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(Including Revision 1)

STANDARD FOR EXHAUST CLEANING AND RECIRCULATION ASSEMBLIES FOR COMMERCIAL AND INSTITUTIONAL KITCHEN EXHAUST SYSTEMS



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Standard for Exhaust Cleaning and Recirculation Assemblies for Commercial and Institutional Kitchen Exhaust Systems, ULC-S647

Second Edition, Dated January 1, 2005

This revision of ULC-S647 dated April 7, 2021 is to correct the membership list of the recently reaffirmed non-SCC published standard.

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.

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REFERENCE PUBLICATIONS

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 Canadian Standards Association (CSA)
5060 Spectrum Way, Mississauga, ON L4W 5N6 Canada
Telephone: (416) 747-4000 or 1-800-469-6727
www.csa.ca

• CSA C22.1-02, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations.

• CAN/CSA-C22.2 No.0-M91, General Requirements - Canadian Electrical Code, Part II.

Documents Published by Underwriters' Laboratories of Canada (ULC)
7 Underwriters Road, Toronto, ON M1R 3B4 Canada
Telephone: (416) 757-3611 or 1-866-9373-ULC
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• CAN/ULC-S112-M90, Standard Method of Fire Test of Fire-Damper Assemblies.

• CAN4-S111-95 Standard Method of Fire Tests for Air Filter Units.

Document Published by the United States Department of National Defense
Available from Defense Automation and Product Service, Building 4/D,
700 Robbins Avenue, Philadelphia, PA 19111-5094, TEL: (215) 697-2179

• MIL-STD-282, United States Army DOP (Dioctyl Phthalate) Test Method 102.9.1.

Codes published by the National Research Council of Canada Publication Sales M20,
National Research Council of Canada, Institute for Research in Construction,
Ottawa, ON K1A 0R6
Telephone: (613) 993-2463, or 1-800-672-7990

• 1995 National Building Code of Canada.

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PREFACE

This is the Second Edition of the Standard for Exhaust Cleaning and Recirculation Assemblies for Commercial and Institutional Kitchen Exhaust Systems, ULC-S647.

This Edition of the Standard has been formally approved by the ULC Standards Committee on Kitchen Exhaust Equipment and Systems.

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.

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

The initiation of the review of this Standard will commence within 5 years of the date of publication, unless the Standard is identified as fitting within a stabilized category, whereby the review will commence within the appropriate time frame set out by ULC Standards.

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 applies to exhaust cleaning assemblies intended primarily for use with exhaust systems for commercial and institutional type cooking equipment such as ranges, broilers, deep fat fryers, grills, etc… that are Gas-Fuelled and Electronically-Fuelled. They are complete units typically including filter box, filters, odour removal media, fire damper, fan box, fan and motor controls and control panel. The units are located downstream from grease extractors or hood and filter assemblies and may be floor mounted, suspended in a ceiling space or roof mounted.

1.2 This Standard also applies to exhaust recirculation units that are for connection to the outlet from air cleaning assemblies and are intended to temper make-up air by recycling up to 80% of the clean exhaust air to the kitchen area. The remaining make-up air is drawn from outside of the building or from areas adjoining the kitchen. The scope of this Standard does not include the evaluation of air quality when these units are used in conjunction with gas or solid fuel-fired appliances.

PART A EXHAUST CLEANING ASSEMBLY REQUIREMENTS

2 CONSTRUCTION

2.1 MATERIALS

2.1.1 An exhaust cleaning and recirculation assembly shall have a continuously welded carbon steel housing at least 1.5 mm (16 gauge) thick or 1.1 mm (18 gauge) stainless steel, surrounded by noncombustible insulation at least 12 mm thick and a carbon steel outer casing at least 0.9 mm thick.

2.1.2 As an alternate to the requirements of Clauses 2.1.1, 2.2.1 and 2.3.1, the construction shall be deemed acceptable if the unit meets all the requirements of Test Nos. 4 (Subsection 3.7), 5 (Subsection 3.8) and 6 (Subsection 3.9).

2.1.3 An exhaust cleaning and recirculation assembly shall be provided with collars for connection to ductwork. The collars shall comply with the material requirements of 2.1.1.

2.1.4 Seams, joints and penetrations of the assembly that direct and capture grease-laden and exhaust gases shall have a liquid-tight continuous external weld to outermost perimeter. Internally welding may be permitted, provided that the weld is formed smooth, or ground smooth, as to not trap grease.

2.2 SERVICE ACCESS DOORS

2.2.1 Exhaust cleaning assemblies shall have access doors that are smoke and flame tight and are located a minimum of 40 mm above the floor of the assembly housing to prevent possible grease leakage.

2.3 FIRE DAMPERS

2.3.1 Where required to satisfy the exhaust air temperature limits specified in Burnout Tests No. 4, 5 and 6, fire dampers shall comply with the requirements of CAN/ULC-S112, Standard Method of Fire Tests of Fire Damper Assemblies and be located downstream from the final filters.

2.4 FILTERS

2.4.1 Filters shall meet the requirements for Class 1 or 2 filters as specified in CAN4-S111, Standard Method of Fire Tests for Air Filter Units.

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