessible route, and disabled persons should be able to easily make additional accommodations if needed, such as installing grab bars in the bathroom, without major renovation or structural change." (emphasis added)
>
> Fair Housing Amendments Act of 1988 House Report (Judiciary Committee) No. 100-711, at 18 (June 17, 1988), *reprinted in* 1988 U.S.C.C.A.N. 2173, 2179.

For Section 904.4.5: Modifying Section 904.4.5 to follow the sentence structure of 904.4.3 will improve clarity and understanding for the reader/user. Self-bagging surfaces inherently involve picking up and moving weighted objects. In the 2010 Anthropometry of Wheeled Mobility Project final report (*available at* http://idea.ap.buffalo.edu/wp-content/uploads/sites/110/2020/01/AnthropometryofWheeledMobilityProject_FinalReport.pdf), PDF pages 153, 157, and 161 show that wheeled mobility users experience diminished reach capability "to retrieve and place a 5 lb object on a target shelf". Therefore, it is not appropriate to reference Section 308 since self-bagging often requires a mobility-impaired individual to lift a bag weighing over five pounds. In the final report, weighted reach ranges seem to coincide with the already established counter height range from A117.1 – 2017 Section 902.4. One of the authors, Dr. Edward Steinfeld, is listed as Principal for RESNA on the A117.1 organization roster. Please consult with Dr. Steinfeld to ensure his team's current research is reflected in appropriate height for self-bagging surfaces.

Committee Action for public comment 2: NA

REPORT OF HEARING:

Modification (if any):

Committee Reason: The committee agreed with the reasoning for the heights for the scanner and bagging area addressed in the original proposal and modifications.

09-03 Ditman.doc

09-03 – 2021 1st draft Committee Action

Committee Action for First Ballot: AM BC1 21-1-1

REPORT OF HEARING:

Modification (if any):

Committee Reason: The revision would address both unobstructed and obstructed reach to the touch screen.

09-03 – 2021 2nd draft Ballot Comment 1

904.4.3

Proponent: Marsha Mazz USA
Vote: affirmative with comment, AM

Further revise as follows:
904.4.3 Self-service check-out counters. Where self-service check-out counters are provided, the check-out counter surface and built-in scanner shall be 34 inches (864 mm) maximum in height above the floor. The operable parts~~, and the operable parts~~ of scanners, keypads, touch screens, and payment devices shall be located within the reach ranges. Keypads shall comply with Sections 707.5 and 707.6.

REASON: The provision needs clarification. The sentence stating "The operable parts, and the operable parts of touch screens shall . . ." is unclear as to what element's operable parts the first reference to operable parts applies to i.e., the "operable parts of what"?

Committee Action on 2nd draft Ballot Comment 1: AS 28-0-2

REPORT OF HEARING:

Modification (if any):

Committee Reason: The comment provides more precise language.

09-03 – 2021 2nd draft Committee Action

Committee Action for Second Ballot: Approved as further modified by 1st ballot comment 1 and public comment 1; AS 2nd ballot comment 1

REPORT OF HEARING:

Modification (if any):
Further modify as follows:

Committee Reason: The comment provides more precise language.

Report for 09-03– 2021		
Committee decision: AM	***Committee Vote at Meeting: 29-1-2***	***Committee Vote on Ballot: 42-1-2***
REPORT OF HEARING: Modification (if any): **Further modify as follows:** **904.4.3 Self-service check-out counters.** Where self-service check-out counters are provided, the check-out counter surface and built-in scanner shall be ~~38~~ 34 inches (~~965~~ 864 mm) maximum in height above the floor. The operable parts, and the operable parts of touch screens ~~are permitted to~~ shall be located 48 ~~54~~ inches (~~1372~~ 1219 mm) maximum above the floor. Key pads shall comply with Sections 707.5 and 707.6.		
Committee Reason: The modification to the scanner height is to allow for standard side reach over the scanner and that the 38 inches is not needed to accommodate the belt and edge on a typical check out counter. The modification to the operate parts would allow for the control area of the touch screen to be within standard reach, but also allow for larger screens for viewing above the reach. Screens on the market are programmable to have the control buttons at the bottom or the top of the screen. This item was approved because provisions are needed to address this common type of check-out aisles.		
Committee decision: BC1 AS and PC1	***Committee Vote at Meeting: BC1 21-1; PC1 editorial***	***Committee Vote on Ballot: 39-1-1***
REPORT OF HEARING – FIRST DRAFT		
Modification (if any):		
Committee Reason: BC1 - The revision would address both unobstructed and obstructed reach to the touch screen.		
Committee decision: AS 2-BC1	***Committee Vote at Meeting: 28-0-2***	***Committee Vote on Ballot:***
FINAL ACTION: *Approved as further modified by 1st ballot comment 1 and public comment 1; AS 2nd ballot comment 1*		
Modification (if any):		
Committee Reason: The comment provides more precise language.		

