CAN/ULC-S101-14-REV3
(Including Revision 3)

STANDARD METHODS OF FIRE ENDURANCE TESTS OF BUILDING CONSTRUCTION AND MATERIALS

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Standard Methods of Fire Endurance Tests of Building Construction and Materials, CAN/ULC-S101

Fifth Edition, Dated June 1, 2014

Summary of Topics

This September 17, 2021 revision of CAN/ULC-S101 includes the following:

– Replaced reference of ISO/TR 834-2 by ISO 834-2:2019; 2.1, 6.5.1 and 6.5.1.1

– Correction to delete 14.3.2 – 14.3.4, duplicated in error from 13.3.2-13.3.4 during the publication of Revision 1 in March 2019, in the English version only.

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

The revised requirements are substantially in accordance with Proposal(s) on this subject dated June 2, 2021.

PLEASE NOTE THAT CERTAIN CODES MAY REFER TO A SUPERSEDED VERSION OF THIS STANDARD.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-S101-14-REV3

STANDARD METHODS OF FIRE ENDURANCE TESTS OF BUILDING CONSTRUCTION AND MATERIALS

ICS 13.220.50; 19.040

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CONTENTS

ULC STANDARDS COMMITTEE ON FIRE TESTS 9

PREFACE 11

1 SCOPE 13
2 REFERENCE PUBLICATIONS 13
3 TEST SPECIMEN 14
4 PROTECTION AND CONDITIONING OF TEST SPECIMEN 15
5 CONTROL OF FIRE ENDURANCE TESTS 16
5.1 STANDARD TIME-TEMPERATURE CURVE 16
5.2 FURNACE TEMPERATURES 16
5.3 TEMPERATURE OF UNEXPOSED SURFACES OF FLOORS, ROOFS, WALLS AND PARTITIONS 17
5.4 DIFFERENTIAL PRESSURE 18
6 FIRE ENDURANCE TESTS AND HOSE STREAM TESTS 19
6.1 FIRE ENDURANCE TEST 19
6.2 HOSE STREAM TEST 20
6.3 ROVING THERMOCOUPLE 21
6.4 COTTON PADS 21
6.5 FURNACE PERFORMANCE VERIFICATION 21
7 TESTS OF LOADBEARING WALLS AND PARTITIONS 21
7.1 SIZE OF TEST SPECIMEN 21
7.2 LOADING 22
7.3 EXPOSURE TO FIRE 22
7.4 DETERMINATION OF FIRE ENDURANCE PERIOD 22
8 TESTS OF NON-LOADBEARING WALLS AND PARTITIONS 23
8.1 SIZE OF TEST SPECIMEN 23
8.2 EXPOSURE TO FIRE 23
8.3 DETERMINATION OF FIRE ENDURANCE PERIOD 23
9 TESTS OF COLUMNS 23
9.1 SIZE OF TEST SPECIMEN 23
9.2 LOADING 23
9.3 EXPOSURE TO FIRE 24
9.4 DETERMINATION OF FIRE ENDURANCE PERIOD 24
10 TESTS OF PROTECTION FOR STRUCTURAL STEEL COLUMNS 24
10.1 APPLICATION 24
10.2 SIZE AND CHARACTERISTICS OF TEST SPECIMEN 24
10.3 TEMPERATURE MEASUREMENT 25
10.4 EXPOSURE TO FIRE 25
10.5 DETERMINATION OF FIRE ENDURANCE PERIOD 25
11 TESTS OF FLOOR AND ROOF ASSEMBLIES 25
11.1 APPLICATION 25
11.2 SIZE AND CHARACTERISTICS OF TEST SPECIMEN 25
11.3 EXPOSURE TO FIRE 26
11.4 LOADING 26
11.5 TEMPERATURE MEASUREMENT 26
11.6 DETERMINATION OF FIRE ENDURANCE PERIOD – RESTRAINED ASSEMBLY 27
11.7 DETERMINATION OF FIRE ENDURANCE PERIOD – UNRESTRAINED ASSEMBLY 27
12 TESTS OF LOADED, RESTRAINED BEAMS OR JOISTS 28
12.1 APPLICATION 28
12.2 SIZE AND CHARACTERISTICS OF TEST SPECIMEN 28
12.3 LOADING 29
12.4 DETERMINATION OF FIRE ENDURANCE PERIOD 29

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13 ALTERNATIVE CLASSIFICATION PROCEDURE FOR LOADED BEAMS OR JOISTS 29
13.1 APPLICATION.....29
13.2 TEMPERATURE MEASUREMENT.....29
13.3 DETERMINATION OF FIRE ENDURANCE PERIOD.....30
14 TESTS OF LOADED UNRESTRAINED BEAMS.....30
14.1 APPLICATION.....30
14.2 SIZE AND CHARACTERISTICS OF TEST SPECIMEN.....30
14.3 DEFLECTION 31
14.4 LOADING 31
14.5 DETERMINATION OF FIRE ENDURANCE PERIOD.....31
15 ALTERNATIVE TESTS OF PROTECTION FOR SOLID STRUCTURAL STEEL BEAMS AND GIRDERS 32
15.1 APPLICATION.....32
15.2 SIZE AND CHARACTERISTICS OF TEST SPECIMEN.....32
15.3 TEMPERATURE MEASUREMENT.....32
15.4 DETERMINATION OF FIRE ENDURANCE PERIOD.....32
16 TESTS OF PROTECTION FOR COMBUSTIBLE FRAMING, OR FOR COMBUSTIBLE FACINGS ON THE UNEXPOSED SIDES OF WALLS, PARTITIONS AND FLOORS 33
16.1 CHARACTERISTICS OF TEST SPECIMEN.....33
16.2 SIZE OF TEST SPECIMEN.....33
16.3 DETERMINATION OF FIRE ENDURANCE PERIOD.....33
17 TESTS OF CEILING MEMBRANES 33
17.1 APPLICATION.....33
17.2 SIZE AND CHARACTERISTICS OF SPECIMEN 33
17.3 TEMPERATURE MEASUREMENT.....34
17.4 DETERMINATION OF FIRE ENDURANCE PERIOD.....34
18 TEST REPORT.....34
TABLES 36
FIGURES 43

