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ULC/ORD-C2162-13

COMMERCIAL WOOD-FIRED BAKING OVENS – REFRACTORY TYPE



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CORPORATE HEADQUARTERS

Underwriters Laboratories of Canada
7 Underwriters Road
Toronto, Ontario M1R 3A9
Telephone: (416) 757-3611
Fax: (416) 757-9540
Customer Service: 1-866-937-3852

REGIONAL OFFICES

EASTERN OFFICE

6505, Rte Transcanadienne, Suite 330
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Telephone: (514) 363-5941
Fax: (514) 363-7014
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13775 Commerce Parkway, Suite 130
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Telephone: (604) 214-9555
Fax: (604) 214-9550
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171 Nepean Street, Suite 400
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Telephone: (613) 755-2729
Fax: (613) 231-5977
Customer Service: 1-866-937-3852

E-mail: customerservice@ulc.ca
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270 Albert Street
Suite 200
Ottawa, Ontario K1P 6N7
Telephone: (613) 238-3222

COMMERCIAL WOOD-FIRED BAKING OVENS – REFRACTORY TYPE

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FOREWORD

Certification organizations are periodically requested to promptly provide certification services for devices, constructions, materials and systems where Canadian recognized Standards do not currently exist or are not entirely applicable. Accordingly, the certification organization utilizes its experience, existing specifications and requirements in related areas, together with assistance from its advisory councils to develop and prepare Other Recognized Documents (ORDs) for use in conducting the necessary tests and evaluation investigation.

Underwriters Laboratories of Canada has prepared many ORDs in response to requests from, and in conjunction with, industry, code writing bodies, regulatory agencies and others prior to promulgating a certification program. In many instances such documents have become published ULC Standards and subsequently National Standards of Canada. It is the intention of Underwriters Laboratories of Canada to continue this practice, as appropriate.

Comments on the content of this ORD should be directed to the Head Office of Underwriters Laboratories of Canada, 7 Underwriters Road, Toronto, Ontario, CANADA, M1R 3A9.

NOTE: These Other Recognized Documents are accepted under the National Standards System of Canada. Reference may be made to the Document CAN-P-3, "General Requirements for Bodies Operating Product Certification Systems"; and CAN-P-1500, "Additional Requirements for Accreditation of Certification Bodies", published by the Standards Council of Canada located at 270 Albert Street, Suite 200, Ottawa, Ontario, CANADA, K1P 6N7.

COMMERCIAL WOOD-FIRED BAKING OVENS – REFRACTORY TYPE

PREFACE

This is the First Edition of the Other Recognized Document ULC/ORD-C2162, Commercial Wood-Fired Baking Ovens – Refractory Type.

Only metric SI units of measurement are used in this ORD. 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 ORD 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 ORD should be sent to the ULC Mark Program Owner of Underwriters Laboratories of Canada. 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 ORD is intended to be used for conformity assessment.

1. SCOPE

1.1 These requirements apply to commercial wood-fired ovens intended for use by commercial establishments for the purpose of cooking or baking food products utilizing solid wood fuel. These ovens utilize as their primary enclosure, refractory materials.

1.2 For the purposes of this document It is anticipated the ovens described in Clause 1.1 will be vented by an exhaust hood as covered by the Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, NFPA 96, or an exhaust hood tested for compliance with the requirements in the Standard for Exhaust Hoods And Related Controls for Commercial and Institutional Kitchens, CAN/ULC-S646.

1.3 Minimum exhaust hood size including minimum height, depth, and length of the hood as well as minimum hood overhangs, minimum exhaust air flows, and maximum hood height above the oven shall be established as part of the investigation.

1.4 The seismic stability of the oven and support system is not anticipated in this document.

1.5 The wood-fired baking ovens as covered by these requirements are intended for installation in accordance with the Canadian Electrical Code, CSA C22.1, and Installation Code for Solid-Fuel-Burning Appliance and Equipment, CAN/CSA-B365, and in accordance with the National Building Code of Canada and the National Fire Code of Canada. The exhaust hoods referenced in these requirements are intended for installation in accordance with the National Building Code of Canada and National Fire Code of Canada.

2. REFERENCE PUBLICATIONS

The documents shown below are referenced in the text of this ULC Other Recognized Document (ORD). Unless otherwise stated elsewhere in this ORD, such reference shall be considered to indicate the edition and/or revisions of the documents available at the date on which this ULC ORD is published.