09-05 – 2021 overview

Proposal number	Proponent	Standard Sections	Committee Actions	Mtg. Date	Notes; Groups; groupings
09-05	Paarlberg	908(New)	AS–18-12-1	4-21-2022 10-26-23 7-18-24 8-1-24	Final Action AM PC2 and PC3 reconsideration

Comment 1st draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Pace, HUD	Affirmative	**NA**	10-26-23	
PC1	Terminology	AM	**NA**		This proposal was errata
PC2	Stratton	AM	**NA** **AS 17-1-2**	10-26-23 7-18-24	
PC3	Gilliland, Williams	AM	AM 23-5-3	10-26-23	
PC3 reconside ration	Mazz	AFM	**AFM** Part 1 AS 18-1-4; Part 2 AS 2-21-0	8-1-24	

BC= Ballot Comment, PC= Public comment, **Bold Comment number** is proposed revision below

Comment 2nd draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Buuck, NAHB	AM	D 23-2-5	8-14-25	

09-05 – 2021
908(New)

Proponent: Kimberly Paarlberg, International Code Council

Add new text as follows:

SECTION 908
TRASH OR LINEN CHUTES

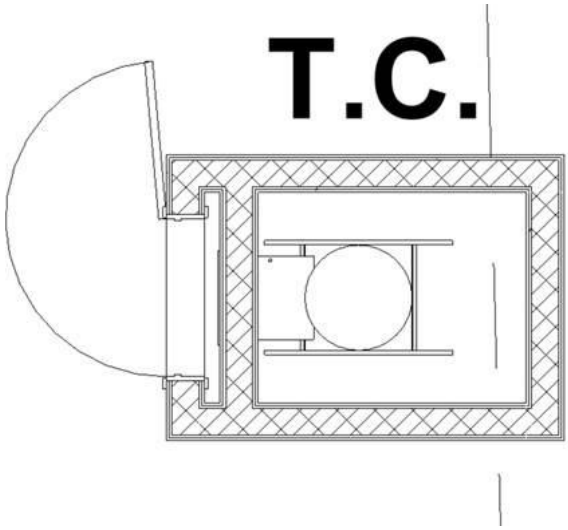
908.1 General. Waste, recycling and linen chutes serving Accessible and Type A units are required to be on an accessible route and comply with Section 908.2 through 908.4.

908.2 Doors to trash or linen chutes. Doors to waste, recycling and linen chutes rooms or trash or linen chute access panels shall comply with 404.

908.3 Trash or linen chute access panels. Access panels for waste, recycling and linen chutes shall have hardware complying with 404.2.6. The access panel opening forces shall have the minimum opening force allowable by the scoping provisions adopted by the appropriate administrative authority.

908.4 Room requirements. Where there is a room in front of the access panel for waste, recycling or linen chutes, a turning space shall be provided in the room and maneuvering clearances shall be provided on both sides of the door. Where the access panel for the waste, recycling or linen chute is located behind a corridor door, the door shall have a magnetic hold open that allows for automatic-closing upon the detection of smoke.

REASON: The purpose of this proposal is to provide technical criteria for accessibility for trash chutes and linen chutes. Since these are vertical shafts, the walls are required to be fire resistance rated. Both the door to the access the chute, and the door to the chute itself are required to be fire resistance rated. That requires closures and latches on the door.



2021 IBC
713.13 Waste, recycling and linen chutes and incinerator rooms. Waste, recycling and linen chutes shall comply with the provisions of NFPA 82, Chapter 6 and shall meet the requirements of Sections 712 and 713.13.1 through 713.13.6. Incinerator rooms shall meet the provisions of Sections 713.13.4 and 713.13.5.
Exception: Chutes serving and contained within a single *dwelling unit.*

713.13.1 Waste, recycling and linen chute enclosures. A *shaft enclosure* containing a recycling, waste or linen chute shall not be used for any other purpose and shall be enclosed in accordance with Section 713.4. A *shaft enclosure* shall be permitted to contain recycling and waste chutes. Openings into the *shaft*, from access rooms and discharge rooms, shall be protected in accordance with

this section and Section 716. Openings into chutes shall not be located in *corridors*. Doors into chutes shall be *self-closing*. Discharge doors shall be self-or automatic closing upon the actuation of a smoke detector in accordance with Section 716.2.6.6, except that heat-activated closing devices shall be permitted between the *shaft* and the discharge room.

713.13.2 Materials. A *shaft enclosure* containing a waste, recycling, or linen chute shall be constructed of materials as permitted by the building type of construction.

713.13.3 Chute access rooms. Access openings for waste, recycling or linen chutes shall be located in rooms or compartments enclosed by not less than 1-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. Openings into the access rooms shall be protected by opening protectives having a *fire protection rating* of not less than 3/4 hour. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 716.2.6.6. The room or compartment shall be configured to allow the access door to the room or compartment to close and latch with the access panel to the chute in any position.

Committee Action: 18-12-1 AS

REPORT OF HEARING:
Modification (if any):

Committee Reason: This is a common issue that needs to be moved forward. The proposal provides technical criteria for accessibility for trash chutes and linen chutes. Since these are vertical shafts, the walls are required to be fire resistance rated. Both the door to the access the chute, and the door to the chute itself are required to be fire resistance rated, and that requires closures and latches on the door.

908-PAARLBERG.doc

09-05 – 2021 Ballot Comments

BALLOT COMMENT 1- FIRST DRAFT: *Proponent:* **Rex Pace representing HUD**
Desired Action: Affirmative with Comment
Modification:
Reason: Believe that the specific requirements for trash or linen chutes are helpful and address many questions that arise. However, it was still not clear from the requirements alone if a closet containing only a trash chute would have to provide a turning space. Assume the intent was not to require this, and one would apply the requirements for clear space/clearances as appropriate for operable parts and doors. Please discuss in commentary.

