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Proposed Change 2031

Code Reference(s):	NBC20 Div.B 3.8. (first printing)
Subject:	Accessibility, Visitability and Adaptability of Dwelling Units
Title:	Reinforcing Stud Walls in Washrooms for the Future Installation of Grab Bars: Water Closets
Description:	This proposed change prescribes the reinforcement of walls around water closets in dwelling units for the future installation of grab bars.
Related Proposed Change(s):	PCF 1882, PCF 1884, PCF 1958, PCF 2030

This change could potentially affect the following topic areas:

- | | |
|--|---|
| <input type="checkbox"/> Division A | <input checked="" type="checkbox"/> Division B |
| <input type="checkbox"/> Division C | <input checked="" type="checkbox"/> Design and Construction |
| <input type="checkbox"/> Building operations | <input checked="" type="checkbox"/> Housing |
| <input checked="" type="checkbox"/> Small Buildings | <input checked="" type="checkbox"/> Large Buildings |
| <input type="checkbox"/> Fire Protection | <input checked="" type="checkbox"/> Occupant safety in use |
| <input checked="" type="checkbox"/> Accessibility | <input type="checkbox"/> Structural Requirements |
| <input type="checkbox"/> Building Envelope | <input type="checkbox"/> Energy Efficiency |
| <input type="checkbox"/> Heating, Ventilating and Air Conditioning | <input type="checkbox"/> Plumbing |
| | <input type="checkbox"/> Construction and Demolition Sites |

General information

See the summary for subject Accessibility, Visitability and Adaptability of Dwelling Units.

Problem

Approximately 10% of Canadians have a disability related to balance and walking, including 9% of Canadians aged 35 years old to 64 years old, and 25% of Canadians over 65 years old [1]. The prevalence of disabilities related to mobility increases with age, being reported in most adults over 80 years old [2]. Thus, most Canadians will

need balance and mobility assistance at some point in their lives. Strategies are needed to allow Canadians to easily and affordably retrofit their homes to accommodate their evolving health status and live at home for as long as possible.

Grab bars are the most common device used to improve the safety and accessibility of Canadians with disabilities related to mobility, used by 38% of this population [1]. Grab bars are typically installed near bathtubs and showers to prevent falls for persons with and without disabilities [3]. However, the National Building Code of Canada (NBC) 2020 makes it difficult to retrofit bathrooms with grab bars, which generally need to be mounted onto studs or other reinforcement behind outer wall materials to meet the NBC requirements for structural strength. This situation causes the following two problems for occupants who wish to install grab bars:

1. The range of locations where grab bars can be installed while meeting the NBC requirements for structural strength is limited because the NBC only requires studs to be spaced up to 400 mm to 600 mm apart in most interior bathrooms. This requirement makes it difficult to position grab bars in a way that allows a person with a disability related to balance or mobility to access and use the washroom facilities.
2. The narrow width of the studs (often less than 40 mm) allows little room for error in positioning the grab bar to ensure that all of the mounting screws penetrate the stud to meet the structural strength requirements. Slight misalignments in the wall studs may make it impossible to install grab bars properly. Loading improperly installed grab bars may cause the bar to detach from the wall and cause a fall or injury to users.

Justification

This proposed change introduces a requirement to install reinforcement to stud walls around the water closet in washrooms to support the potential installation of grab bars and similar fixtures. By reinforcing stud walls in washrooms, this proposed change addresses the following major barriers to grab bar installations:

- Increasing the range of locations where grab bars can be installed while still meeting NBC requirements for structural strength would allow an occupant to customize the location of grab bars to meet the occupant's individual needs for balance and mobility. This proposed change would limit the probability that users with a disability related to mobility would be unable to install a grab bar in a position that allows them to safely and easily use washroom facilities.
- Facilitating the proper installation of grab bars would make them more likely to meet the NBC requirements for structural strength. This proposed change would limit the probability of grab bars detaching from walls during use and resulting in falls or injuries to users.

The proposed change expands on existing requirements for reinforcement to washroom walls in Nova Scotia, Ontario, British Columbia and Alberta by prescribing the area around the wall where reinforcement is required, similar to the approach already adopted in Quebec and is expected to simplify the application of this proposed change.

A central element of this proposed change addresses the need for flexibility in the locations on the wall where grab bars can be installed and customized to individual needs, while minimizing the demands on the occupant installing grab bars in the future to be aware of the exact location of the wall that is reinforced. To that end, this proposed change expands on existing requirements for reinforcement to washroom walls in most provinces and territories (except for Quebec) by prescribing a larger area of wall coverage to support common applications of grab bars in private dwellings (which go beyond bar configurations to support wheelchair or bench transfers in public spaces). Also, this proposed change better addresses the vast range of washroom configurations in dwellings, where it is not always physically possible to install grab bars in the same locations recommended for public spaces because the washroom is too small. The proposed range includes:

1. A larger area of side wall coverage by the water closet (i.e., toilet) to permit custom installations of diagonal and vertical grab bars, which were preferred by older adults with various disabilities related to mobility when using grab bars to transfer onto and off of the water closet (4).
2. Coverage behind the water closet to install grab bars in locations in accordance with common accessibility standards (e.g., CSA B651, "Accessible design for the built environment").