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 C22.1-09, Canadian Electrical Code, Part 1 Safety Standard for Electrical Installations
- CSA C22.2 No. 0.15-01 (R2006), Adhesive Labels
- CSA C22.2 No.3-M1988 (R2004), Electrical Features of Fuel-Burning Equipment – Environmental Products
- CSA C22.2 No. 24-93 (R2008), Temperature-Indicating and -Regulating Equipment
- CSA B365-10, Installation Code for Solid-Fuel-Burning Appliances and Equipment

Documents Published by the National Research Council of Canada (NRC)
Canadian Commission on Building and Fire Codes
1200 Montreal Road, Building 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
 - National Fire Code of Canada, 2010
-

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- UL 969-95, Standard for Marking and Labelling Systems
-

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- CAN/ULC-S114-05, Standard Method for Test for Determination of Noncombustibility in Building Materials
-

Documents Published by ULC Standards
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E-mail: publications@ulc.ca
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- CAN/ULC-S102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies
- CAN/ULC-S646-10, Standard for Exhaust Hoods And Related Controls for Commercial and Institutional Kitchens

3. GLOSSARY

Note: Terms used in this Standard that are in *italic* print are defined as follows:

COMBUSTIBLE MATERIAL — A material that fails to meet the acceptance criteria of CAN/ULC-S114, Standard Method of Test for Determination of Noncombustibility in Building Materials.

NONCOMBUSTIBLE MATERIAL — A material that meets the acceptance criteria of CAN/ULC-S114, Standard Method of Test for Determination of Noncombustibility in Building Materials.

WOOD-FIRED OVEN — A factory- or field-assembled oven intended to cook products utilizing solid wood fuels only.

4. GENERAL

4.1 COMPONENTS

4.1.1 Except as indicated in Clause 4.1.2, a component of a product covered by this outline shall comply with the requirements for that component.

4.1.2 A component is not required to comply with a specific requirement that:

- A Involves a feature or characteristic not in the application of the component in the product covered by this outline; or
- B Is superseded by a requirement in this outline.

4.1.3 A component shall be used in accordance with its rating established for the intended conditions of use.

4.1.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

4.2 UNITS OF MEASUREMENT

4.2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

4.2.2 Unless otherwise indicated, all voltage and current values mentioned in this outline are root-mean-square (rms)

4.3 UNDATED REFERENCES

4.3.1 Any undated reference to a code or standard appearing in the requirements of this outline shall be interpreted as referring to the latest edition of that code or standard.

4.4 TERMINOLOGY

4.4.1 Use of the term “product” in these requirements refers to all *wood-fired ovens* or any part thereof covered by these requirements unless specifically noted otherwise.

5. INSTALLATION AND OPERATING INSTRUCTIONS

5.1 GENERAL

5.1.1 The installation and operating instructions may be either in a single or separate manual, and shall be packaged with an essential part of the product (for example, the *wood-fired oven* floor).

5.1.2 The instructions may be numbered. In the list of items the first shall be “READ ALL INSTRUCTIONS BEFORE INSTALLING AND USING THE APPLIANCE”, and the last shall be “SAVE THESE INSTRUCTIONS”. When separate installation and operating manuals are provided, these statements shall appear in both manuals.

5.1.3 The instructions shall make reference to the manufacturer's or private labeler's catalog designations, or the equivalent, of the *wood-fired oven* and related parts, and shall include the manufacturer's or private labeler's name and address. All specified WARNING and CAUTION statements in this section shall be in bold face uppercase letters.

5.1.4 To verify the viability of the instructions, the *wood-fired oven* is to be trial-installed during the investigation as described in the instructions to determine that the installation is feasible, that the instructions are adequate for detailed and accurate installation, and that the intended use of the product does not introduce a risk of fire or injury to persons.

5.1.5 The installation and operating instructions required to be provided with the product shall be furnished with the sample submitted for investigation and shall be used as a guide in the examination and tests of the *wood-fired oven*. The instructions need not be in final printed form for the investigation.

5.2 INSTALLATION INSTRUCTIONS

5.2.1 Installation instructions shall be illustrated and include directions and information necessary to complete the intended installation of the product.

5.2.2 The installation instructions shall include particular details concerning:

- A Illustrations, directions, and information necessary to complete the intended installation of the *wood-fired oven* and related parts;
- B The parts required and the step-by-step procedure for installing the *wood-fired oven* including methods of supporting the *wood-fired oven*, maintaining required clearances to walls and ceiling, and providing for wood storage;
- C The method of joining two or more parts to constitute the intended assembly, and the like;
- D The methods and parts to be used for maintaining ventilation and air circulation where required;
- E The following statement in minimum 6.4 mm (0.25 in) high boldface uppercase letters, shall be included on the cover page of the installation and maintenance instructions "A MAJOR CAUSE OF OVEN-RELATED FIRES IS FAILURE TO MAINTAIN REQUIRED CLEARANCES (AIR SPACES) TO COMBUSTIBLE MATERIALS. IT IS OF UTMOST IMPORTANCE THAT THIS OVEN BE INSTALLED ONLY IN ACCORDANCE WITH THESE INSTRUCTIONS.";
- F Installation of the exhaust hood in accordance with the National Building Code of Canada and the National Fire Code of Canada;
- G Limitations with regard to installation joining of two or more parts to constitute the intended assembly, and the required installation clearances (air spaces to *combustible materials* such as the walls and ceiling);
- H A warning against the placement of any type of insulation in the required clearance spaces surrounding the *wood-fired oven*;
- I The recommended method of *wood-fired oven* cleaning and the method of access for the inspection and cleaning of all sections of the *wood-fired oven*;
- J The minimum hearth extension areas to be covered with relationship to the door opening of the *wood-fired oven* for combustible floors. At least the following areas shall be specified;

- (i) 762 mm (30 in) to each side of the door opening.
- (ii) 914 mm (36 in) in front of the door opening.

