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CSA A440.6:20
National Standard of Canada

High exposure fenestration installation

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Preface

This is the first edition of CSA A440.6, *High exposure fenestration installation.*

This Standard was prepared by the Subcommittee on High Exposure Fenestration Installation, under the jurisdiction of the Technical Committee on Performance Standard for Windows and the Strategic Steering Committee on Construction and Civil Infrastructure, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Notes:

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
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3) *This Standard was developed by consensus, which is defined by* CSA Policy governing standardization — Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
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   c) *wording of the proposed change; and*
   d) *rationale for the change.*

CSA A440.6:20
High exposure fenestration installation

0 Introduction

This Standard applies to the installation of fenestration products in buildings of four or more storeys in height of all occupancies, including residential.

Fenestration products in taller buildings are exposed to higher wind pressures and driving rain wind pressures than housing and small buildings and consequently require more robust control of rainwater penetration. These products are also subjected to additional loads and effects such as guard loads, seismic loads, static and dynamic building movements.

The effectiveness, safety, and durability of installed fenestration products depend on the choice and quality of materials and design, adequate assembly, the support system, and proper installation. Improper installation of fenestration products can reduce their effectiveness, cause excessive condensation, unacceptably high levels of air, water, and sound leakage, and premature deterioration of the wall and roof systems into which they are installed.

Specific design and material selection decisions should also be consistent with the durability characteristics consistent with a building's intended use and occupancy.

This Standard was developed to address issues that can adversely affect the performance of fenestration products when installed in building walls and roofs, and into both new and existing buildings subject to high environmental exposures. Performance issues related to installation can affect not only the buildings in which the fenestration products are installed, but also the performance of the fenestration products with respect to the requirements contained in the following Standards:

- AAMA/WDMA/CSA 101/I.S.2/A440-17, NAFS — *North American fenestration standard/Specification for windows, doors, and skylights*;
- CSA A440S1-19, *Canadian supplement to AAMA/WDMA/CSA 101/I.S.2/A440-17, North American fenestration standard/Specification for windows, doors, and skylights*;
- CAN/CSA-A440.2:19, *Fenestration energy performance*; and
- CAN/CSA A440.3:19, User Guide to CSA A440.2:19, *Fenestration energy performance*.

Most, though not all, of these issues are addressed in Part 5 of the *National Building Code of Canada*. Addressing these issues successfully requires the participation of architects, engineers, and their consultants, fenestration product manufacturers, and fenestration installers.

Fenestration design decisions can affect the way in which fenestration products can be installed. Therefore, the provisions of this Standard are to be considered by responsible parties at the product design stage, at the building design stage, and at the field installation stage. The users of this document include persons engaged in the design, selection, and detailing of fenestration products and their installation into wall or roof assemblies, installers of fenestration products, specifiers of fenestration systems, technical staff of fenestration manufacturers engaged in designing fenestration systems, and persons and organizations that train fenestration installers.

In writing this Standard, the members of the Subcommittee have attempted to strike a balance between performance and prescriptive requirements for the window installation techniques described in this Standard. In general, a performance approach has been taken. Prescriptive requirements are provided

where installation methods require special attention to avoid problems with fenestration products after installation. The intent is to allow flexibility to adapt to the wide variety of existing installation practices and different wall and roof construction techniques and preferences and to give guidance for new construction techniques and installation practices that, inevitably, will emerge over time.

Annex H provides some information on how climate change could impact fenestration product design and application. It is anticipated that fenestration designers will need to incorporate changes in climate loads resulting from climate change into fenestration product design and that adjustments will need to be made to installation detailing. Annex H provides some information on these topics for consideration by building design team, authorities having jurisdiction, and installers. As information on climate change evolves, so too will the requirements of this Standard.

1 Scope

1.1

This Standard sets forth characteristics of effective and durable installation methods, in both new and existing buildings, of fenestration products within the scope of AAMA/WDMA/CSA 101/I.S.2/A440 that are intended for installation in buildings of all occupancies to which NBC Parts 3, 4, 5, and 6 of Division B apply.

1.2

In addition to fenestration products within the scope of AAMA/WDMA/CSA 101/I.S.2/A440, this Standard also applies to the installation of

a) fenestration products installed as ribbons, strips, or punched windows that are fabricated with components typically used in curtain wall systems;
b) window walls; and
c) storefronts (where exposed to the exterior).

