



BRITISH
COLUMBIA

Doors, Windows and Skylights Public Review

Building and Safety Standards Branch
Office of Housing and Construction Standards

Spring 2015



Background

- 2012 BC Building Code adopted December 2012
 - AAMA/WDMA/CSA 101/I.S.2/A440-08 North American Fenestration Standard/Specification for Windows, Doors, and Skylights (NAFS 08); and
 - CSA A440S1-09, “Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440 North American Fenestration Standard/Specification for Windows, Doors, and Skylights.
- NAFS delayed to July 2013
- NAFS delayed to December 2013



Background

- Industry challenges continue
 - Limited Water Ratings
 - Other glazed products – curtain wall, sloped glazing, window wall, etc.
 - Site Built products –what are they?
 - Exemptions for main entrance doors? Doors in garages?
- Changes proposed in response to issues faced by industry
(manufacturers, specifiers including sales rep, designers, architects, engineers, builders, owners, building officials)



Proposed Changes

- Changes to Part 5 and Part 9
- Part 5 changes include
 - Expand scope to include other glazed products such as curtain wall and provide clear compliance path
 - Clarification of intent that NAFS or Part 5 general requirements are always an option
 - Clarification that NAFS or Part 4 calculations are acceptable
 - Exclude fire rated windows



Part 9 Changes

- NAFS is only required where products are in scope of NAFS. Other fenestration would have to conform to Part 5 in general. No testing is required for this compliance path (engineering is typical)
- Clarification of application of section 9.6 for glass design
- Deletion of confusing 9.7.3. “Performance expectations”
- Clarification of application of NAFS and application to other glazed products



Part 9 Changes

- Deletion of “site built” requirements in Subsection 9.7.5.
- Clarification of security requirements- application to all windows, doors and skylights
- Clarification of “Limited Water” doors in NAFS
- Clarification of performance grades (no more open/rough terrain judgements)
- Clarification of Installation requirements



Part 5 Changes

Changes to BCBC Division B, Part 5:

5.10.2. Windows, Doors, ~~and~~ Skylights and Other Glazed Products

(See Appendix A)

5.10.2.1. General

- 1) This Subsection applies to windows, doors, ~~and~~ skylights and other glazed products, including their components, that separate
 - a) interior space from exterior space, or
 - b) environmentally dissimilar interior spaces.
- ~~2) For the purpose of this Subsection, the term "skylight" refers to unit skylights, roof windows and tubular daylighting devices.~~
- ~~3) Where a wired glass assembly is installed in a required fire separation, it need not conform to the requirements of this Subsection. (See Appendix A.)~~



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Part 5 Changes

Insert Appendix note:

A-5.10.2. Windows, Doors, Skylights and Other Glazed Products

This Subsection applies to windows, doors and skylights, as well as to other glazed products such as curtain walls or sloped glazing that are not typically considered windows but are installed as part of an environmental separation.



Part 5 Changes

5.10.2.2. Design and Construction

1) Windows, doors, skylights, other glazed products and their components shall be designed and constructed in accordance with

a) Subsection 5.1.4., Section 5.4. and Section 5.6., or

b) Article 5.10.2.3.

(See Appendix A)

Insert new appendix note:

A-5.10.2.2.(1) Installation and Field Testing of Windows, Doors and Skylights and other glazed products



Part 5 Changes

5.10.2.32. Applicable Standards

(See Appendix A.)

1) Except as permitted by Sentences (2) and (3) and by Article 5.10.2.2., -windows, doors and skylights shall conform to the requirements in

a) AAMA/WDMA/CSA 101/I.S.2/A440, “NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights,” AAMA/WDMA/CSA 101/I.S.2/A440, “NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights,” and

b) CSA A440S1, “Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights.” CSA A440S1, “Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights.”

2) For the purposes of conformance with CSA A440S1, “Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights.”, loads and procedures from Section 5.2 may be used.

(See Appendix A)

3) Windows and doors that are required to have a fire protection rating are not required to conform to Sentence (1).

~~3) Windows, doors and skylights shall conform to the performance grades selected in Sentence (2) when tested in accordance with the Harmonized Standard referenced in Clause (1)(a).~~



Part 9 Changes

9.6.1. General

9.6.1.1. Application

1) This Section applies to glass and the protection of glass in

a) glass indoors, windows and skylights,

bi) interior doors and interior windows and their sidelights,

cii) clothes closet doors,

iiid) site-built exterior windows, doors and skylights, glazed panels and partitions, and

ive) shower or bathtub enclosures, and

v) glazed panels and partitions, and

b) the protection of glass.



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Part 9 Changes

Section 9.7. Windows, Doors and Skylights (See Appendix A and A-9.7.4.1.(1))

Insert Appendix note:

A-9.7 Windows, Doors and Skylights

This section applies only to windows, doors and skylights as defined in the application of the standards referenced in Article 9.7.4.2. Other glazed products, such as site built windows, curtain walls or sloped glazing, are required to conform to Part 5.



9.7.3. Performance of Windows, Doors and Skylights

9.7.3.1. General

~~1) Except as provided in Sentences (2) to (4), windows, doors and skylights and their components separating conditioned space from unconditioned space or the exterior shall be designed, constructed and installed so that, when in the closed position, they~~

- ~~a) resist the ingress of precipitation into interior space,~~
- ~~b) resist wind loads,~~
- ~~c) control air leakage,~~
- ~~d) resist the ingress of insects and vermin,~~
- ~~e) where required, resist forced entry, and~~
- ~~f) are easily operable.~~

2) Skylights and their components shall be designed, constructed and installed so that they resist snow loads.