09-05 – 2021 Public Comment 1
904.6

Proponent: Marsha Mazz, representing the Terminology Task Group

Further revise as follows:

SECTION 904
SALES AND SERVICE COUNTERS AND WINDOWS

904.6 Security glazing. Where counters or teller windows have security glazing to separate personnel from the public, a method to facilitate voice communication shall be provided. Telephone handset devices, if provided, shall comply with Section 704.3. Where provided, ~~operable parts~~ controls of a voice communication system shall comply with ~~Section 309~~ operable parts.

REASON: This is part of a proposal from the Terminology task group to define the building blocks so that a reference is not required. This public comment is included here because it was part of new text. Please see the complete proposal for additional information.

Committee Action for Public Comment 1: Errata, not association with this proposal. See E-03.

REPORT OF HEARING:

Modification (if any):

Committee Reason:

09-05 Terminology.doc

09-05 – 2021 Public Comment 2
102.1

Proponent: Peter Stratton, Steven Winter Associates, Inc.

Further revise as follows:

SECTION 908
TRASH OR LINEN CHUTES

908.1 General. Waste, recycling and linen chutes ~~serving Accessible and Type A units~~ are required to be on an accessible route and comply with Section 908.2 through 908.4.

REASON: Trash chutes service all units and not just Type A and Accessible.

Committee Action for Public Comment 2: AS 17-1-2

REPORT OF HEARING:

Modification (if any):

Committee Reason: Consistent with PC3

09-05 Stratton.doc

09-05 – 2021 Public Comment 3
102.1

Proponent: Jenifer Gilliland and Richard Williams, Washington Association of Building Officials (WABO), Kimberly Paarlberg, ICC

Further revise as follows:

SECTION 908
TRASH OR LINEN CHUTES

908.1 General. Waste, recycling and linen chutes ~~serving Accessible and Type A units~~ are required to be on an accessible route and comply with Section 908.2 through 908.4.

908.2 Doors ~~to trash or linen chutes~~. Doors to ~~waste, recycling and linen chutes~~ rooms that provide access to the chute ~~or trash or linen chute access panels~~ shall comply with Section 404. Where the access panel for the chute is located behind a corridor door, the door shall comply with Section 404 on the corridor side, shall have a magnetic hold open that allows for automatic-closing upon the detection of smoke.

908.2 Doors ~~to trash or linen chutes~~. Doors to ~~waste, recycling and linen chutes~~ rooms that provide access to the chute ~~or trash or linen chute access panels~~ shall comply with Section 404. Where the access panel for the chute is located behind a corridor door, the door shall comply with Section 404 on the corridor side, and shall have a magnetic hold open that allows for automatic-closing upon the detection of smoke.

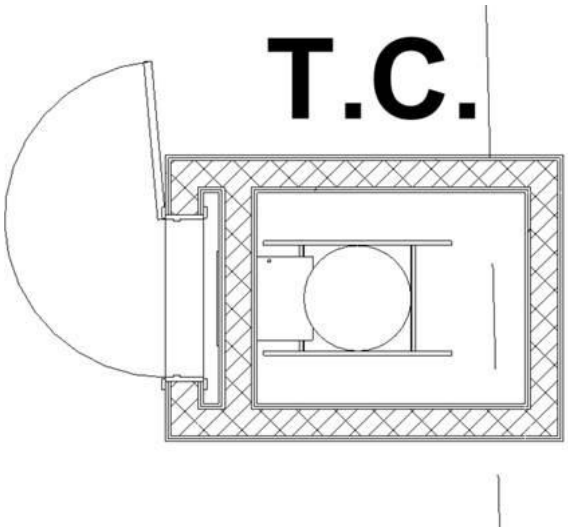


Figure 908.2 Door and access panel
(Drawing should include maneuvering clearance at outside and indication of the hold open devices.)

908.3 Trash or linen chute access panels. Access panels for waste, recycling and linen chutes shall have hardware complying with 404.2.6. The access panel opening forces shall have the minimum opening force allowable by the scoping provisions adopted by the appropriate administrative authority.

908.4 Room requirements. Where there is a room in front of the access panel for waste, recycling or linen chutes, a turning space shall be provided in the room and maneuvering clearances shall be provided on both sides of the door. ~~Where the access panel for the waste, recycling or linen chute is located behind a corridor door, the door shall have a magnetic hold open that allows for automatic closing upon the detection of smoke.~~

REASON: While waste, recycling and linen chutes are typically found in R occupancies, it is not clear why the requirements in 908.1 are limited to Accessible and Type A units. These chutes are also found in offices, factories, etc. Should employees and others who use these building features be denied their use on an accessible route just because it is not in a residential building? This modification eliminates language limiting application of the requirements to just Accessible and Type A units.

The revision to Section 908.2 should read as a standalone section address all the requirements for doors. IBC Section 713.13 and NFPA 82 require a rated room or rated door in front of the chute access. Section 908.3 addresses trash or linen chute access panels. A figure would add clarity.

Section 908.1 contains scoping language requiring waste, recycling, and linen chutes to be on an accessible route. I does not have to be repeated.

Committee Action for Public Comment 3: AM 23-5-3

REPORT OF HEARING:

Modification (if any):

Committee Reason: The trash chute requirements are needed in occupancies other than residential. The hold open on the door in Section 908.2 addresses the fire prevention concerns in NFPA 82 and improves access by providing a way for the door to be held open while someone puts items in the chutes. The reorganization provides clarity by grouping door requirements together.