It should be noted that this proposed change focuses on prescribing an area for wall coverage around the water closet. It should be considered in conjunction with the following two proposed changes:

- PCF 1882, which prescribes the area for wall coverage around bathtubs and showers, and
- PCF 2030, which provides a performance requirement and compliance options for the reinforcement material and method of mounting to the studs, such that the material supports grab bars complying with the NBC requirements for structural strength of resisting 1.3 kN horizontally and vertically (Sentence 9.1.2.3.(1))

PROPOSED CHANGE

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[3.8.] 3.8. Accessibility

(See Note A-3.8.)

[3.8.1.] 3.8.1. Scope**[3.8.1.1.] 3.8.1.1. Scope****[3.8.2.] 3.8.2. Application****[3.8.2.1.] 3.8.2.1. Exceptions****[3.8.2.2.] 3.8.2.2. Entrances****[3.8.2.3.] 3.8.2.3. Areas Requiring a Barrier-Free Path of Travel****[3.8.2.4.] 3.8.2.4. Access to Storeys Served by Escalators and Moving Walks****[3.8.2.5.] 3.8.2.5. Exterior Barrier-Free Paths of Travel to Building Entrances and Exterior Passenger-Loading Zones****[3.8.2.6.] 3.8.2.6. Controls****[3.8.2.7.] 3.8.2.7. Power Door Operators****[3.8.2.8.] 3.8.2.8. Plumbing Facilities****[3.8.2.9.] 3.8.2.9. Assistive Listening Systems****[3.8.2.10.] 3.8.2.10. Signs and Indicators****[3.8.2.11.] 3.8.2.11. Counters****[3.8.2.12.] 3.8.2.12. Telephones****[3.8.3.] 3.8.3. Design****[3.8.3.1.] 3.8.3.1. Design Standards****[3.8.3.2.] 3.8.3.2. Barrier-Free Path of Travel****[3.8.3.3.] 3.8.3.3. Exterior Walks****[3.8.3.4.] 3.8.3.4. Exterior Passenger-Loading Zones****[3.8.3.5.] 3.8.3.5. Ramps****[3.8.3.6.] 3.8.3.6. Doorways and Doors****[3.8.3.7.] 3.8.3.7. Passenger-Elevating Devices****[3.8.3.8.] 3.8.3.8. Controls**

[3.8.3.9.] 3.8.3.9. Accessible Signs

[3.8.3.10.] 3.8.3.10. Drinking Fountains

[3.8.3.11.] 3.8.3.11. Water-Bottle Filling Stations

[3.8.3.12.] 3.8.3.12. Accessible Water-Closet Stalls

[3.8.3.13.] 3.8.3.13. Universal Washrooms

[3.8.3.14.] 3.8.3.14. Water Closets

[3.8.3.15.] 3.8.3.15. Water-Closet Stalls and Urinals for Persons with Limited Mobility

[3.8.3.16.] 3.8.3.16. Lavatories and Mirrors

[3.8.3.17.] 3.8.3.17. Showers

[3.8.3.18.] 3.8.3.18. Accessible Bathtubs

[3.8.3.19.] 3.8.3.19. Assistive Listening Systems

[3.8.3.20.] 3.8.3.20. Counters

[3.8.3.21.] 3.8.3.21. Telephones

[3.8.3.22.] 3.8.3.22. Spaces in Seating Area

[3.8.4.] -- Dwelling Units

[3.8.4.1.] --- Entrance Doorway Width

[3.8.4.2.] --- Walls around Water Closets

(See Note A-3.8.4.2. and 3.8.4.3.-2025 (PCF 1882).)

[1] --) Stud walls around water closets shall be reinforced to support the present or future installation of grab bars in accordance with Sentence 9.31.2.3.(2)-2025 (PCF 2030).

[2] --) Except as provided in Sentences (3) to (5), the reinforcement of stud walls around water closets required by Sentence (1) shall cover a minimum area that

[a] --) on the side walls, extends horizontally from the rear wall to 1 600 mm beyond the rear wall and vertically from 690 mm to 1 630 mm above the finished floor, and

[b] --) on the rear wall, on both sides of the water closet, extends horizontally from 200 mm to 600 mm beyond the centre line of the water closet and vertically from 690 mm and 960 mm above the

finished floor. (See Note A-3.8.4.2.(2)(b).)

(See Note A-3.8.4.2.(2).)

- [3] --)** Where the horizontal length of the side wall is greater than 400 mm but less than 1 600 mm, the reinforcement described in Clause (2)(a) need only extend to the end of the wall.
- [4] --)** Where the horizontal length of the side wall is 400 mm or less, the reinforcement described in Clause (2)(a) is not required.
- [5] --)** Where the side wall is located more than 600 mm from the centre line of the water closet, the reinforcement described in Clause (2)(a) is not required.

Note A-3.8.4.2. and 3.8.4.3. Reinforcing Walls in Washrooms.

