

Standard test method for the dynamic wind uplift resistance of membrane-roofing systems



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Preface

This is the second edition of CSA A123.21, *Standard test method for the dynamic wind uplift resistance of membrane-roofing systems*. It supersedes the first edition, published in 2004 under the title *Standard test method for the dynamic wind uplift resistance of mechanically attached membrane-roofing systems*.

A new testing method has been added to this Standard, based on research and testing carried out at the National Research Council's Institute for Research in Construction (NRC/IRC).

The two methods that are now included in this Standard are as follows:

- (a) Method 1 — a dynamic test procedure developed by the National Research Council Canada (NRCC), industry-based consortium, initiated in 1994. The consortium is known as the Special Interest Group for Dynamic Evaluation of Roofing Systems (SIGDERS).
- (b) Method 2 — a dynamic test procedure developed by the National Research Council Canada (NRCC), industry-based consortium, initiated in 2005. The consortium is known as the Adhesive Applied Roofing Systems (AARS).

These consortiums include manufacturers and trade associations. See [Annex A](#) for a list of participants.

CSA acknowledges that the development of this Standard was made possible, in part, by the financial support of the University of Ottawa.

This Standard was prepared by the Technical Committee on Bituminous Roofing Materials, under the jurisdiction of the Strategic Steering Committee on Building Products and Systems, and has been formally approved by the Technical Committee.

May 2010

Notes:

- (1) Use of the singular does not exclude the plural (and vice versa) when the sense allows.
- (2) Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.
- (3) This publication 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 the definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this publication.
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Requests for interpretation should:

- (a) define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;
- (b) provide an explanation of circumstances surrounding the actual field condition; and
- (c) be phrased where possible to permit a specific “yes” or “no” answer.

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are published in CSA's periodical Info Update, which is available on the CSA Web site at www.csa.ca.

A123.21-10

Standard test method for the dynamic wind uplift resistance of membrane-roofing systems

1 Scope

1.1

This test method determines the wind uplift resistance of membrane-roofing systems when subjected to dynamic wind load cycles.

The test methods are

- (a) Method 1: mechanically attached membrane-roofing systems; and
- (b) Method 2: adhered membrane-roofing systems.

The roofing system consists of a deck and roofing membrane. It includes components such as vapour barriers or retarders, insulation, cover board, etc. It is subjected to a dynamic load sequence that has been developed based on wind pressure records, simulating the effects of wind on membrane-roof assemblies.

Note: *The roof membrane may be designated as the plane of air tightness.*

1.2

Method 1: Testing in accordance with this test method is limited to mechanically attached, reinforced membrane systems having a fastener row separation not greater than 2896 mm (114 in) and fastener in-line spacing not greater than 610 mm (24 in).

Method 2: Testing in accordance with this test method is limited to roof components adhered as a means of resisting wind uplift, without the use of mechanical fasteners or ballast.

1.3

In CSA Standards, “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 (nonmandatory) to define their application.

1.4

The values given in SI (metric) units are the standard. The values given in parentheses are for information only.