09-05 WABO.doc

09-05 – 2021 Public Comment 3 reconsideration

908

Modification: from Marsh Mazz United Spinal Association

908.2 Doors. Doors to rooms that provide access to ~~the~~ chutes shall comply with Section 404. Where a corridor door that is not for user passage conceals an ~~the~~ access panel for the chute ~~is located behind a corridor door~~, the door shall comply with Section 404 on the corridor side and, shall have a magnetic hold open that allows for automatic-closing upon the detection of smoke.

908.3 ~~Trash or linen~~ Chute access panels and chutes. Access panels for ~~waste, recycling and linen~~ chutes shall have hardware complying with 404.2.6. The access panel opening forces shall have the minimum opening force allowable by the scoping provisions adopted by the appropriate administrative authority. Chutes shall provide a clear floor space for a parallel approach.

Committee Action for Public Comment 3 reconsideration: Part 1 AS 18-1-4; Part 2 AS 2-21-0

REPORT OF HEARING:

Modification (if any):

908.3 Chute access panels ~~and chutes~~. Access panels for chutes shall have hardware complying with 404.2.6. The access panel opening forces shall have the minimum opening force allowable by the scoping provisions adopted by the appropriate administrative authority. ~~Chutes shall provide a clear floor space for a parallel approach.~~

Committee Reason: The modifications are a clarification of which doors are being discussed. The committee felt that a front approach for a chute hatch will work. There was a concern that a

side approach could conflict with the NFPA requirements for hatch and door clearances, which are important fire safety features.

09-05 – 2021 1st draft Committee Action

Committee Action for First Ballot:
AM by PC3 23-5-3; AM by PC3 reconsideration Part 1 AS 18-1-4; Part 2 AS 2-21-0

REPORT OF HEARING:

Modification (if any): See PC3 and reconsideration

Committee Reason: The trash chute requirements are needed in occupancies other than residential. The hold open on the door in Section 908.2 addresses the fire prevention concerns in NFPA 82 and improves access by providing a way for the door to be held open while someone puts items in the chutes. The reorganization provides clarity by grouping door requirements together.

09-05 – 2021 2nd draft Ballot Comment 1

908.2

Proponent: Dan Buuck NAHB
Vote: affirmative with comment, AM

Further revise as follows:
908.2 Doors. Doors to rooms that provide access to chutes shall comply with Section 404. Where a corridor door that is not for user passage conceals an access panel for the chute, the door shall comply with Section 404 on the corridor side and, shall have a magnetic hold open that ~~allows for automatic closing~~ releases upon ~~the detection of smoke~~ activation of the building's fire alarm system.

REASON: There are two concerns in this section that can be improved upon. The first is that the magnetic hold-open should release the door, not just allow for self-closing of the door and the second is that the door should release to self-close upon activation of the buildings fire alarm system. Saying upon detection of smoke implies that additional smoke detectors could be required, which isn't the intent. The changes proposed below improve these requirements. The requirements for such a door to be self-closing and self-latching are contained in the IBC.

Committee Action on 2nd draft Ballot Comment 1: AS 5-19-6 (failed); D 23-3-5
Modification – AS 8-15-4 fail

REPORT OF HEARING:

Modification (if any):

Replace with the following

Committee Reason: The comment was disapproved because not all apartment buildings have a fire alarm system. This is addressed as a fire safety requirement in IBC Section 716.2.6 and NFPA 80.

09-05 – 2021 2nd draft Committee Action

Committee Action for Second Ballot: Approved as modified by 1st ballot comment 1 with editorial, AM public comment 2, AS reconsideration public comment 3 (no change)

REPORT OF HEARING:

Modification (if any):
Further modify as follows:

Committee Reason: The comment was disapproved because not all apartment buildings have a fire alarm system. This is addressed as a fire safety requirement in IBC Section 716.2.6 and NFPA 80.

Report for 0*9-05– 2021*		
Committee decision: AS	***Committee Vote at Meeting: 18-12-1***	***Committee Vote on Ballot:39-1-1***
REPORT OF HEARING: Modification (if any):		
Committee Reason: This is a common issue that needs to be moved forward. The proposal provides technical criteria for accessibility for trash chutes and linen chutes. Since these are vertical shafts, the walls are required to be fire resistance rated. Both the door to the access the chute, and the door to the chute itself are required to be fire resistance rated, and that requires closures and latches on the door.		
Committee decision: AMPC3 and reconsideration	***Committee Vote at Meeting:*** PC3 23-5-3; PC3 reconsideration Part 1 AS 18-1-4; Part 2 AS 2-21-0	***Committee Vote on Ballot: 39-1-1***
REPORT OF HEARING – FIRST DRAFT		
Modification (if any): See PC3 and PC3 reconsideration		
Committee Reason: PC3 -The trash chute requirements are needed in occupancies other than residential. The hold open on the door in Section 908.2 addresses the fire prevention concerns in NFPA 82 and improves access by providing a way for the door to be held open while someone puts items in the chutes. The reorganization provides clarity by grouping door requirements together. **PC3 reconsideration -** The modifications are a clarification of which doors are being discussed. The committee felt that a front approach for a chute hatch will work. There was a concern that a side approach could conflict with the NFPA requirements for hatch and door clearances, which are important fire safety features.		
Committee decision: D 2-BC1	**Committee Vote at Meeting: 23-2-5**	**Committee Vote on Ballot:**
FINAL ACTION: Approved as modified by 1st ballot comment 1 with editorial, AM public comment 2, AS reconsideration public comment 3 (no change)		
Modification (if any):		
Committee Reason: The comment was disapproved because not all apartment buildings have a fire alarm system. This is addressed as a fire safety requirement in IBC Section 716.2.6 and NFPA 80.		