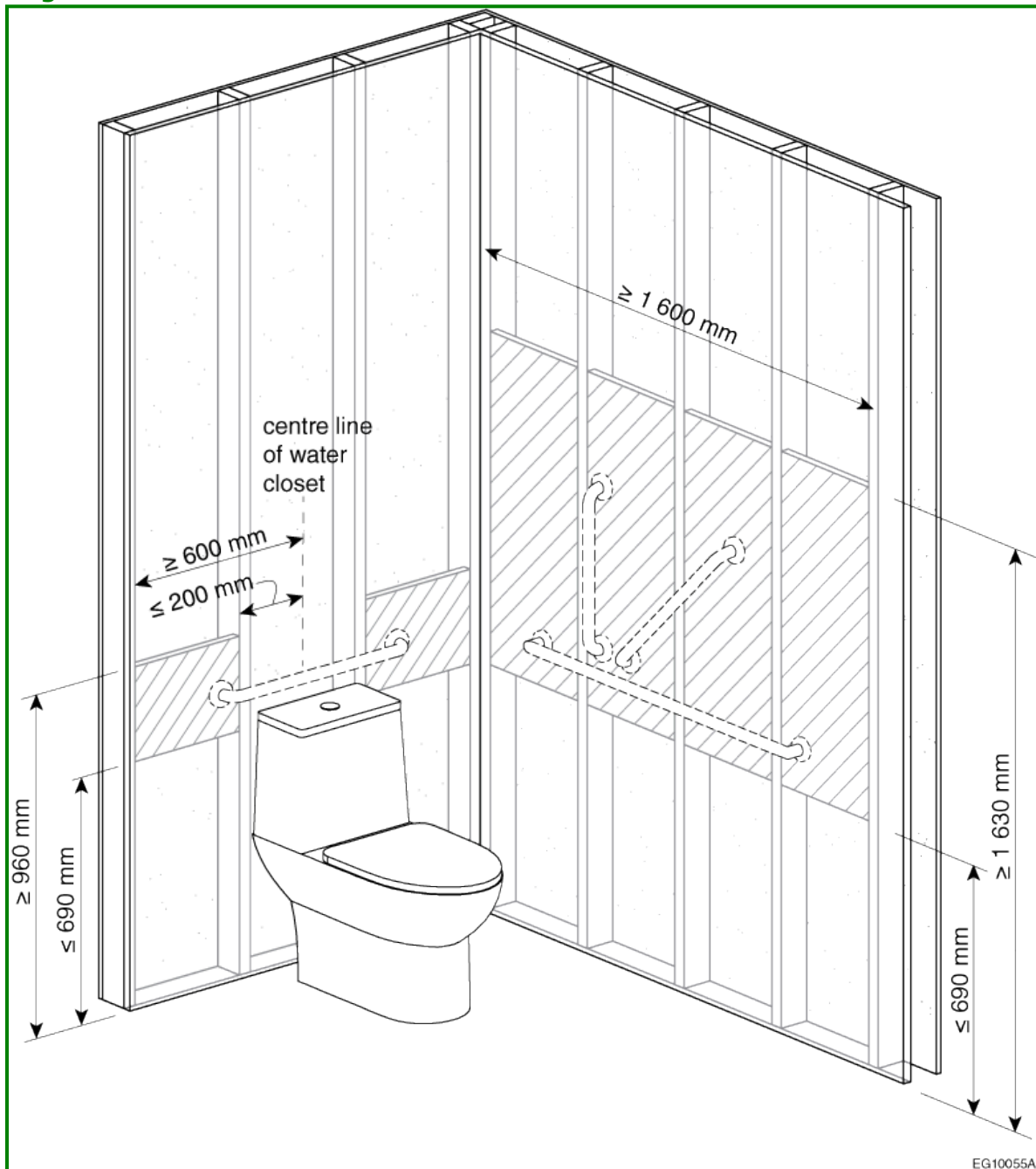
Reinforcing larger portions of washroom walls than required by Articles 3.8.4.2. and 3.8.4.3.-2025 (PCF 1882) will provide occupants with more flexibility to install grab bars to meet their evolving needs. However, reinforcement on its own does not address accessibility or safety without the installation of grab bars.

Note A-3.8.4.2.(2) Reinforcement of Walls around Water Closets.

Where two side walls are within 600 mm of the centre line of the water closet, both side walls are intended to be reinforced for the present or future installation of grab bars.

Figure A-3.8.4.2.(2) illustrates an example of an acceptable configuration for the reinforcement of stud walls around a water closet. Possible grab bar configurations are also shown.

Figure [A-3.8.4.2.(2)]
Example of an acceptable configuration for the reinforcement of stud walls around a water closet, where the horizontal length of the side wall is equal to or greater than 1 600 mm



Note A-3.8.4.2.(2)(b) Reinforcement of Wall Behind Water Closets.

The reinforcement described in Clause 3.8.4.2.(2)(b) is not designed to support fold-down grab bars.

Impact analysis

Impact on Flexibility of Design

This proposed change is expected to improve design flexibility for homeowners by increasing the range of locations where grab bars can be installed around the water closet to meet individual accessibility and safety needs while still meeting the NBC requirements for structural strength.

Financial Impact

The financial impact of the proposed change depends on whether the jurisdiction already requires the reinforcement of washroom walls in some form, though in general the proposed change would increase the initial cost of construction. The cost estimates below are based on the compliance options described in PCF 2030. For designers who choose to use the performance-based option and demonstrate that their material, thickness and attachment combination would allow the installation of grab bars to meet the NBC requirements for structural strength, the costs would be different.