APPENDIX A (INFORMATIVE)

A1 GUIDE FOR DETERMINING CONDITIONS OF THERMAL RESTRAINT FOR FLOOR AND ROOF ASSEMBLIES AND FOR INDIVIDUAL BEAMS 53
A2 METHOD OF CORRECTING FIRE ENDURANCE PERIOD DETERMINED BY UNEXPOSED SURFACE TEMPERATURE RISE FOR NONSTANDARD MOISTURE CONTENT.....55
A2.1 Scope.....55
A2.2 Nomenclature 55
A2.3 Calculation Of Moisture Content 55
A2.4 Correction Procedure 56
A2.5 Illustrative Example 56

APPENDIX B (INFORMATIVE)

B1 TYPICAL FURNACES.....59

APPENDIX C (INFORMATIVE)

C1 LOADING FOR TEST ASSEMBLIES.....61
C1.1 General 61
C1.2 Superimposed Load Calculation.....61
C1.3 Concrete and Structural Steel Floor and Roof Assemblies.....63
C1.4 Wood Assemblies 68
C1.5 Cold-Formed Steel Assemblies 73

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APPENDIX D (INFORMATIVE) – DISCUSSIONS REGARDING ENVIRONMENTAL CONDITIONS OR CLIMATE CHANGE ADAPTATION AND RESILIENCE

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PREFACE

This is the Fifth Edition of the Standard Method of Fire Endurance Tests of Building Construction and Materials, CAN/ULC-S101.

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 Standards Council of Canada (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.

Appendices A, B, C, and D, identified as informative, are for informational purposes only.

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 Fifth Edition National Standard of Canada was based on, and now supersedes, the Fourth 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-S101 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 On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com/canada.

This Standard is intended to be used for conformity assessment.

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1 SCOPE

1.1 This Standard covers fire endurance tests applicable to walls, partitions, floors, roofs, ceilings, columns, beams, and girders, as well as to some components of these building sub-assemblies.

Note: The performance displayed by a component in one assembly would not necessarily be the same when such component is tested in a dissimilar assembly.

1.2 It is the intent that the fire endurance period established by this test method indicates performance only during the fire exposure period and shall not be construed as having determined suitability for use after fire exposure.

1.3 Separate fire endurance test methods are prescribed for various building constructions and materials, as follows:

Walls and Partitions, Loadbearing; (Section 7)

Walls and Partitions, Non-Loadbearing; (Section 8)

Columns; (Section 9)

Columns, Structural Steel, Tests of Protection for; (Section 10)

Floor and Roof Assemblies; (Section 11)

Beams or Joists, Loaded, Restrained; (Section 12)

Beams or Joists, Loaded, Alternative Classification Procedure; (Section 13)

Beams, Loaded, Unrestrained; (Section 14)

Beams and Girders, Structural Steel, Alternative Tests of Protection for; (Section 15)

Framing and Facings, Combustible, Tests of Protection for; (Section 16)

Ceiling Membranes; (Section 17).

1.4 The fire exposure and hose stream tests are not intended to be representative of all fire conditions. It is likely that conditions will vary with changes in the amount, nature and distribution of fire, loading, ventilation, size and configuration of assembly installed. This fire endurance test Standard provides a relative measure of fire performance of comparable assemblies under specified fire exposure conditions.

1.5 Durability requirements, as a product of exposure and influence (if any) due to environmental conditions or climate change, are outside the scope of this standard. (Refer to Appendix D).

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 CSA Group
5060 Spectrum Way, Suite 100, Mississauga, ON L4W 5N6 Canada
Telephone: 1-800-463-6727, Fax: (416) 747-2473
www.csa.ca

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• CAN/CSA-O86-09 Consolidated, Engineering Design in Wood
• CAN/CSA-S16-14, Design of Steel Structures
• CAN/CSA-S136-12, North American Specification for the Design of Cold-Formed Steel Structural Members
• CAN/CSA-A23.3-04 (R2010), Design of Concrete Structures

Document Published by the International Organization for Standardization (ISO) available from:

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Telephone: +41 22 749 01 11; Fax: +41 22 733 34 30
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Standards Council of Canada (SCC)
55 Metcalfe Street, Suite 600
Ottawa, ON K1P 6L5
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www.scc.ca

• ISO 834-2:2019, Fire-resistance tests – Elements of building construction – Part 2: Requirements and recommendations for measuring furnace exposure on test samples

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• National Building Code of Canada 2010

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Email: publications@ulc.ca
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• ULC/ORD-C263E-88, Criteria for Use in Extension of Data from Fire Endurance Tests

3 TEST SPECIMEN

3.1 The test specimen shall be representative of the construction for which classification or rating is desired, as to materials, workmanship and details such as dimensions of parts, and shall be built under conditions representative of those obtained as practically applied in building construction and practice. The physical properties of the materials and ingredients used in the test specimen shall be determined and recorded.

3.2 Where reference is made to the structural design of members, the design methods and loadings used shall be those required by the National Building Code of Canada. In cases where no applicable design standard exists, the design method and loadings used shall be clearly described in the test report.

3.3 The size and dimensions of the test specimen specified herein are intended to apply for rating constructions of dimensions within the usual general range employed in buildings. If the conditions of use

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