CHAPTER 10
RECREATION FACILITIES

10-03 – 2021 overview

Proposal number	Proponent	Standard Sections	Committee Actions	Mtg. Date	Notes; Groups; groupings
10-03	Paarlberg	1009, 1009.1, 1009.1.1, 1009.1.3	AS 23-6-1	3-2-2023 7-18-2024	Final action AMBC1/AS 2-BC1

Comment 1st draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Paarlberg, ICC	Affirmative	AS 21-0-1	7-18-2024	

BC= Ballot Comment, PC= Public comment, **Bold Comment number** is proposed revision below

Comment 2nd draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Mazz, USA	AM	AS 21-1-4	8-14-25	

10-03 – 2021
1009, 1009.1, 1009.1.1, 1009.1.3

Proponent: Kimberly Paarlberg, International Code Council

Revise as follows:

SECTION 1009
SWIMMING POOLS, WADING POOLS, <u>COLD BATHS,</u> HOT TUBS AND SPAS

1009.1 General. Swimming pools, wading pools, <u>cold baths,</u> hot tubs and spas shall comply with Section 1009.

1009.1.1 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 1009.2; sloped entries complying with Section 1009.3; transfer walls complying with Section 1009.4, transfer systems complying with Section 1009.5; and pool stairs complying with Section 1009.6. At least one accessible means of entry provided shall comply with Section 1009.2 or 1009.3

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 1009.2, a sloped entry complying with Section 1009.3, or a transfer system complying with Section 1009.5.
3. A catch pool ~~Catch pools~~ or a designated section of a pool used as a terminus for a water slide flume shall not be required to provide an accessible means of entry, provided that a portion of the catch pool edge is on an accessible route or, where the area at the catch pool edge is restricted to use by staff and persons exiting the pool, and an accessible route serves the gate or area where participants discharge from the activity.

1009.1.2 Wading pools. At least one sloped entry complying with Section 1009.3 shall be provided in wading pools.

1009.1.3 Cold baths, Hot tubs and spas. At least one accessible means of entry shall be provided for cold baths, hot tubs and spas. Accessible means of entry shall comply with swimming pool lifts complying with Section 1009.2; transfer walls complying with Section 1009.4; or transfer systems complying with Section 1009.5.

Exception: Where cold baths, hot tubs or spas are provided in a cluster, no more than 5 percent, but not less than one cold bath, hot tub or spa in each cluster shall be required to comply with Section 1009.1.3.

REASON: The change to the title of the section and Section 1009.1.3 are coordination with IBC code change E134-18 by Gene Boecker.
His reason was:
The proposal includes two changes: clarification that the intent is to have access to at least one of each type of aquatic element and the addition of cold baths.

As written, it could be interpreted that if a cluster included a hot tub and a spa as a cluster, access would only be required to one of those although they are different types of elements - with bubbles and without. The change makes the language consistent with the intent of the federal ADA.

The second is a change to include cold baths as another type. This is a different thermal experience and should be included, consistent with the intent of the ADA for equal access.

The change to 1009.1.1 is coordination with IBC code change E144-21 submitted by Marsha Mazz. *Her reason was*:

The "pool edge" of a catch pool serving a water slide is often located above ground on a platform. The purpose of the accessible route requirement to the "pool edge" is to ensure that parents and others with disabilities can meet-up with their parties after they disembark from the ride. This is particularly true for children who need to be under their parent's supervision once they exit the pool. Generally, persons entering and exiting amusement rides are surveilled when

inside the pay area. So, when the pool edge is on a platform, an accessible route to the exit point should suffice.

Note: This interpretation does not represent a clearly settled matter under the 2010 ADA Standards. However, we would question the value of a ramp up to a pool edge on a raised platform given that the ride, itself, need not provide an accessible means of entry for a person with a mobility disability. Furthermore, people can often exit a catch pool at multiple points - nothing in the current provision ensures that the location of the accessible route is exactly the same place where any one rider will exit.

Committee Action: As Submitted 23-6-1

REPORT OF HEARING:

Modification (if any):

Committee Reason: This is a coordination item with the scoping language in the IBC. Some of the committee felt a general description would be better than a list that could get longer over time.

1008.4.3-PAARLBERG.doc

10-03 – 2021 Ballot Comments

BALLOT 1 COMMENT- FIRST DRAFT: Proponent: Kimberly Paarlberg, ICC
Desired Action: Affirmative with comment
Modification: See Ballot Comment 1

10-03 – 2021 Ballot Comment 1

107.5, 1009, 1009.1, 1009.1.3

Proponent: Kimberly Paarlberg, ICC

Revise as follows:

SPA. A product intended for the immersion of persons in temperature-controlled water circulated in a closed system, and not intended to be drained and filled with each use.

SECTION 1009
SWIMMING POOLS, WADING POOLS, ~~COLD BATHS, HOT TUBS~~ AND SPAS

1009.1 General. Swimming pools, wading pools, ~~cold baths, hot tubs~~ and spas shall comply with Section 1009.

1009.1.1 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 1009.2; sloped entries complying with Section 1009.3; transfer walls complying with Section 1009.4, transfer systems complying with Section 1009.5; and pool stairs complying with Section 1009.6. At least one accessible means of entry provided shall comply with Section 1009.2 or 1009.3

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 1009.2, a sloped entry complying with Section 1009.3, or a transfer system complying with Section 1009.5.
3. A catch pool or a designated section of a pool used as a terminus for a water slide flume shall not be required to provide an accessible means of entry, provided that a portion of the catch pool edge is on an accessible route or, where the area at the catch pool edge is restricted to use by staff and persons exiting the pool, and an accessible route serves the gate or area where participants discharge from the activity.