Table 1 presents a breakdown of the cost estimates. The length of the side wall is assumed to be 1 600 mm; where the wall is shorter, costs will be lower. For the wall behind the water closet, reinforcement (i.e., blocking) is assumed to span between two studs, though a larger area of coverage (1 200 mm wide × 2 400 mm high) is assumed for the sheathing option. For sheathing, the cost estimates assume that two 12.7 mm thick panels of plywood are fastened together with adhesive to achieve the required 25.4 mm thickness.

Table 1. Breakdown of Cost Estimates

Wall of Interest	Cost of Solid Lumber	Cost of Sheathing
Side Wall	~\$110–\$120 (assume a 4 × 4 grid of 38 mm × 235 mm studs)	~\$240–\$260 (assume 4 panels of 1 200 mm × 2 400 mm plywood @ 12.7 mm thick, fastened together to create 2 panels of 1 200 mm × 2 400 mm plywood @ 25.4 mm thick covering an area less than or equal to 2 400 × 2 400 mm; costs will be higher where the side wall is longer or higher)
Rear Wall	~\$15–\$20 (assume 2 mm x 38 mm × 286 mm studs with a length of 400 mm)	~\$120–\$130 (assume 2 panels of 1 200 mm × 2 400 mm plywood @ 12.7 mm thick fastened together to cover an area of 1 200 mm × 2 400 mm) + additional material, labour, overhead and profit to make the entire wall flush with the reinforced area

Where washroom walls beside the water closet are shorter, the cost will be lower to reflect that a lower wall area is being reinforced. The material costs may also be lower in situations where spare material is available on construction sites. These cost estimates are based on RSMeans data for the Greater Ottawa Region for 2022 and account for materials, labour, overhead and profit.

- solid lumber (38 mm × 235 mm stud) with pneumatic nails: \$18.27/linear m

- solid lumber (38 mm × 286 mm stud) with pneumatic nails: \$21.72/linear m
- plywood (12.7 mm thick) with screws: \$20.77/m²

The proposed change applies to new constructions. For owners that install grab bars in the future, the proposed change is expected to result in cost savings relative to the cost of current NBC requirements for two major reasons:

1. To retrofit washroom walls with reinforcement to permit grab bar installation around the water closet, components of the existing wall would potentially need to be removed and replaced. Thus, the costs would include not only that of reinforcement, but also that of replacing the other components of the wall (e.g., drywall, where applicable).
2. To retrofit a washroom with grab bars, many older adults rely on professional contractors to ensure that the bars are correctly mounted to the studs of the wall. This process can cost over \$1 000, depending on the number of bars being installed. This discourages many older adults from installing grab bars when they would like to [5]. By reducing the complexity of the installation of grab bars, some homeowners may be able to install them without requiring a professional contractor. Even for those who hire a professional contractor, the pre-installed reinforcement would reduce the complexity (and potentially the cost) of installing grab bars.

Impact on Spatial Requirements for Washrooms

The proposed change is not expected to impact the spatial requirements for washrooms where solid lumber is used as the material. In contexts where sheathing is installed between wall studs and drywall, the available space in the washroom will be reduced by 25.4 mm (1 in.) per wall face that is reinforced.

Impact on Accessibility

The proposed change does not impact immediate-term accessibility because it does not require individuals to install grab bars. However, over the life cycle of a dwelling unit, the proposed change would provide more flexibility for individuals who retrofit their washrooms with grab bars and similar fixtures in locations that improve the safety of mobility for a diverse range of user anthropometries and needs. At present, grab bars only meet the NBC requirements for structural strength when mounted to stud walls, which are typically spaced 400 mm apart and can be difficult to locate. The proposed change would allow grab bars or similar balance aids to be installed at a greater range of locations on washroom walls, while still providing adequate structural strength. This will make it easier to customize the grab bar location to user anthropometry and common movement tasks.

Nearly 25% of Canadians over 65 years old, and most people over 80 years old, report experiencing a disability related to mobility [1]. Furthermore, the Canadian population over the age of 85 is expected to triple in the next 30 years [6]. Together, these factors suggest that most Canadians will need to adapt their dwelling units at some point to meet their evolving needs and that the demand for adaptable housing will increase. The proposed change helps to address this demand by making it easier for individuals to install grab bars, which are the most common assistive device used by persons with disabilities related to mobility.

Impact on Safety

The proposed change does not affect immediate-term safety or health because it does not require grab bars or any other fall-prevention device to be installed. However, for persons who decide to install grab bars in washrooms, the proposed change makes it easier and less expensive to install grab bars in accordance with the NBC requirements for structural strength.

Impact on the Provinces and Territories

The impact of the proposed change on specific provinces and territories depends on the current application of accessibility requirements to different types of dwelling units. Nova Scotia and Ontario already require reinforcement of the washroom walls around the water closet in all dwellings to support the future installation of grab bars that comply with the NBC requirements for structural strength. As well, Quebec requires reinforcement of washroom walls in individual units in multi-unit residential buildings without an explicit requirement that addresses structural strength. While the proposed change prescribes the reinforcement of a larger wall area relative to provisions in Nova Scotia and Ontario, prescriptive requirements on the location of reinforcement and its design (PCF 2030) may reduce the costs of design that otherwise needs to demonstrate that the reinforcement meets the NBC performance-based requirements for structural strength supporting grab bars.

