CAN/ULC 742:2020 (R2025)

Standard for Air Barrier Assemblies – Specification

ULC Standards
Normes ULC

scc ccn

Underwriters Laboratories of Canada (ULC) was established in 1920 by letters patent issued by the Canadian Government. It maintains and operates laboratories and certification services for the examination, testing and certification of appliances, equipment, materials, constructions and systems to determine their relation to life, fire and property hazards as well as providing inspection services.

ULC Standards is a not-for-profit organization and is accredited by the Standards Council of Canada as a Standards Development Organization.

National Standards of Canada developed by ULC Standards conform to the criteria and procedures established by the Standards Council of Canada. Such standards are prepared using the consensus principle by individuals who provide a balanced representation of interests relevant to the subject area on a national basis.

National Standard of Canada

A National Standard of Canada is a standard developed by a Standards Council of Canada (SCC) accredited Standards Development Organization, in compliance with requirements and guidance set out by SCC. More information on National Standards of Canada can be found at www.scc.ca.

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada's economic competitiveness and social well-being, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at www.scc.ca.

For further information on ULC standards, please contact:

ULC STANDARDS
Telephone: 1-888-853-3503
E-mail: ClientService@shopULStandards.com

To purchase ULC Standards, visit: https://www.shopulstandards.com

The intended primary application of this standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for the particular application.

Copies of this National Standard of Canada may be ordered from ULC Standards.

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

Standard for Air Barrier Assemblies – Specification, CAN/ULC 742

Second Edition, Dated November 9, 2020

Summary of Topics

This reaffirmation of CAN/ULC 742 dated December 3, 2025 is issued to update the title page to reflect the reaffirmation of this Second 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 September 12, 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.

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

CAN/ULC 742:2020 (R2025)

Standard for Air Barrier Assemblies – Specification

ICS 91.100.50; 91.120.30

First Edition . . . . . February 2011
SECOND EDITION . . . . . NOVEMBER 9, 2020
REAFFIRMED . . . . . DECEMBER 3, 2025

© 2025

ULC Standards

All rights reserved. No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior permission.

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

CONTENTS

ULC STANDARDS COMMITTEE ON THERMAL PERFORMANCE AND ENERGY USE IN THE BUILT ENVIRONMENT 7

PREFACE 9

INTRODUCTION

1 Scope 11
2 Reference Publications 11
3 Definitions 12

REQUIREMENTS

4 General Requirements 13
5 Detailed Requirements 13
5.1 Air Leakage 13
5.2 Wind Pressure Loading 13
5.3 Deflection 13

TESTING

6 Specimen Preparation for Wall Air Barrier Assemblies 13
7 Specimen Preparation for Roof Air Barrier Assemblies 14
8 Specimen Conditioning 14
9 Test Methods 14
9.1 Sequence of Testing for Wall Air Barrier Assemblies 14
9.2 Air Leakage Rate 15
9.3 Wind Pressure Loading 15
9.4 Deflection 17
10 Testing Roof Air Barrier Assemblies 17

REPORTING REQUIREMENTS

11 General 17
12 Description of Specimens 17
13 Conditions During Testing 18
14 Air Leakage Rate 18
15 Wind Pressure Loading for Wall Air Barrier Assemblies 18
16 Deflection for Wall Air Barrier Assemblies 18

ANNEX A – PENETRATION DETAILS OF ROOF AIR BARRIER ASSEMBLY TEST SPECIMENS (NORMATIVE)

A1 GENERAL 19

ANNEX B – WALL AIR BARRIER ASSEMBLY TEST SPECIMENS (NORMATIVE)

B1 General 32

ANNEX C – WIND PRESSURE LOADING (INFORMATIVE)

C1 General 42

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

C2 Wind Loads for High Buildings 42
C3 Design Wind Pressure for Buildings 42
C4 Gust Wind Pressure Differences 43

ANNEX D – AIR BARRIER SYSTEM ASSESSMENT STRATEGY (INFORMATIVE)

D1 General....44
D2 Properties of Air Barrier Assemblies 44
D3 Performance of Air Barrier Systems Using the Air Barrier Assembly Approach 45
D4 Air Barrier Assembly Qualification 45