1009.1.2 Wading pools. At least one sloped entry complying with Section 1009.3 shall be provided in wading pools.

1009.1.3 ~~Cold baths, Hot tubs and~~ spas. At least one accessible means of entry shall be provided for ~~cold baths, hot tubs and~~ spas. Accessible means of entry shall comply with swimming pool lifts complying with Section 1009.2; transfer walls complying with Section 1009.4; or transfer systems complying with Section 1009.5.

Exception: Where ~~cold baths, hot tubs or~~ spas are provided in a cluster, no more than 5 percent, but not less than one ~~cold bath, hot tub or~~ of each type of spa in each cluster shall be required to comply with Section 1009.1.3.

REASON: There is a code change being proposed to the IBC for the next edition to define 'spa' as all types, so the laundry list will not need to add the new kinds appearing – tempered water, salt water, natural spring – in addition to hot and cold. This will be consistent with the committees question about laundry lists.

Committee Action: AS 21-0-1

REPORT OF HEARING:

Modification (if any):

Committee Reason: This definition will be consistent with the I-codes. The definition vs. a laundry list eliminates someone claiming their type of spa is not listed.

10-03 – 2021 1st draft Committee Action

Committee Action for First Ballot: BC1 AS 21-0-1

REPORT OF HEARING:

Modification (if any):

Committee Reason: This definition will be consistent with the I-codes. The definition vs. a laundry list eliminates someone claiming their type of spa is not listed.

10-03 – 2021 2nd draft Ballot Comment 1

1009.1.3

Proponent: Marsha Mazz USA
Vote: negative with comment, AM

Further revise as follows:
1009.1.3 Spas. At least one accessible means of entry shall be provided for spas. Accessible means of entry shall comply with swimming pool lifts complying with Section 1009.2; transfer walls complying with Section 1009.4; or transfer systems complying with Section 1009.5.

~~**Exception:** Where spas are provided in a cluster, no more than 5 percent, but not less than one spa in each cluster shall be required to comply with Section 1009.1.3.~~

REASON: Delete the exception. The exception does not relate to the technical requirement because it is scoping. Scoping belongs in Appendix A, not in the technical standard.

Committee Action on 2nd draft Ballot Comment 1: AS 21-1-4

REPORT OF HEARING:

Modification (if any):

Committee Reason: The exception is actually scoping and should be deleted from the technical criteria.

10-03 – 2021 2nd draft Committee Action

Committee Action for Second Ballot: Approved as modified by 1st ballot comment 1; AS 2nd ballot comment 1

REPORT OF HEARING:

Modification (if any):
Further modify as follows:

Committee Reason: The exception is actually scoping and should be deleted from the technical criteria.

Report for *10-03– 2021*		
Committee decision: AS	***Committee Vote at Meeting: 23-6-1***	***Committee Vote on Ballot:43-1-1***
REPORT OF HEARING: Modification (if any):		
Committee Reason: This is a coordination item with the scoping language in the IBC. Some of the committee felt a general description would be better than a list that could get longer over time.		
Committee decision: BC1 AS	***Committee Vote at Meeting: 21-0-1***	***Committee Vote on Ballot: 39-1-1***
REPORT OF HEARING – FIRST DRAFT		
Modification (if any):		
Committee Reason: This definition will be consistent with the I-codes. The definition vs. a laundry list eliminates someone claiming their type of spa is not listed.		
Committee decision: AS/ 2-BC1	***Committee Vote at Meeting: 21-1-4***	***Committee Vote on Ballot:***
FINAL ACTION: *Approved as modified by 1st ballot comment 1; AS 2nd ballot comment 1*		
Modification (if any):		
Committee Reason: The exception is actually scoping and should be deleted from the technical criteria.		

CHAPTER 11
DWELLING UNITS AND SLEEPING UNITS

11-14 – 2021 overview

Proposal number	Proponent	Standard Sections	Committee Actions	Mtg. Date	Notes; Groups; groupings
11-14	Mazz	1103.12.1.1, 1103.12.1.2, 1104.12.1.1, 1104.12.1.2	AS – 23-2-3	4-21-2022 7-18-2024	Final Action AM BC1/AS 2-BC2

Comment 1st draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Paarlberg, ICC	Negative	AS 21-0-0	7-18-2024	

BC= Ballot Comment, PC= Public comment, **Bold Comment number** is proposed revision below

Comment 2nd draft	Proponent	Requested Action	Committee Action	Mtg. Date	Notes; Groups; groupings
BC1	Schorr ATBCB	AM	AS 3-19-5 fail	8-14-25	
BC2	Paarlberg, ICC	AM	AS 21-1-3	21-1-3	

11-14 – 2021
1103.12.1.1, 1103.12.1.2, 1104.12.1.1, 1104.12.1.2

Proponent: Marsha Mazz, representing United Spinal Association

Revise as follows:

SECTION 1103
TYPE A UNITS

1103.12.1.1 Minimum clearance. Clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls.

1103.12.1.2 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 measured at the narrowest point, excluding hardware and appliance controls.

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

SECTION 1104
TYPE B UNITS

1104.12.1.1 Minimum clearance. Clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls.

1104.12.1.2 U-shaped kitchens. In kitchens with counters, appliances or cabinets on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum measured at the narrowest point, excluding hardware and appliance controls.