The impact of this proposed change would be the greatest in all other provinces and territories where requirements for the reinforcement of washroom walls are not yet in place, both in terms of initial cost of construction and increased flexibility in where grab bars can be safely installed in washrooms. Harmonizing requirements across the country may help to stimulate innovation in construction methods and materials to lower the cost of this proposed change.

References

- (1) Statistics Canada. (2020). Canadians with a mobility disability. <https://www150.statcan.gc.ca/n1/pub/11-627-m/11-627-m2020085-eng.htm>
- (2) Musich, S., Wang, S. S., Ruiz, J., Hawkins, K., & Wicker, E. (2018). The impact of mobility limitations on health outcomes among older adults. *Geriatric nursing*, 39(2), 162–169.
- (3) Levine, I. C., Montgomery, R. E., & Novak, A. C. (2021). Grab bar use influences fall hazard during bathtub exit. *Human factors*. <https://journals.sagepub.com/doi/abs/10.1177/00187208211059860>
- (4) Kennedy, M. J., Arcelus, A., Guitard, P., Goubran, R. A., & Sveistrup, H. (2015). Toilet grab-bar preference and center of pressure deviation during toilet transfers in healthy seniors, seniors with hip replacements, and seniors having suffered a stroke. *Assistive Technology*, 27(2), 78-87.
- (5) Wiseman, J. M., Stamper, D. S., Sheridan, E., Caterino, J. M., Quatman-Yates, C. C., & Quatman, C. E. (2021). Barriers to the initiation of home modifications for older adults for fall prevention. *Geriatric orthopaedic surgery & rehabilitation*, 12, 21514593211002161.

(6) Statistics Canada. (2022). Population projections for Canada (2021 to 2068), Provinces and Territories (2021 to 2043).
<https://www150.statcan.gc.ca/n1/pub/91-520-x/91-520-x2022001-eng.htm>

Enforcement implications

This proposed change could be enforced to some extent by using existing methods in Nova Scotia, Ontario and Quebec, where changes related to the reinforcement of walls in washrooms have already been implemented in the provincial building codes.

As homeowners would not be able to see the reinforcement after construction is complete, designers or builders would need to provide the locations of where the wall has been reinforced alongside other detailed plans of the house. Details on the number and nature of fasteners used to attach the reinforcement to the wall studs would also be needed in contexts where the prescriptive options for compliance (PCF 2030) are used.

Authorities having jurisdiction would need to become familiar with the new requirements (including the expanded range where the reinforcement of washroom walls is required and the specifications for materials and thicknesses of the reinforcement) and techniques for evaluating compliance.

Who is affected

Homeowners and occupants would be able to install grab bars in a larger range of locations on washroom walls while still meeting the NBC requirements for structural strength.

Architects and designers would need to be aware of and potentially modify the design of dwelling units based on this proposed change.

Builders would need to incorporate this proposed change into the construction process for dwelling units.

Authorities having jurisdiction would need to become aware of this proposed change.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

NBC20 Div.B 3.8. (first printing)

