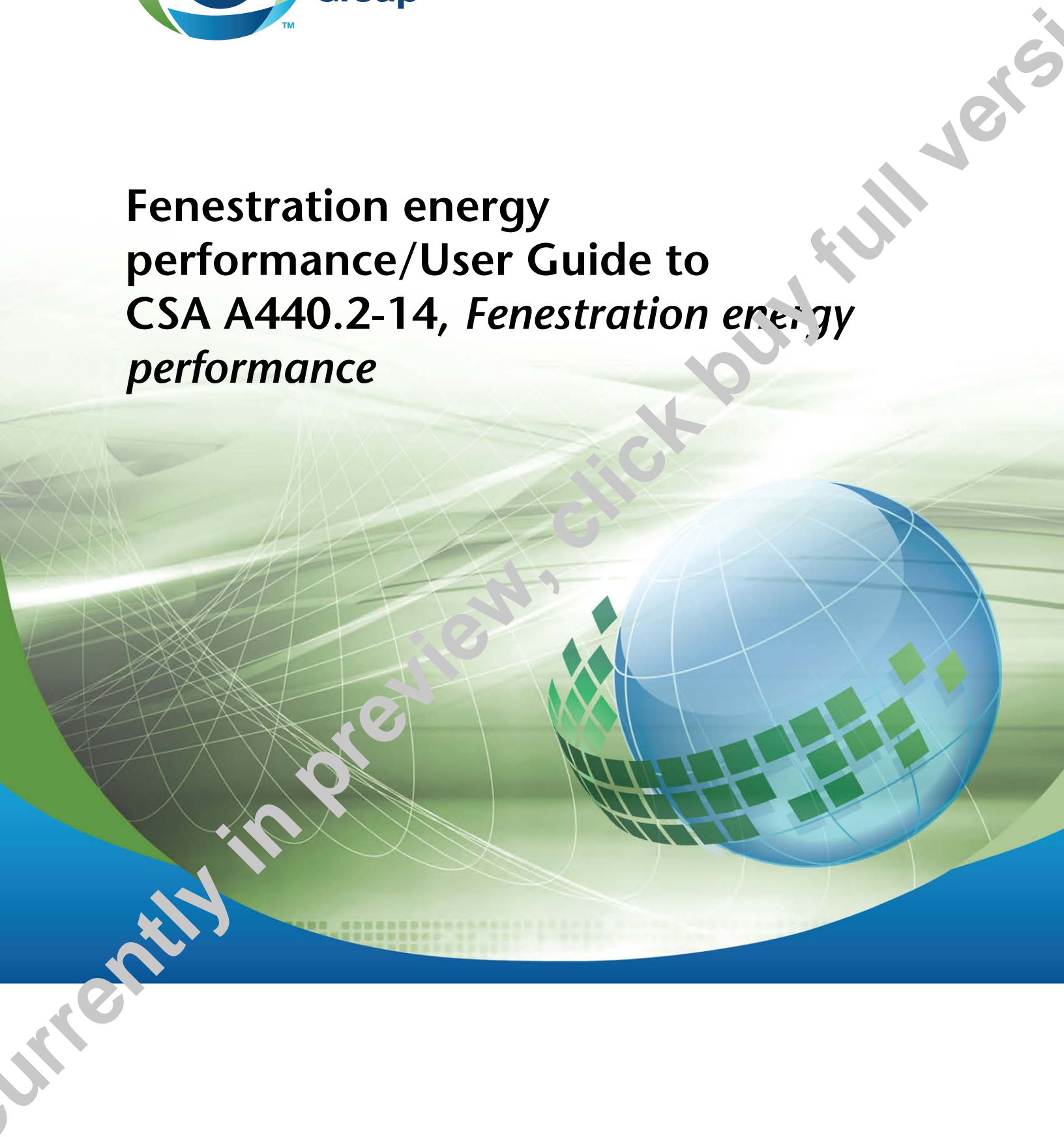




A440.2-14/A440.3-14

**Fenestration energy
performance/User Guide to
CSA A440.2-14, *Fenestration energy
performance***



Legal Notice for Standards

Canadian Standards Association (operating as “CSA Group”) develops standards through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA Group administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document’s fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party’s intellectual property rights. CSA Group does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA Group makes no representations or warranties regarding this document’s compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA GROUP, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA GROUP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA Group is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its content, and CSA Group accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA Group is a private not-for-profit company that publishes voluntary standards and related documents. CSA Group has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

Intellectual property rights and ownership

As between CSA Group and the users of this document (whether it be in printed or electronic form), CSA Group is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA Group’s and/or others’ intellectual property and may give rise to a right in CSA Group and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by licence or by law, CSA Group reserves all intellectual property rights in this document.

Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA Group shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

Authorized use of this document

This document is being provided by CSA Group for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF format.

Limited copies of this document in print or paper form may be distributed only to persons who are authorized by CSA Group to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA Group; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.



Update No. 2

A440.2-14/A440.3-14

July 2018

Note: For information about the **Standards Update Service** or if you are missing any updates, go to **shop.csa.ca** or e-mail **techsupport@csagroup.org**.

Title: *Fenestration energy performance/User Guide to CSA A440.2-14, Fenestration energy performance* – originally published February 2014

Revisions issued: Update No. 1 — February 2015

The following revisions have been formally approved and are marked by the symbol delta (Δ) in the margin on the attached replacement pages:

Revised	Clauses 1.5, 2, 3.1, 5.3, 6.3, 6.5, and Table 1
New	None
Deleted	None

- Update your copy by inserting these revised pages.
- Keep the pages you remove for reference.

Currently in preview, click buy full version

A440.2-14

Fenestration energy performance

1 Scope

1.1

This Standard applies to

- (a) fenestration systems covered by AAMA/WDMA/CSA 101/I.S.2/A440, including
 - (i) vertically sliding windows;
 - (ii) horizontally sliding windows;
 - (iii) dual-action windows;
 - (iv) casement windows, both fixed and operable;
 - (v) projecting (awning/hopper) windows;
 - (vi) fixed windows;
 - (vii) sidelites;
 - (viii) transom windows;
 - (ix) sliding glass doors;
 - (x) side-hinged doors;
 - (xi) dual-action side-hinged doors;
 - (xii) architectural terrace doors;
 - (xiii) unit skylights and roof windows;
 - (xiv) greenhouse or garden windows; and
 - (xv) tubular daylighting devices; and
- (b) curtain walls.

Note: Unless otherwise specified, the term “fenestration system” is used to apply to all products listed in Clause 1.1.

1.2

This Standard specifies both measurement and calculation methods for establishing the following fenestration system properties for both residential and commercial applications:

- (a) overall coefficient of heat transfer (U -factor);
- (b) solar heat gain coefficient ($SHGC$); and
- (c) visible transmittance (VT).

This Standard also specifies measurement methods for establishing the Temperature Index (I) for fenestration systems for both residential and commercial applications.

Note: The fenestration properties established in accordance with this Standard are for specific indoor and outdoor conditions and will vary slightly under actual conditions. The values obtained by the methods specified in this Standard are considered to provide an acceptable basis for comparing performance in use.

1.3

1.3.1

This standard specifies a method for determining an energy performance rating for vertical fenestration systems under heating conditions, for use in low-rise residential applications. The Energy Rating (ER) includes factors for

- (a) solar heat gain;
- (b) heat loss by conduction, radiation, and convection; and
- (c) heat loss by air leakage.