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

REASON: Kitchens in Accessible units and those outside dwelling units must comply with Section 804. This proposal addresses Type A and Type B units. Please see our companion proposals to make the same change to Section 804.2.

Some inspectors include hardware and appliance controls when measuring between base cabinets and appliances, others do not. This proposal is intended to establish a clear measurement point. The narrowest kitchen clearance is 40 inches in width which is at least 4 inches wider than an accessible route, 8 inches where Exception 1 to Section 403.5.1 allows the route to reduce to 32 inches for a distance of 24 inches.

For Type B units (Section 1104.12.1), HUD's Fair Housing Design Manual makes clear that hardware and appliance controls are to be excluded when measuring kitchen clearances.

> "The Guidelines require a clearance of at least 40 inches between all opposing base cabinets, countertops, appliances, and walls. The 40-inch clearance is measured from any countertop or the face of any appliance (excluding handles and controls) that projects into the kitchen to the opposing cabinet, countertop, appliance, or wall. Refrigerators vary greatly in depth and may extend up to eight inches beyond cabinet faces. Standard free-standing and drop-in ranges may project up to three inches. Appliance depths (excluding door handles) must be included when calculating the 40-inch clearances."

Requirement #7 (1)(b) of the Fair Housing Act Accessibility Guidelines says it a little differently.

> "Clearance between counters and all opposing base cabinets, countertops, appliances, or walls is at least40 inches".

Unfortunately, neither the Design Manual or the Guidelines shed any light on where the measurement is to be taken when the countertop overhangs the face of the cabinet or an appliance, such as a dishwasher. This proposal clarifies what we believe is the intent of the HUD requirement by requiring the measurement to be taken at the narrowest point. We have proposed the same change for Sections 804 and 1103.12.1.

Committee Action: AS 23-2-3
REPORT OF HEARING:
Modification (if any):

Committee Reason: The committee agreed with the proponent's reason statement - that the measurement for kitchens should not include handles on cabinets and appliance controls or handles. There are some reviewers that are misinterpreting this. For consistency, this should also be considered for the kitchen requirements in Section 804.

1103.12.1-MAZZ.doc

11-14 – 2021 Ballot Comments

BALLOT COMMENT 1- FIRST DRAFT: *Proponent:* **Kim Paarlberg representing ICC**
Desired Action: Negative with comment
Modification: See Ballot Comment 1

11-14 – 2021 Ballot Comment 1

804.2.1, 804.2.2, 804.2.3, 1103.12.1.1, 1103.12.1.2, 1104.12.1.1, 1104.12.1.2

Proponent: Kimberly Paarlberg, ICC

Further 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, clearances shall comply with Section 804.2.2. Kitchens where a cook top or conventional range is not provided shall comply with Section 804.2.3.

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, countertops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles. Pass-through kitchens shall have two entries.

Figure 804.2.1 (A)
PASS-THROUGH KITCHEN CLEARANCE
Figure 804.2.1 (B)
PASS-THROUGH KITCHEN CLEARANCE

804.2.2 U-shaped kitchens. In kitchens enclosed on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

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

Figure 804.2.2 (A)
U-SHAPED KITCHEN CLEARANCE
Figure 804.2.2 (B)
U-SHAPED KITCHEN CLEARANCE
Figure 804.2.2 (C)
U-SHAPED KITCHEN CLEARANCE - EXCEPTION

804.2.3 Spaces where a cook top or conventional range is not provided. In a kitchen space where a cooktop or conventional range is not provided, clearance between all opposing base cabinets, countertops, appliances and walls within kitchen work areas shall be 40-inch (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

SECTION 1103
TYPE A UNITS

1103.12.1.1 Minimum clearance. Clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

1103.12.1.2 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 measured at the narrowest point, excluding hardware and appliance controls and handles.

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

SECTION 1104
TYPE B UNITS

1104.12.1.1 Minimum clearance. Clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

1104.12.1.2 U-shaped kitchens. In kitchens with counters, appliances or cabinets on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

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

REASON: I agree with the intent. But should this not also include appliance handles? This clarification is also needed in Section 804 for Accessible kitchens.

Committee Action for Ballot Comment 1: AS 21-0-1

REPORT OF HEARING:

Modification (if any):

Committee Reason: The modification provides additional clarification to the original proposal.

11-14 Paarlberg

11-14 – 2021 1st draft Committee Action

Committee Action for First Ballot: AS BC1 21-0-1

REPORT OF HEARING:

Modification (if any):

Committee Reason: The modification provides additional clarification to the original proposal.

11-14 – 2021 2nd draft Ballot Comment 2

804.2

Proponent: Kimberly Paarlberg, ICC
Vote: affirmative with comment, AM

Further revise as follows:

SECTION 804
KITCHENS

804.1 General. Kitchens shall comply with Section 804.

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

Exception: Circulation routes into kitchens that do not serve as access to counters, appliances or cabinets shall comply with Section 403.4.

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, countertops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles. Pass-through kitchens shall have two entries.

804.2.2 U-shaped kitchens. In kitchens enclosed on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

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

804.2.3 Spaces where a cook top or conventional range is not provided. In a kitchen space where a cooktop or conventional range is not provided, clearance between all opposing base cabinets, countertops, appliances, and walls within kitchen work areas shall be 40-inch (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

1102.12 Kitchens. Kitchens shall comply with Section 804.

1103.12 Kitchens. Kitchens shall comply with Section 1103.12.

1103.12.1 Clearance. Clearance complying with Section 1103.12.1 shall be provided.

1103.12.1.1 Minimum clearance. Clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

Exception: Circulation routes into kitchens that do not serve as access to counters, appliances or cabinets shall comply with Section 403.4.