[3.8.1.1.] 3.8.1.1. ([1] 1) no attributions

[3.8.1.1.] 3.8.1.1. ([2] 2) no attributions

[3.8.2.1.] 3.8.2.1. ([1] 1) no attributions

- [3.8.2.2.] 3.8.2.2. ([1] 1) [F73-OA1]**
- [3.8.2.2.] 3.8.2.2. ([2] 2) no attributions**
- [3.8.2.2.] 3.8.2.2. ([3] 3) no attributions**
- [3.8.2.2.] 3.8.2.2. ([4] 4) [F73-OA1]**
- [3.8.2.3.] 3.8.2.3. ([1] 1) [F73-OA1]**
- [3.8.2.3.] 3.8.2.3. ([2] 2) no attributions**
- [3.8.2.3.] 3.8.2.3. ([3] 3) [F74-OA2]**
- [3.8.2.3.] 3.8.2.3. ([4] 4) [F74-OA2]**
- [3.8.2.3.] 3.8.2.3. ([5] 5) [F74-OA2]**
- [3.8.2.3.] 3.8.2.3. ([5] 5) [F10-OS3.7]** Applies to portion of Code text: "... each row of seats served by two aisles shall have one adaptable seat conforming to Subsection 3.8.3. located adjacent to one of the aisles."
- [3.8.2.3.] 3.8.2.3. ([6] 6) [F74-OA2]**
- [3.8.2.4.] 3.8.2.4. ([1] 1) [F73-OA1]**
- [3.8.2.4.] 3.8.2.4. ([2] 2) [F73-OA1]**
- [3.8.2.5.] 3.8.2.5. ([1] 1) [F73-OA1]**
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- [3.8.2.7.] 3.8.2.7. ([1] 1) [F73-OA1]**
- [3.8.2.7.] 3.8.2.7. ([2] 2) no attributions**
- [3.8.2.7.] 3.8.2.7. ([3] 3) no attributions**
- [3.8.2.8.] 3.8.2.8. ([1] 1) [F74-OA2]**
- [3.8.2.8.] 3.8.2.8. ([1] 1) [F72-OH2.1] [F71-OH2.3]**
- [3.8.2.8.] 3.8.2.8. ([2] 2) [F74-OA2]**
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- [3.8.2.8.] 3.8.2.8. ([12] 12) no attributions**
- [3.8.2.8.] 3.8.2.8. ([13] 13) [F74-OA2]**
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- [3.8.2.8.] 3.8.2.8. ([15] 15) [F74-OA2]**
- [3.8.2.9.] 3.8.2.9. ([1] 1) no attributions**
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- [3.8.2.10.] 3.8.2.10. ([4] 4) no attributions**
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- [3.8.2.11.] 3.8.2.11. ([1] 1) no attributions**
- [3.8.2.12.] 3.8.2.12. ([1] 1) [F74-OA2]**
- [3.8.2.12.] 3.8.2.12. ([1] 1) no attributions**
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- [3.8.3.2.] 3.8.3.2. ([1] 1) [F73-OA1]**
- [3.8.3.2.] 3.8.3.2. ([2] 2) no attributions**
- [3.8.3.2.] 3.8.3.2. ([3] 3) ([a] a),([b] b) [F30-OS3.1]**
- [3.8.3.2.] 3.8.3.2. ([3] 3) ([a] a),([b] b) [F73-OA1]**
- [3.8.3.2.] 3.8.3.2. ([3] 3) ([c] c),([d] d) [F73-OA1]**

- [3.8.3.2.] 3.8.3.2. ([3] 3) ([e] e),([f] f) [F73-OA1]
- [3.8.3.2.] 3.8.3.2. ([3] 3) ([e] e),([f] f) [F30-OS3.1]
- [3.8.3.2.] 3.8.3.2. ([3] 3) ([c] c),([d] d) [F30-OS3.1]
- [3.8.3.2.] 3.8.3.2. ([4] 4) no attributions
- [3.8.3.2.] 3.8.3.2. ([5] 5) [F73-OA1]
- [3.8.3.2.] 3.8.3.2. ([6] 6) [F73-OA1]
- [3.8.3.3.] 3.8.3.3. ([1] 1) ([a] a) [F73-OA1]
- [3.8.3.3.] 3.8.3.3. ([1] 1) ([a] a) [F30-OS3.1]
- [3.8.3.3.] 3.8.3.3. ([1] 1) ([b] b) [F73-OA1]
- [3.8.3.3.] 3.8.3.3. ([1] 1) ([c] c)
- [3.8.3.3.] 3.8.3.3. ([1] 1) ([d] d) [F30-OS3.1]
- [3.8.3.4.] 3.8.3.4. ([1] 1) ([a] a) [F74-OA2]
- [3.8.3.4.] 3.8.3.4. ([1] 1) ([b] b) [F73-OA1]
- [3.8.3.4.] 3.8.3.4. ([1] 1) ([c] c) [F74-OA2]
- [3.8.3.5.] 3.8.3.5. ([1] 1) ([b] b),([e] e) [F73-OA1]
- [3.8.3.5.] 3.8.3.5. ([1] 1) ([d] d) [F30-OS3.1]
- [3.8.3.5.] 3.8.3.5. ([1] 1) ([c] c) [F73-OA1]
- [3.8.3.5.] 3.8.3.5. ([1] 1) ([d] d) [F73-OA1]
- [3.8.3.5.] 3.8.3.5. ([1] 1) ([e] e),([f] f)
- [3.8.3.5.] 3.8.3.5. ([1] 1) ([b] b),([e] e) [F30-OS3.1]
- [3.8.3.5.] 3.8.3.5. ([1] 1) ([a] a)
- [3.8.3.5.] 3.8.3.5. ([1] 1) ([c] c) [F30-OS3.1]
- [3.8.3.5.] 3.8.3.5. ([2] 2) no attributions
- [3.8.3.5.] 3.8.3.5. ([3] 3) no attributions
- [3.8.3.5.] 3.8.3.5. ([4] 4) ([a] a) [F73-OA1]
- [3.8.3.5.] 3.8.3.5. ([4] 4) ([b] b),([c] c) [F30-OS3.1]
- [3.8.3.5.] 3.8.3.5. ([5] 5) [F30-OS3.1]
- [3.8.3.6.] 3.8.3.6. ([1] 1) no attributions
- [3.8.3.6.] 3.8.3.6. ([2] 2) [F73-OA1]
- [3.8.3.6.] 3.8.3.6. ([3] 3) [F74-OA2]
- [3.8.3.6.] 3.8.3.6. ([3] 3) [F30-OS3.1]

