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STANDARD FOR FIREPLACE INSERTS

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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.

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.

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

- ASTM A525-93 Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

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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
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- CSA C22.2 No. 3, Electrical Features of Fuel-Burning Equipment
- CSA C22.2 NO. 113-M1984 (R1999), Fans and Ventilators

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- CAN/ULC-S635, Standard for Lining Systems for Existing Masonry or Factory-Built Chimneys and Vents
- CAN/ULC-S640, Standard for Lining Systems for New Masonry Chimneys

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STANDARD FOR FIREPLACE INSERTS

PREFACE

This is the Third Edition of the Standard for Space Heaters for use with Solid Fuels, ULC-S628.

This Edition of the Standard has been formally approved by the ULC Standards Committee on Factory-Built Fireplaces, Chimneys and Vents.

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 Third Edition ULC Standard was based on the Second Edition, and has been reaffirmed.

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.

The review and action to revise or reaffirm this Standard will not exceed 5 years from 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.

This Standard is intended to be used for conformity assessment.

1. SCOPE

1.1 These requirements cover prefabricated *fireplace inserts* for masonry fireplaces and appliances intended to be vented through the throat of a masonry fireplace. These appliances are designed for burning solid fuels such as wood and coal.

1.2 This Standard covers catalytic combustors utilized with *fireplace inserts*.

NOTE: Installation of *glass* doors to existing masonry fireplaces is not covered by this Standard.

2. GLOSSARY

NOTE: Terms used in this Standard that are in Italic print are defined as follows:

FIREPLACE INSERT - Any solid-fuel fired heat producing appliance intended for installation within, or partially within the fuel burning space of a masonry fireplace and which substantially closes off the fireplace opening.

GLASS - Any transparent or translucent material employed in the construction of a heat producing appliance or intended as an accessory or component of an accessory for such an appliance.

QUALIFIED PERSON - A person who has successfully completed a training program recognized by the regulatory authority and who is familiar with the use of the product and the risks associated with improper installation procedures.

3. GENERAL

3.1 A *fireplace insert* shall meet the requirements contained in Part A of this Standard.

3.2 A *fireplace insert* equipped with a catalytic combustor shall meet the requirements contained in Parts A and B of this Standard.

3.3 A *fireplace insert* shall be installed with a continuous chimney liner extending from the *fireplace insert* to the top of the chimney. A chimney liner shall be tested for conformance with Class 3 requirements of CAN/ULC-S635, Standard for Lining Systems for Existing Masonry or Factory-Built Chimneys and Vents, or CAN/ULC-S640, Standard for Lining Systems for New Masonry Chimneys.

4. ELECTRICAL FEATURES

4.1 The electrical features of *fireplace inserts* shall comply with CSA C22.2 No. 3, Electrical Features of Fuel-Burning Equipment.

4.2 Fans and motors driving the fans used to circulate air around or through a *fireplace insert* shall be guarded or enclosed in accordance with the requirements of CSA C22.2 No. 113, Fans and Ventilators.

PART A

5. ASSEMBLY

5.1 GENERAL

5.1.1 *Fireplace inserts* shall have a firechamber enclosed on all sides (including top and bottom) and shall be designed for the attachment of a chimney liner.

5.1.2 Each assembly shall include a complete set of installation and operating instructions in accordance with Section 7, Installation Instructions and Section 8, Operating Instructions.

5.1.3 The *fireplace insert* shall be designed to permit the inspection and cleaning of the chimney liner from below by normal means without the removal of the *fireplace insert*.

(Amendment No. 1, Dated May 1997, Revised Clause 5.1.3)

5.1.4 A *fireplace insert* and related parts shall be constructed and assembled to assure its strength, rigidity, and durability when tested in accordance with these requirements and to withstand damage during handling and erection.

5.1.5 A joint in metal surfaces of a fire chamber or flue gas passageway within the *fireplace insert* shall be gas-tight, as attained by being welded, lock-seamed, riveted, or bolted. A joint shall not depend primarily on cement for tightness.

5.1.6 Each part or assembly shall be constructed for ready attachment of one to the other without requiring alteration, cutting, threading, drilling, welding, or similar operation by the installer; except that a special assembly or part designed to be cut to length or to fit by the installer may be provided if means are furnished for readily joining any altered part to a companion part or assembly.

5.1.7 Except for fire chamber materials, insulating materials shall be an integral part of the assembly if required to protect combustible parts of the building when the *fireplace insert* is installed in accordance with the manufacturer's instructions.

5.1.8 Two or more parts or subassemblies which must bear a definite relationship to each other shall be arranged and constructed to permit them to be incorporated into the complete assembly without need for alteration; or such parts or subassemblies shall be assembled and shipped from the factory as one element.