1103.12.1.2 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 measured at the narrowest point, excluding hardware and appliance controls and handles.

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

1103.12.1.3 Spaces where a cook top or conventional range is not provided. In a kitchen space where a cooktop or conventional range is not provided, clearance between all opposing base cabinets, countertops, appliances, and walls within kitchen work areas shall be 40-inches (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

1104.12 Kitchens. Kitchens shall comply with Section 1104.12.

1104.12.1 Clearance. Clearance complying with Section 1104.12.1 shall be provided.

Exception: Circulation routes into kitchens that do not serve as access to counters, appliances, or cabinets shall comply with Section 1104.3.

1104.12.1.1 Minimum clearance. Clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

1104.12.1.2 U-shaped kitchens. In kitchens with counters, appliances, or cabinets on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

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

1104.12.1.3 Spaces where a cook top or conventional range is not provided. In a kitchen space where a cooktop or conventional range is not provided, clearance between all opposing base cabinets, countertops, appliances, and walls within kitchen work areas shall be 40-inch (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

REASON: The revision to Section 804.2 is for consistency with the approach 1103.12.1 and 1104.12.1.

Committee Action on 2nd draft Ballot Comment 2: AS 21-1-3

REPORT OF HEARING:

Modification (if any):

Committee Reason: This is an editorial match between kitchen requirements throughout the standard.

11-14 – 2021 2nd draft Ballot Comment 1

804.2, 804.2.3

Proponent: Josh Schorr ATBCB
Vote: negative with comment, AM

Further revise as follows:

SECTION 804
KITCHENS

804.1 General. Kitchens shall comply with Section 804.

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

Exception: Circulation routes into kitchens that do not serve as access to counters, appliances or cabinets shall comply with Section 403.4.

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, countertops, appliances, or walls within kitchen work areas shall be 40 inches (1015 mm) minimum measured at the narrowest

point, excluding hardware and appliance controls and handles. Pass-through kitchens shall have two entries.

Figure 804.2.1 (A)

PASS-THROUGH KITCHEN CLEARANCE

Figure 804.2.1 (B)

PASS-THROUGH KITCHEN CLEARANCE

804.2.2 U-shaped kitchens. In kitchens enclosed on three contiguous sides, clearance between all opposing base cabinets, countertops, appliances, or walls within kitchen work areas shall be 60 inches (1525 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

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

Figure 804.2.2 (A)

U-SHAPED KITCHEN CLEARANCE

Figure 804.2.2 (B)

U-SHAPED KITCHEN CLEARANCE

Figure 804.2.2 (C)

U-SHAPED KITCHEN CLEARANCE - EXCEPTION

804.2.3 Kitchen Spaces where a cook top or conventional range is not provided. In a kitchen space where a cooktop or conventional range is not provided, clearance between all opposing base cabinets, countertops, appliances, and walls within kitchen work areas shall be 40-inch (1015 mm) minimum measured at the narrowest point, excluding hardware and appliance controls and handles.

Staff note: The revision in Section 804.2 results in no reference to Section 804.2.3.

REASON: There is no way to have a kitchen without a cook top or range no need to meet the requirements for any other u-shaped kitchen. If the requirements for U-shaped kitchens is *only* supposed to apply when there is the presence of a cook top or conventional range, then that needs to be clear.

I also changed the section number for “Kitchens where a cook top or conventional range is not provided” as the requirements are identical to the requirements for a passthrough kitchen. Additionally, 804.2.3 is titled “Spaces where a cook top or conventional range is not provided” – if the reference in 804.2 to 804.2.3 remains, “spaces” should be replaced with “kitchens”

Committee Action on 2nd draft Ballot Comment 1: AS 3-19-5 fail

REPORT OF HEARING:

Modification (if any):

Committee Reason:
Current text is clear.

11-14 – 2021 2nd draft Committee Action

Committee Action for Second Ballot: Approved as modified by 1st ballot comment 1; AS 2nd ballot comment 2

REPORT OF HEARING:

Modification (if any):
Further modify as follows:

Committee Reason: This is an editorial match between kitchen requirements throughout the standard.

Report for *11-14– 2021*		
Committee decision: AS	***Committee Vote at Meeting: 23-2-3***	***Committee Vote on Ballot:39-1-1***
REPORT OF HEARING: Modification (if any):		
Committee Reason: The committee agreed with the proponent's reason statement - that the measurement for kitchens should not include handles on cabinets and appliance controls or handles. There are some reviewers that are misinterpreting this. For consistency, this should also be considered for the kitchen requirements in Section 804.		
Committee decision: AS BC1	***Committee Vote at Meeting: 21-0-1***	***Committee Vote on Ballot: 39-1-1***
REPORT OF HEARING – FIRST DRAFT		
Modification (if any):		
Committee Reason: The modification provides additional clarification to the original proposal.		
Committee decision: AS 2-BC2	***Committee Vote at Meeting: 21-1-3***	***Committee Vote on Ballot:***
FINAL ACTION: *Approved as modified by 1st ballot comment 1; AS 2nd ballot comment 2*		
Modification (if any):		
Committee Reason: This is an editorial match between kitchen requirements throughout the standard.		