- [3.8.3.6.] 3.8.3.6. ([4] 4) [F74-OA2]
- [3.8.3.6.] 3.8.3.6. ([4] 4) [F10-OS3.7]
- [3.8.3.6.] 3.8.3.6. ([5] 5) [F74-OA2]
- [3.8.3.6.] 3.8.3.6. ([5] 5) [F10-OS3.7]
- [3.8.3.6.] 3.8.3.6. ([6] 6) [F73-OA1]
- [3.8.3.6.] 3.8.3.6. ([7] 7) [F30-OS3.1]
- [3.8.3.6.] 3.8.3.6. ([8] 8) [F73-OA1]
- [3.8.3.6.] 3.8.3.6. ([9] 9) no attributions
- [3.8.3.6.] 3.8.3.6. ([10] 10) [F30-OS3.1]
- [3.8.3.6.] 3.8.3.6. ([10] 10) [F73-OA1]
- [3.8.3.6.] 3.8.3.6. ([10] 10) no attributions
- [3.8.3.6.] 3.8.3.6. ([11] 11) [F73-OA1]
- [3.8.3.6.] 3.8.3.6. ([12] 12) [F30-OS3.1]
- [3.8.3.6.] 3.8.3.6. ([12] 12) [F73-OA1]
- [3.8.3.6.] 3.8.3.6. ([13] 13) no attributions
- [3.8.3.6.] 3.8.3.6. ([14] 14) [F73-OA1]
- [3.8.3.6.] 3.8.3.6. ([15] 15) [F73-OA1]
- [3.8.3.6.] 3.8.3.6. ([16] 16) no attributions
- [3.8.3.6.] 3.8.3.6. ([17] 17) [F74-OA2]
- [3.8.3.6.] 3.8.3.6. ([17] 17) [F10-OS3.7]
- [3.8.3.7.] 3.8.3.7. ([1] 1) [F73-OA1]
- [3.8.3.7.] 3.8.3.7. ([1] 1) [F74-OA2]
- [3.8.3.7.] 3.8.3.7. ([1] 1) [F30-OS3.1] [F10-OS3.7]
- [3.8.3.8.] 3.8.3.8. ([1] 1) [F74-OA2]
- [3.8.3.8.] 3.8.3.8. ([1] 1) [F10-OS3.7]
- [3.8.3.9.] 3.8.3.9. ([1] 1) no attributions
- [3.8.3.9.] 3.8.3.9. ([1] 1) [F74-OA2]
- [3.8.3.9.] 3.8.3.9. ([1] 1) [F73-OA1]
- [3.8.3.9.] 3.8.3.9. ([2] 2) [F74-OA2]
- [3.8.3.9.] 3.8.3.9. ([2] 2) [F73-OA1]
- [3.8.3.9.] 3.8.3.9. ([3] 3) [F74-OA2]

- [\[3.8.3.9.\]](#) 3.8.3.9. ([\[3\]](#) 3) [F73-OA1]
- [\[3.8.3.10.\]](#) 3.8.3.10. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.10.\]](#) 3.8.3.10. ([\[2\]](#) 2) [F74-OA2]
- [\[3.8.3.11.\]](#) 3.8.3.11. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.11.\]](#) 3.8.3.11. ([\[2\]](#) 2) [F74-OA2]
- [\[3.8.3.12.\]](#) 3.8.3.12. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.12.\]](#) 3.8.3.12. ([\[1\]](#) 1) [F72-OH2.1]
- [\[3.8.3.12.\]](#) 3.8.3.12. ([\[1\]](#) 1) ([\[d\]](#) d)([\[i\]](#) i) [F74-OA2]
- [\[3.8.3.12.\]](#) 3.8.3.12. ([\[1\]](#) 1) ([\[f\]](#) f),([\[g\]](#) g) [F30,F20-OS3.1]
- [\[3.8.3.12.\]](#) 3.8.3.12. ([\[1\]](#) 1) ([\[f\]](#) f) and ([\[g\]](#) g)
- [\[3.8.3.12.\]](#) 3.8.3.12. ([\[1\]](#) 1) ([\[h\]](#) h) [F30-OS3.1] Applies to portion of Code text: "... be equipped with a coat hook ... projecting not more than 50 mm from the wall ..."
- [\[3.8.3.12.\]](#) 3.8.3.12. ([\[1\]](#) 1) no attributions
- [\[3.8.3.13.\]](#) 3.8.3.13. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.13.\]](#) 3.8.3.13. ([\[1\]](#) 1) ([\[b\]](#) b) [F10-OS3.7]
- [\[3.8.3.13.\]](#) 3.8.3.13. ([\[1\]](#) 1) ([\[c\]](#) c)
- [\[3.8.3.13.\]](#) 3.8.3.13. ([\[1\]](#) 1) ([\[d\]](#) d)
- [\[3.8.3.13.\]](#) 3.8.3.13. ([\[1\]](#) 1) ([\[f\]](#) f)
- [\[3.8.3.13.\]](#) 3.8.3.13. ([\[1\]](#) 1) ([\[g\]](#) g) [F30-OS3.1] Applies to the requirement for a coat hook.
- [\[3.8.3.13.\]](#) 3.8.3.13. ([\[1\]](#) 1) ([\[i\]](#) i) [F74-OA2] Applies to the requirement for a shelf.
- [\[3.8.3.13.\]](#) 3.8.3.13. ([\[1\]](#) 1) [F72-OH2.1] [F71-OH2.3]
- [\[3.8.3.13.\]](#) 3.8.3.13. ([\[1\]](#) 1) ([\[b\]](#) b) [F74-OA2] Applies to portion of Code text: "... a door ... capable of being locked from the inside ..."
- [\[3.8.3.13.\]](#) 3.8.3.13. ([\[2\]](#) 2) [F72-OH2.1] [F71-OH2.3]
- [\[3.8.3.14.\]](#) 3.8.3.14. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.14.\]](#) 3.8.3.14. ([\[1\]](#) 1) [F72-OH2.1]
- [\[3.8.3.15.\]](#) 3.8.3.15. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.15.\]](#) 3.8.3.15. ([\[1\]](#) 1) ([\[d\]](#) d) [F30-OS3.1]
- [\[3.8.3.15.\]](#) 3.8.3.15. ([\[1\]](#) 1) ([\[a\]](#) a)

