CAN/ULC 105:2016 (R2026)

Standard Specification for Fire Door Frames Meeting the Performance Required By CAN/ULC 104

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

Standard Specification for Fire Door Frames Meeting the Performance Required by CAN/ULC 104, CAN/ULC 105

Fourth Edition, Dated February 1, 2016

Summary of Topics

This reaffirmation of CAN/ULC 105 dated May 20, 2026 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 March 6, 2026.

PLEASE NOTE THAT CERTAIN CODES MAY REFER TO A SUPERSEDED VERSION OF THIS STANDARD.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 105:2016 (R2026)

STANDARD SPECIFICATION FOR FIRE DOOR FRAMES MEETING THE PERFORMANCE REQUIRED BY CAN/ULC 104

ICS 13.220.50; 91.060.50

First Edition . . . . . April 1979
Second Edition . . . . . January 1985
Third Edition . . . . . July 2009
FOURTH EDITION . . . . . FEBRUARY 1, 2016
Reaffirmed . . . . . November 4, 2020
REAFFIRMED . . . . . MAY 20, 2026

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PREFACE

This is the Fourth Edition of the Standard Specification for Fire Door Frames Meeting the Performance Required by CAN/ULC 104, CAN/ULC 105.

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.

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.

This CAN/ULC 105 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 The requirements in this Standard apply to frame assemblies for swinging fire doors. These frame assemblies have demonstrated performance in fire tests sufficient to warrant their use with fire doors which have been assigned a fire-protection rating of up to and including 3 h when tested in accordance with CAN/ULC 104, Standard Method for Fire Tests of Door Assemblies. The frames may include provision for transoms or mullions.

1.2 Requirements for the installation of these frames are in accordance with NFPA 80, Standard for Fire Doors and Other Opening Protectives.

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.

Documents Published by the American Society for Testing and Materials (ASTM International)
100 Barr Harbour Drive, PO Box C700, West Conshohocken, PA 19428-2959 U.S.A.
Telephone: (610) 832-9585
www.astm.org

• ASTM A653/A653M-15, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

• ASTM A666-15, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar

• ASTM A1008/A1008M-15, Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable

• ASTM A1011/A1011M-14, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High- Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength

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Document Published by the National Fire Protection Association (NFPA)
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Telephone: (617) 770-3000; Fax: (617) 770-0700
www.nfpa.org

• NFPA 80-2016, Standard for Fire Doors and Other Opening Protectives

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Telephone: (416) 757-3611, ext. 61744; Fax (613) 231-5977, “ATTN: Publications”
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• CAN/ULC 102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies

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• CAN/ULC 104-15, Standard Method for Fire Tests of Door Assemblies

• CAN/ULC 106-15, Standard Method for Fire Tests of Window and Glass Block Assemblies

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Document Published by the Canadian Institute of Steel Construction (CISC-ICCA)
3760 14th Avenue, Suite 200, Markham, ON L3R 3T7 Canada
Telephone: (905) 946-0864
www.cisc-icca.ca

• Handbook of Steel Construction, Tenth Edition (September 2012)

3 GENERAL

3.1 Terminology used in describing these frames follows that commonly employed by the hollow metal trades in Canada. FIGURE 1 illustrates some of these terms.

3.2 Pressed-steel or steel-channel frames of the single-unit type or frames of the two-section type are intended for use with steel-faced composite, hollow-metal, metal-clad (Kalamein), and sheet-metal (flush or panelled types) doors.

3.3 Steel-channel frames of the single-unit type are intended for use with tin-clad and sheet-metal (corrugated-type) doors.

3.4 Pressed-steel frames of the single-unit type are intended for use with composite (wood or plastic-faced) doors and solid wood core doors.

3.5 A fire-door frame shall be of a design and construction that, when in combination with a suitable fire door and hardware, the assembly will protect the opening in which it is installed against the passage of flame for the period of time appropriate to the assigned classification or rating.

3.6 A fire-door frame which conforms with the following requirements is considered to comply with the requirement of Clause 3.5.

