CAN/ULC 104:2015 (R2025)

Standard Method for Fire Tests of Door Assemblies

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CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS FRANÇAISE ET ANGLAISE

Standard Method for Fire Tests of Door Assemblies, CAN/ULC 104

Fourth Edition, Dated August 1, 2015

Summary of Topics

This reaffirmation of CAN/ULC 104 dated August 15, 2025 is being issued to update the title page to reflect the reaffirmation of this Fourth Edition National Standard of Canada. No changes in requirements are involved.

Text that has been changed in any manner or impacted by ULSE's electronic publishing system is marked with a vertical line in the margin.

The requirements are substantially in accordance with Proposal(s) on this subject dated May 23, 2025.

PLEASE NOTE THAT CERTAIN CODES MAY REFER TO A SUPERSEDED VERSION OF THIS STANDARD. IN THOSE INSTANCES, THE RELEVANT VERSIONS ARE AVAILABLE FOR PURCHASE.

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CAN/ULC 104:2015 (R2025)

Standard Method for Fire Tests of Door Assemblies

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This list represents the membership at the time the Committee balloted on the final text of this edition. Since that time, changes in the membership may have occurred.

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PREFACE

This is the Fourth Edition of the Standard Method for Fire Tests of Door Assemblies, CAN/ULC 104.

This Edition of the Standard has been formally approved by the ULC Standards Committee on Fire Tests.

This Standard has been developed in compliance with the requirements of SCC for Accreditation of a Standards Development Organization.

Only metric SI units of measurement are used in this Standard. If a value for measurement is followed by a value in other units in parentheses, the second value may be approximate. The first stated value is the requirement.

Appendix A, identified as Informative, is for information purposes only.

Appendix B and C, identified as Normative, form a mandatory part of this Standard.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

This Fourth Edition National Standard of Canada is based on, and now supersedes, the Third Edition.

Attention is drawn to the possibility that some of the elements of this Canadian standard may be the subject of patent rights. ULC Standards shall not be held responsible for identifying any or all such patent rights.

Requests for interpretation of this Standard should be sent to ULC Standards. The requests should be worded in such a manner as to permit a “yes” or “no” answer based on the literal text of the requirement concerned.

This CAN/ULC 104 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

Comments or proposals for revisions on any part of the Standard may be submitted at any time. Proposals should be submitted via a Proposal Request in the Collaborative Standards Development System (CSDS) at https://csds.ul.com.

This Standard is intended to be used for conformity assessment.

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1 SCOPE

1.1 This fire test method is applicable to door assemblies (comprising doors, frame products, hardware, glazing materials, and other parts, accessories or components) of various materials and types of construction, for use as closures in openings in walls and partitions that are fire separations in accordance to the National Building Code of Canada.

1.1.1 This test method is also applicable for evaluating individual components (doors, frame products, hardware, glazing materials, light kits, louvers and other parts or accessories) intended as part of a fire test assembly.

1.1.2 Wood core doors meeting the requirements of CAN/ULC-S113, Standard Specification for Wood Core Doors Meeting the Performance Required by CAN/ULC 104 for Twenty Minute Fire Rated Closure Assemblies, and frames meeting the requirements of CAN/ULC-S105, Standard Specification for Fire Door Frames Meeting the Performance required by CAN/ULC-S104 are not required to be tested to the requirements of this Standard. However, doors and frames meeting these specifications may be used for the evaluation of individual components.

1.2 It is the intent that tests made in conformity with this test method will develop data to enable regulatory bodies to determine the suitability of door assemblies for use in locations where fire protection of a specified duration is required. However such tests shall not be construed as determining suitability for use after exposure to fire.

2 REFERENCE PUBLICATIONS

2.1 The documents shown below are referenced in the text of this Standard. Unless otherwise stated elsewhere in this Standard such reference shall be considered to indicate the edition and/or revisions of the document available at the date on which the Committee approved this ULC Standard.

Document Published by the American National Standard Institute/Builders Hardware Manufacturers Association (ANSI/BHMA)
355 Lexington Avenue, New York, NY 10017 U.S.A.
www.buildershardware.com

• ANSI/BHMA A156.1-2006, Butts and Hinges

Document Published by the National Fire Protection Association (NFPA)
1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101 U.S.A.
Telephone: (617) 770-3000
Fax: (617) 770-3500
www.nfpa.org

• NFPA 80-2013, Standard for Fire Doors and Other Opening Protectives

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1200 Montreal Road, Bldg. M-58, Ottawa, ON K1A 0R6 Canada
Telephone: (613) 993-9101 or 1-877-672-2672
www.nrc-cnrc.gc.ca

• National Building Code of Canada, 2010

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Documents Published by ULC Standards (prior to May, 2010, identified as Underwriters Laboratories of Canada)
171 Nepean Street, Suite 400, Ottawa, ON K2P 0B4 Canada
Telephone: (416) 757-3611, ext. 61744; Fax: (613) 231-5977, “ATTN: Publications”
E-mail: publications@ulc.ca
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• CAN/ULC-S105-09, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN/ULC-S104

• CAN/ULC-S113-07, Standard Specification for Wood Core Doors Meeting the Performance Required by CAN/ULC-S104 for Twenty Minute Fire Rated Closure Assemblies

• CAN/ULC-S132-07, Standard Method of Tests for Emergency Exit and Emergency Fire Exit Hardware

• CAN/ULC-S533-08, Egress Door Securing and Releasing Devices

3 CONTROL OF FIRE TESTS

3.1 TIME-TEMPERATURE CURVE

3.1.1 The fire exposure shall be controlled to conform to the standard time-temperature curve shown in FIGURE 1. The points on the curve that determine its character are given in TABLE A1.

NOTE: A typical furnace assembly for testing products covered by this standard is illustrated in FIGURE A1.

3.2 FURNACE TEMPERATURES AND CONTROLS

3.2.1 The temperatures of the test exposure shall be deemed to be the average temperature obtained from the readings of not less than nine thermocouples symmetrically disposed and distributed to show the temperature near all parts of the test assembly. The thermocouples shall be enclosed in sealed porcelain tubes 19 mm in outside diameter and 3.2 mm in wall thickness. If base metal thermocouples are used, they shall be enclosed in sealed, standard 21.30 mm in outside diameter black wrought steel or black wrought iron pipe. The length of the pyrometer tube and the thermocouple wire within the furnace shall be not less than 300 mm. The junction of the thermocouples shall be 150 mm away from the exposed face of the test assembly at the beginning of the test, and shall not touch the test assembly during the test, in the event of deflection.

3.2.2 The temperatures shall be read at intervals not exceeding 1 min during the first 2 h, and thereafter at intervals not exceeding 5 min.

3.2.3 The accuracy of the furnace control shall be such that the area under the time-temperature curve, obtained by averaging the results from the pyrometer readings, shall be within ± 10 % of the corresponding area under the standard time-temperature curve shown in FIGURE 1 for fire tests of 1 h or less in duration, ± 7.5 % for those over 1 h and not more than 2 h, and ± 5 % for tests exceeding 2 h in duration.

3.3 UNEXPOSED SURFACE TEMPERATURES

3.3.1 If unexposed surface temperatures are recorded, they shall be determined in the following manner.

3.3.2 Unexposed surface temperatures shall be taken at not less than three points with at least one thermocouple in each 1.5 m^2 area of the door. Thermocouples shall not be located over reinforcements

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