- [\[3.8.3.15.\]](#) 3.8.3.15. ([\[2\]](#) 2) [F74-OA2]
- [\[3.8.3.15.\]](#) 3.8.3.15. ([\[2\]](#) 2) ([\[f\]](#) f) [F30-OS3.1]
- [\[3.8.3.15.\]](#) 3.8.3.15. ([\[2\]](#) 2) ([\[c\]](#) c)
- [\[3.8.3.16.\]](#) 3.8.3.16. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.16.\]](#) 3.8.3.16. ([\[1\]](#) 1) [F71-OH2.3]
- [\[3.8.3.16.\]](#) 3.8.3.16. ([\[1\]](#) 1) ([\[f\]](#) f) [F31-OS3.2]
- [\[3.8.3.16.\]](#) 3.8.3.16. ([\[2\]](#) 2) [F74-OA2]
- [\[3.8.3.17.\]](#) 3.8.3.17. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.17.\]](#) 3.8.3.17. ([\[1\]](#) 1) ([\[d\]](#) d),([\[e\]](#) e) [F30-OS3.1]
- [\[3.8.3.17.\]](#) 3.8.3.17. ([\[1\]](#) 1) ([\[f\]](#) f) [F30-OS3.1]
- [\[3.8.3.17.\]](#) 3.8.3.17. ([\[1\]](#) 1) ([\[h\]](#) h) [F31-OS3.2]
- [\[3.8.3.17.\]](#) 3.8.3.17. ([\[2\]](#) 2) [F74-OA2]
- [\[3.8.3.17.\]](#) 3.8.3.17. ([\[2\]](#) 2) [F71-OH2.3]
- [\[3.8.3.17.\]](#) 3.8.3.17. ([\[2\]](#) 2) ([\[a\]](#) a) [F73-OA1]
- [\[3.8.3.17.\]](#) 3.8.3.17. ([\[2\]](#) 2) ([\[b\]](#) b) [F10-OS3.7]
- [\[3.8.3.17.\]](#) 3.8.3.17. ([\[2\]](#) 2) ([\[b\]](#) b) [F74-OA2]
- [\[3.8.3.17.\]](#) 3.8.3.17. ([\[2\]](#) 2) ([\[g\]](#) g) [F74-OA2]
- [\[3.8.3.18.\]](#) 3.8.3.18. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.19.\]](#) 3.8.3.19. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.19.\]](#) 3.8.3.19. ([\[1\]](#) 1) [F11-OS3.7]
- [\[3.8.3.19.\]](#) 3.8.3.19. ([\[2\]](#) 2) [F74-OA2]
- [\[3.8.3.20.\]](#) 3.8.3.20. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.21.\]](#) 3.8.3.21. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.21.\]](#) 3.8.3.21. ([\[2\]](#) 2) [F74-OA2]
- [\[3.8.3.22.\]](#) 3.8.3.22. ([\[1\]](#) 1) [F74-OA2]
- [\[3.8.3.22.\]](#) 3.8.3.22. ([\[1\]](#) 1) [F30-OS3.1] Applies to portion of Code text: "... level ... level and have removable seats, ..."
- [\[3.8.3.22.\]](#) 3.8.3.22. ([\[1\]](#) 1) ([\[d\]](#) d) [F10-OS3.7] Applies to portion of Code text: "... without infringing on egress from any row of seating or any aisle requirements ..."
- [\[3.8.3.22.\]](#) 3.8.3.22. ([\[2\]](#) 2) [F74-OA2]
- [\[3.8.3.22.\]](#) 3.8.3.22. ([\[2\]](#) 2) [F30-OS3.1] Applies to portion of Code text: "...

level, ...”

[3.8.3.22.] 3.8.3.22. ([3] 3) ([a] a) [F10-OS3.7] Applies to portion of Code text: “... without infringing on egress from any row of seating or any aisle requirements ...”

[3.8.3.22.] 3.8.3.22. ([3] 3) [F74-OA2]

[3.8.3.22.] 3.8.3.22. ([4] 4) [F10-OS3.7]

[3.8.4.2.] -- ([1] --) no attributions

[3.8.4.2.] -- ([2] --) [F30-OS3.1] [F20-OS2.1]

[3.8.4.2.] -- ([3] --) no attributions

[3.8.4.2.] -- ([4] --) no attributions

[3.8.4.2.] -- ([5] --) no attributions