3.7 A fire-door frame which conforms to the Conditions of Acceptance specified in CAN/ULC 104, Standard Method for Fire Tests of Door Assemblies, when tested in accordance with the provisions of that Standard, is considered to comply with Clause 3.5 even though it does not comply with all of the following design and construction requirements.

4 DESCRIPTION OF FRAMES

4.1 SINGLE-UNIT TYPE PRESSED-STEEL FRAMES

4.1.1 Single-unit type pressed-steel frames for walls at least 50 mm thick shall consist of head and jambs, hinge reinforcements, closer reinforcement, base and wall anchors, a strike-plate reinforcement when intended for installation with single-swing doors, and a co-ordinator and flushbolt reinforcement may be required when intended for installation with pairs of doors swinging in the same direction.

4.1.2 The wall anchors provided shall be adjustable or fixed masonry wall anchors, bolts with expansion shells, channel clips, "Z" clips, wood-stud wall anchors, or steel-stud wall anchors located, as described in Subsection 4.12, Wall Anchors, and as shown in FIGURE 2.

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4.1.3 The head and jambs shall be constructed, as shown in FIGURE 3, of steel or stainless steel not less than 1.6 mm thick nor more than 2.8 mm thick for the door frame rebate opening sizes specified in TABLE 1.

4.1.4 A stainless-steel cladding not to exceed the thickness of the jambs may be applied over the steel head and jambs.

4.1.5 Ceiling struts, strut guides, and wedges (see Subsection 4.13, Ceiling Struts) shall be required for frames for single-swing doors over 2450 mm in height and all frames for pairs of doors for installation in walls 90 mm thick. The use of ceiling struts is optional on frames for walls thicker than 90 mm or single swing frames for door sizes less than 2450 mm in height for walls less than 90 mm thick.

4.2 MULLION

4.2.1 Welded single-unit type pressed-steel frames may be provided with a fixed mullion to provide two rebate openings for two single-swing doors opening in the same direction, each door of a size not exceeding 1250 mm in width and 2450 mm in height.

4.2.2 Frames equipped with a fixed mullion shall consist of head and jambs, hinge reinforcements, base anchors, wall anchors, and a fixed mullion provided with a base anchor and strike reinforcements.

4.2.3 The mullion shall be constructed of steel not less than 1.6 mm thick and not more than 2.8 mm thick as shown in FIGURE 4, FIGURE 5 and FIGURE 6.

4.2.4 Two base anchors made of steel not less than 2.8 mm thick, as shown in FIGURE 7, or a one-piece base anchor of the same thickness and dimensions except for depth, which is to match the depth of the mullion minus two times the thickness of the steel used in the mullion, shall be provided.

4.2.5 These base anchors are to permit fastening to the floor with M10 bolts and steel expansion shells.

4.2.6 Sheet-metal screws of M4 × 0.7 mm are to be provided with the mullion to permit fastening the base clip to the base of the mullion.

4.2.7 Doors shall not be hinged from the mullion.

4.3 SINGLE-UNIT TYPE STEEL-CHANNEL FRAMES

4.3.1 Single-unit type steel-channel frames for walls at least 90 mm thick shall consist of head and jambs, base anchors, bar stops, and adjustable or fixed masonry or fixed-rod concrete wall anchors.

4.3.2 The rebate opening for single-swing doors shall not exceed 1850 mm in width and 3660 mm in height. The rebate opening for doors swinging in pairs shall not exceed 3050 mm in width and 3660 mm in height.

4.3.3 The head and jambs shall be constructed of structural-steel channel as shown in FIGURE 8. Steel channels used for frames shall conform to the requirements for standard channels as described under the Properties and Dimensions in the Handbook of Steel Construction of the Canadian Institute of Steel Construction.

4.3.4 The head and jambs shall be provided with steel stops secured with 10 mm steel rivets or 13 mm diameter plug welds spaced not to exceed 75 mm from each end and 300 mm on centres.

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