1.3

This Standard covers the installation process from pre-installation procedures through to post-installation and includes fenestration design features that allow improved performance of products installed in high exposure conditions. This Standard also outlines processes related to fenestration installation, such as shop drawing review, field testing, and mock-up testing, to improve the performance of the installed product. Therefore, the provisions of this Standard should be considered by responsible parties at the product design stage, at the building design stage, at the field installation stage, and at the post-installation stage.

1.4

This Standard provides minimum requirements for the installation of fenestration products in high exposure situations and where compliance is required to Part 5 of the NBC, or comparable requirements in applicable local codes. CSA A440S1 provides guidance on the determination of the design wind pressure and driving rain wind pressure exposure conditions that fenestration products are subjected to.

This Standard addresses issues that could compromise the performance of the fenestration product as established by testing to the requirements of AAMA/WDMA/CSA 101/I.S.2/A440 or as otherwise required by Part 5 of the NBC.

1.5

Where installation methods are not specifically addressed in this Standard, or where there are differences between this Standard and installation instructions of the manufacturer of a fenestration product, a design professional should be consulted for a solution consistent with the intent of the minimum requirements and principles in this Standard and with the intent of Part 5 of the NBC or comparable section in applicable local codes.

1.6

This Standard describes laboratory testing procedures for combination window assemblies, including window walls.

1.7

The application of this Standard requires a working knowledge of applicable federal, provincial, and local (municipal) building codes and regulations specifically concerning, but not limited to, required means of egress, fire safety requirements, and requirements for safety glazing.

1.8

This Standard does not apply to

a) selection of fenestration products for a given application;
b) installation of
    i) storm windows or storm doors;
    ii) fire-rated fenestration;
    iii) vehicular-access doors (garage doors);
    iv) commercial entrance systems;
    v) revolving doors;
    vi) commercial steel utility doors (e.g., roof access doors or doors to electrical rooms);
    vii) sloped glazing (other than unit skylights, roof windows, or tubular daylighting devices);
    viii) curtain wall, except as noted in Clause 1.2 a);
    ix) interior fenestration products;
    x) sunrooms;
    xi) bay and bow windows;
    xii) balcony enclosures; and
    xiii) glazed architectural structures as referred to in Part 5 of the NBC;
c) maintenance of installed fenestration products (see Annex G for guidance);
d) rebuilding of fenestration products; and
e) fabrication of fenestration products, whether such fabrication takes place in a factory or at the installation site (i.e., stick-built assemblies).

Notes:

1) *For product performance selection information, see CSA A440S1.*
2) *For recommendations for product selection for high exposure locations, see Annex L.*

1.9

This Standard does not purport to address all of the safety problems associated with its use. It does not set out requirements relating to the safety of the person installing the units. It is the responsibility of

the installer to obtain necessary health and safety training and to follow proper procedures for safe handling and application of installation materials and fenestration products.

Note: *Installers should be aware of existing hazardous materials, such as asbestos or lead paint. They should request a copy of the hazardous material survey or designated substance survey for the building prior to commencing any work.*

1.10

This Standard is not intended to replace professional advice. When information provided in this document is incorporated into buildings, it must be reviewed by knowledgeable building professionals and reflect the specific conditions and unique design parameters of each building. Use of this Standard does not relieve designers of their responsibility to comply with local building codes, standards, and by-laws with respect to the selection, interface design, and installation of fenestration products.

1.11

This Standard assumes that its users are familiar with the terminology, procedures, requirements of good building practice and the available installation information provided by fenestration product manufacturers.

1.12

This Standard does not address the qualifications and skills that a installers should possess. It assumes familiarity with the fundamentals of building construction in Canada as described in Division B, Part 5 of the NBC or equivalent local code and of installation techniques for fenestration products normally available in Canada. Although guidance is provided in the manner of installation of fenestration products, it is not a training manual.

1.13

Annex H provides information on climate change, its potential effects on fenestration in buildings and provides guidance for climate change resilient design for fenestration products and installation.

1.14

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the Standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the Standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

1.15

The values given in SI units are the units of record for the purposes of this Standard. The values given in parentheses are for information and comparison only.