~~3) Main entrance doors and their components shall be designed, constructed and installed so that, when in the closed position, they~~

- ~~a) control air leakage,~~
- ~~b) resist the ingress of insects and vermin,~~
- ~~c) resist forced entry, and~~
- ~~d) are easily operable.~~

~~4) Storm doors for sliding doors and their components shall be designed, constructed and installed so that, when in the closed position, they~~

- ~~a) resist wind loads,~~
 - ~~b) control air leakage to a minimum allowable 5 m³h/m and a maximum allowable 8.35 m³h/m,~~
 - ~~c) resist the ingress of insects and vermin, and~~
-



Part 9 Changes

9.7.3.3. Thermal Characteristics of Windows, Doors and Skylights

- 1) Except as permitted in Sentence (2), ~~M~~metal frames and sash of windows, doors and skylights shall incorporate a thermal break.
- 2) Windows and doors described in Sentence (1) do not require a thermal break where ~~they are installed as~~
 - a) they are installed as vehicular access doors,
 - b) they are installed as storm windows ~~and~~ storm doors, or
 - c) they~~windows and doors that~~ are required to have a ~~fire-resistance rating~~fire protection rating.



Part 9 Changes

~~9.7.4. Manufactured Windows, Doors and Skylights~~ Design and Construction ~~—~~

~~9.7.4.1. General~~

~~Application~~

~~1) Windows, doors, skylights and their components shall be designed and constructed in accordance with~~

~~a) Article 9.7.4.2., or~~

~~b) Part 5.~~

~~(See Appendix A)~~

~~This Subsection applies to windows, doors and skylights covered in the scope of AAMA/WDMA/CSA 101/I.S.2/A440, “NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights” (Harmonized Standard~~

Insert appendix note:

A-9.7.4.1.(1) Design and Construction

Garage doors, sloped glazing, curtain walls, storefronts, commercial entrance systems, site built or site glazed products, revolving doors, interior windows and doors, storm windows, storm doors, sunrooms and commercial steel doors are not in scope of NAFS.

All windows, doors and skylights installed to separate conditioned space from unconditioned space or the exterior must also conform to Section 9.36.



Part 9 Changes

9.7.4.2. General Standards

1) ~~Except as permitted by Sentences (2) to (5), Manufactured and pre-assembled~~ windows, doors and skylights ~~and their installation~~ shall conform to

a) ~~AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights"~~ (Harmonized Standard), and

b) A440S1, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights,"



Part 9 Changes

2) A door designated as “Limited Water” in accordance with the standard referenced in Clause (1)(a) is permitted to be used in the following applications:

a) ~~a~~A door that ~~swing door that~~ separates a dwelling unit from an unconditioned storage garage, or a carport,

~~b) ~~3~~ a~~A swing-door that conforms with Sentences 3.3.1.13.(1), (5) and (10), ~~or is designed to accessible is permitted to be designated as “Limited Water” in accordance with the standard referenced in Clause (1)(a).~~

c) a door that does not require flashing in accordance with Sentence 9.27.3.8.(3).

(3) Windows and doors that are required to have a *fire protection rating* are not required to conform to Sentence (1).

(4) Where the uppermost point of a window, door or skylight is within 10m of *grade*, it shall conform to

a) the applicable minimum performance grade and water test pressure requirements for the location referenced in Table C-4 of Appendix C, or

b) Part 5

(see Appendix A)



Part 9 Changes

Insert Appendix note:

A-9.7.4.2.(4) Standards

The standard reference in Clause 9.7.4.2.(1)(b) includes calculations for the selection of doors, windows and skylights based on geographic location. These calculations are not required for buildings to which Section 9.7 applies. Since the BCBC is a collection of minimum requirements only, the applicable minimum requirements are listed in Table C-4. These minimum requirements are based on the simplified calculation methods of the standard, which typically result in conservative values as compared to calculation methods of Parts 4 and 5 of the BC Building Code.

However, designers or builders should consider windows with higher ratings, in particular for windows in high exposure locations that may be subject to increased wind and rain.



Part 9 Changes

<u>Location</u>	<u>Performance Grade</u>	<u>Water Test Pressure (Pa)</u>
<u>100 Mile House</u>	<u>15</u>	140
<u>Abbotsford</u>	<u>20</u>	180
<u>Agassiz</u>	<u>25</u>	180
<u>Alberni</u>	15	260
<u>Ashcroft</u>	20	150
<u>Bamfield</u>	25	330
<u>Beaton River</u>	15	140
<u>Bella Bella</u>	25	360
<u>Bella Coola</u>	<u>20</u>	360



Conclusion

- Some associated changes to 9.36
- No specific exemptions to 9.36 beyond current requirements

9.36.2.7. Thermal Characteristics of Fenestration, Doors and Skylights

5) One door separating a conditioned space from an unconditioned space or the exterior is permitted to have an overall thermal transmittance up to $2.6 \text{ W}/(\text{m}^2 \cdot \text{K})$.

- Public Review closes June 25, 2015
- Recommendation to Minister



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Conclusion

**Office of Housing and Construction Standards
Building and Safety Standards Branch**

**Doors, Windows and Skylights Public Review
June 4-25, 2015**

For a general review of the proposed changes to requirements for doors, windows and skylights please click on the survey link below:

<http://fluidsurveys.com/s/Windows/>

To review the proposed code language of the changes to requirements for doors, windows and skylights, please click on the survey link below:

<http://fluidsurveys.com/s/Windows-Technical/>