K Shall contain the following statements:

- (i) The word “WARNING “ and “DO NOT PACK REQUIRED AIR SPACES WITH INSULATION OR OTHER MATERIALS”.
- (ii) “When this oven is not properly installed, a fire may result. To reduce the risk of fire, follow the installation instructions”.
- (iii) “Please read this entire manual before you install the oven. Failure to follow instructions may result in property damage, bodily injury, or even death”.

L When the curing of the refractory materials is not done as part of the manufacturing process, the manufacturers recommended curing process shall be specified;

M The method of sealing openings between *combustible materials* and the *wood-fired oven* shall be specified;

N Methods of and recommendations for wood storage shall be specified.

5.2.3 The installation instructions shall include a statement advising the installer to contact local building or fire officials concerning any installation restrictions or need for inspection of the *wood-fired oven* installation.

5.3 OPERATING INSTRUCTIONS

5.3.1 The operating instructions required for each *wood-fired oven* assembly are to be used as a guide during the examination and tests of the *wood-fired ovens*. The instructions need not be in final printed form for the investigation.

5.3.2 The operating instructions shall include particular details concerning:

- A Operation with doors, when doors are provided with the *wood-fired oven*. When the *wood-fired oven* has been tested with doors, the instructions shall include the manufacturer's specific part number for doors that may be used. When the *wood-fired oven* has not been tested with doors, the instructions shall include the word “WARNING” and the following or equivalent statement: “THIS OVEN HAS NOT BEEN TESTED FOR USE WITH DOORS. TO REDUCE THE RISK OF FIRE OR INJURY, DO NOT INSTALL DOORS”;
- B Operation with doors to include a diagram and the word “WARNING” and the following or equivalent statement: “OVENS EQUIPPED WITH DOORS SHOULD BE OPERATED ONLY WITH THE DOORS FULLY OPENED OR DOORS FULLY CLOSED. WHEN DOORS ARE LEFT PARTLY OPEN, GAS AND FLAME MAY BE DRAWN OUT OF THE OVEN OPENING, CREATING THE RISK OF BOTH FIRE AND SMOKE”;

EXCEPTION: This warning may be omitted when gas and flame are determined not to be drawn out of the *wood-fired oven* when the doors are in any possible open position during the performance tests in this outline.

- C Instructions to the *wood-fired oven* operator shall refer to the exhaust hood manufacturer's recommendations for inspection, maintenance, and cleaning;

- D Reference to the formation and removal of creosote build-up in the *wood-fired oven* and exhaust hood with the following statement or the equivalent: "Creosote – Formation and need for removal. When wood is burned slowly, it produces tar and other organic vapors that combine with expelled moisture to form creosote. The creosote vapors condense in a relatively cool oven flue and exhaust hood of a slow burning fire. As a result, creosote residue accumulates on the flue lining and exhaust hood. When ignited, this creosote makes an extremely hot fire. The oven flue should be inspected at least twice a year to determine when creosote buildup has occurred. When creosote has accumulated, it should be removed to reduce risk of fire";
 - E Recommendations on building and maintaining the fire, and warnings against over-firing;
 - F Caution against the storage or use of flammable liquids, with the following statement or the equivalent: "Never use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid, or similar liquids to start or 'freshen up' a fire in this oven. Keep all such liquids well away from the oven when in use";
 - G Clearance in front of the *wood-fired oven* to *combustible materials*;
 - H Disposal of ashes, including the following statement or the equivalent: "Disposal of ashes – Ashes should be placed in a metal container with a tight-fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. When the ashes are disposed by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled";
 - I Reference to the use of grates, andirons, or other methods of supporting the fuel, when provided;
 - J Operation and use of manual damper controls, when provided;
 - K Operation and use of electrical assemblies;
 - L The use of fuels by including the following or equivalent statement: "Use Solid Wood Fuel Only";
 - M The use of non-specified products by including the following or equivalent statement: "Do not use products not specified for use with this oven."
- When the *wood-fired oven* has been investigated and determined to be acceptable for use with a specified product, the statement shall be modified as appropriate.
- N Reference to the use and service of the *wood-fired oven* temperature monitoring equipment specified in Subsection 6.1.9.

6. CONSTRUCTION

6.1 MATERIALS

6.1.1 A *wood-fired oven* part shall be made of noncombustible corrosion-resistant materials. Metals shall not be used in combinations at any location within the assembly that may cause galvanic action.

6.1.2 The minimum thickness of sheet metal including any coatings and of other materials shall comply with Table 1.