ANNEX E – BIBLIOGRAPHY (INFORMATIVE)

E1 RELATED PUBLICATIONS 47

ANNEX F – DISCUSSION OF THE RELATIONSHIP BETWEEN TESTING RESISTANCE TO DYNAMIC WIND UPLIFT AND TESTING AIR LEAKAGE RATE FOR ROOFS (INFORMATIVE)

F1 Background 48
F2 SIGDERS' Findings....48
F3 Observations Based on the CAN/ULC 742 Investigations....48

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

ULC STANDARDS COMMITTEE ON THERMAL PERFORMANCE AND ENERGY USE IN THE BUILT ENVIRONMENT

NAME	AFFILIATION	CATEGORY	REGION
L. Dalgleish (Chair)	Building Professionals	Commercial / Industrial User	Canada
E. Banks	e.w.banks consulting llc	General Interest	USA
D. Beauchamp	International Code Council Evaluation Service (ICC-ES)	Testing & Standards Org.	Canada
C. Berube	Nature Fibres	Producer	Canada
F. Bosse	Insulating Wood Fibre Board Task Group	Producer	Canada
G. Chu	CHEMISTRY INDUSTRY ASSOCIATION OF CANADA / SPRAY POLYURETHANE FOAM PRODUCERS & APPLICATORS	Producer	Canada
S. Ciarlo	Owens Corning Canada	Producer	Canada
A. Cockburn	NAIMA Canada	Producer	Canada
J. F. Côté	Cellulose Insulation Manufacturers Association	Producer	Canada
P. Culyer	Exterior Insulation Finish Systems Council of Canada	Commercial / Industrial User	Canada
K. Day	Consiliis, Inc.	Commercial / Industrial User	Canada
M. Drouin	PIR Canadian Council	Producer	Canada
W. Fraser	Canadian Roofing Contractors' Association	General Interest	Canada
R. Giona	Alleguard	Producer	Canada
A. Hemani	HCI Architecture Inc.	General Interest	Alberta
M. Joyce	R&D Services, Inc	Testing & Standards Org.	USA
R. Jutras	UL Solutions	Testing & Standards Org.	Canada
R. Khondker	Element Materials Technology	Testing & Standards Org.	Canada
S. Molleti	National Research Council of Canada	Government	Canada
P. Mukhopadhyaya	University of Victoria	General Interest	British Columbia
S. Phool	R Safety and Consulting	Commercial / Industrial User	Canada
S. Rashid	Health Canada	Government	Canada
K. Rector	Insulating Concrete Form Manufacturers Association	Commercial / Industrial User	Ontario
M. Shaji	Dubai Airports	Consumer	United Arab Emirates
A. Tilak	PLASTI-FAB LTD	Producer	Canada
A. Valipourkoleti	Intertek	Testing & Standards Org.	Canada
J. Edgar (Associate Member)	John R. S. Edgar Consulting Inc.	Non-voting	Ontario
A. Gilders (Associate Member)	UL Standards & Engagement	Non-voting	Canada
T. Lau (Associate Member)	BC Hydro	Non-voting	British Columbia
R. Marshall (Associate Member)	Cedaridge Services Inc.	Non-Voting	Ontario

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

NAME	AFFILIATION	CATEGORY	REGION
R. McPhee (Associate Member)	Canadian Wood Council	Non-Voting	Canada
M. Milhailovic (Associate Member)	National Research Council Canada	Non-Voting	Canada
A. Piggin (Associate Member)	P:M:L Associates Inc.	Non-Voting	Ontario
N. Weeks (Project Manager)	UL Standards & Engagement	Non-Voting	USA

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.

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

PREFACE

This is the Second Edition of the Standard for Air Barrier Assemblies – Specification, CAN/ULC 742.

This Edition of the Standard has been formally approved by the ULC Standards Committee on Thermal Performance and Energy Use in the Built Environment.

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.

Annexes A and B, identified as normative, form a mandatory part of this Standard.

Annexes C to F, identified as informative, are for information 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 Second Edition National Standard of Canada is based on, and now supersedes, the First 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 742 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.

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

INTRODUCTION

1 Scope

1.1 This Standard provides air barrier assembly performance requirements and test methods to determine the performance levels for an air barrier assembly used in applications for both low-rise and high-rise buildings.

1.2 The test methods described in this Standard involve measuring the air leakage rate of a representative test specimen of an air barrier assembly before and after exposure to wind pressure loading cycles and then determining an air leakage rate at a reference pressure difference (ΔP), based on the measurements.

1.3 This Standard sets minimum performance requirements for air barrier assemblies based on wind pressure loading and height of the building.

1.4 The requirements for determining the air leakage rate of air barrier materials, air barrier components and air barrier accessories are outside the scope of this Standard.

1.5 The structural design for the transfer of loads from the air barrier assemblies to the building structure is outside the scope of this Standard.

1.6 This document does not purport to address all the health and safety aspects associated with its use. Anyone using this Standard has the responsibility to consult the appropriate authorities and to establish health and safety practices, in conjunction with any existing applicable regulatory requirements, prior to its use.

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 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 E1424-91(2016), Standard Test Method for Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors under Specified Pressure and Temperature Differences across the Specimen

• ASTM E2357-18, Standard Test Method for Determining Air Leakage of Air Barrier Assemblies

• ASTM D8052/D8052M-17, Standard Test Method for Quantification of Air Leakage in Low-Sloped Membrane Roof Assemblies

---

Documents published by CSA Group
178 Rexdale Blvd., Toronto, ON M9W 1R3 Canada
Telephone: (416) 747-4044 or 1-800-463-6727
www.csagroup.org

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.

• CSA A123.21-14, Standard test method for the dynamic wind uplift resistance of membrane-roofing systems

---

Documents Published by ULC Standards
171 Nepean Street, Suite 400, Ottawa, ON K2P 0B4 Canada
Telephone: (613) 755-2729
www.ulc.ca/ulcstandards

• CAN/ULC 741:2008-R2016, Standard for Air Barrier Materials – Specification

3 Definitions

3.1 AIR BARRIER ACCESSORY – products designated to maintain air tightness between air barrier materials, air barrier assemblies and air barrier components, to fasten them to the structure of the building, or both (e.g., sealants, tapes, backer rods, transition membranes, fasteners, strapping, primers).

3.2 AIR BARRIER ASSEMBLY – the combination of air barrier materials and air barrier accessories that are designated and designed within the environmental separator to act as a continuous barrier to the movement of air through the environmental separator.

3.3 AIR BARRIER COMPONENT – pre-manufactured elements such as windows, doors and service elements that are installed in the environmental separator.

3.4 AIR BARRIER MATERIAL – a building material that is designed and constructed to provide the primary resistance to airflow through an air barrier assembly.

3.5 AIR BARRIER SYSTEM - the combination of air barrier assemblies and air barrier components, connected by air barrier accessories that are designed to provide a continuous barrier to the movement of air through an environmental separator.

3.6 AIR LEAKAGE RATE L/(s.m^2.Pa) – the rate of airflow (L/s) driven through a unit surface area (m^2) of an assembly by a unit static pressure difference (Pa) across the assembly.

3.7 AIR PERMEANCE – the rate of airflow (L/s) through a unit area (m^2) of a material driven by unit static pressure difference (Pa) across the material.

3.8 ENVIRONMENTAL SEPARATOR – the parts of a building that separate the controlled interior environment from the uncontrolled exterior environment, or that separate spaces within a building that have dissimilar environments.

3.9 LOW SLOPED MEMBRANE ROOFING ASSEMBLY (LSMRA) – an assembly of roofing components intended to act as the preliminary environmental separator impermeable to air and water ingress.

3.10 PROPONENT – the party that designates/designs a specific assembly that has been qualified to the requirements of this Standard as an air barrier assembly.

3.11 SERVICE LIFE – the period of time during which the air barrier assembly or any of its air barrier materials or air barrier accessories performs without unforeseen costs or disruption for maintenance or repair.

ULSE INC. COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM ULSE INC.