5.1.9 Excluding options, parts of a *fireplace insert* that are necessary to obtain safe temperatures on adjacent construction, shall be factory-attached or shipped with the *fireplace insert*.

5.1.10 A *fireplace insert* shall be shipped with any special parts for the connection to a chimney liner.

5.1.11 A metal tag including the following wording in English and French shall be provided with each *fireplace insert*:

> "This fireplace has been altered to accommodate a *fireplace insert* and should be inspected by a *qualified person* prior to re-use as a conventional fireplace."

The tag shall be in characters not less than 5 mm high.

5.1.12 The *fireplace insert* shall have no edges, corners, or projections presenting a cut or puncture hazard.

5.1.13 Glass components shall not be rigidly mounted. Allowance for differential expansion and distortion shall be provided. The design of frames with not less than 3 mm total edge clearance or the use of heat-resistant resilient mountings providing at least such clearances shall be considered as meeting this requirement.

5.2 FLUE GAS DAMPERS

5.2.1 Flue gas outlet dampers operated through linkage or other mechanisms shall be constructed so that breakage of a part will not cause the damper to partially close or completely close.

5.3 FLUE COLLAR

5.3.1 Flue collars which may be recessed shall be made of material not lighter than that required for the fire chamber. A collar shall permit the secure attachment of the chimney liner. Unless the chimney liner is supplied with the appliance, the collar shall be sized to accept a trade-size chimney liner.

5.4 RADIATION SHIELDS AND BAFFLES

5.4.1 A radiation shield or a baffle shall be constructed, formed and supported so as to assure proper positioning and to prevent distortion or sagging when tested in accordance with these requirements.

5.5 THERMOSTATIC CONTROL

5.5.1 A thermostatically controlled combustion-air inlet damper shall be so constructed that failure of a part will result in closure of the damper.

5.6 GRATES

5.6.1 A *fireplace insert* intended to burn coal shall incorporate either an integral or detachable grate designed for the burning of coal.

5.7 DOORS AND SCREENS

5.7.1 All doors or removable screens incorporating glass components shall be provided with means to ensure that:

A The screen remains in place during normal operation and cannot be easily displaced by dislodged fuel;

B The screen fits completely over the fire viewing opening.

6. MATERIALS

6.1 The minimum thickness of metal, including coatings, where shown shall, unless otherwise specified, be as follows:

Aluminum-alloysheets	0.40 mm
Unprotected-steel sheets	1.00 mm
Painted or porcelain-enamelled steel sheets	0.80 mm
Cast Iron	3.20 mm
Galvanized-steel sheets not less than G60 coating class in accordance with ASTM A525	0.49 mm
Aluminum-coated steel sheets (not less than 120 g of aluminum per square metre)	0.49 mm
Stainless-steel sheets	0.30 mm

6.2 Aluminum alloys containing more than 1% magnesium shall not be used if the reflectivity of the material is employed to reduce a fire hazard.

6.3 The fire chamber of the *fireplace insert* and other parts in contact with flue gases shall be of low carbon steel or other material having a higher temperature rating provided the temperature attained by the material when tested in accordance with Section 9 does not exceed the values in Table 1.

6.4 Thermal insulation material shall be of a metal or mineral base.

6.5 Thermal insulation, as employed, shall comply with the following conditions when the *fireplace insert* is tested in accordance with these requirements:

A The products resulting from the combustion or volatilization of any combustible binder shall be discharged to the chimney;

B The insulation material shall remain in its intended position;

C The thermal conductivity of the insulation material shall not be increased; and

D The thermal insulation shall not show evidence of softening, melting, or other evidence of failure.

6.6 Thermal insulation other than refractory, shall be protected against contact with the products of combustion.

6.7 Ceramic fibre materials which are likely to be exposed to temperatures in excess of 815°C shall be encapsulated to prevent contact during normal use and maintenance to reduce the risk of the migration of carcinogenic fibres.

(Amendment No. 1, Dated May 1997, Added New Clause 6.7 and Renumbered Clauses from hereon)

6.8 Thermal insulation which is not self-supporting shall be applied to solid surfaces in a manner to prevent sagging. An adhesive or cement for attaching such material shall retain its adhesive qualities at any temperature the adhesive may attain when tested in accordance with these requirements and at -40°C.

6.9 A water-absorbing insulation material shall not become wetted by condensation or rain when installed as intended if such wetting will depreciate its durability or insulating value.

6.10 Glass components shall be formed from fully tempered soda-lime *glass*, heat-resistant *glass*, or other materials having heat-resistant properties suitable for their application. The temperatures of the outer surface of *glass* components shall not exceed the design limits for the materials used. (See Table 1.)

7. INSTALLATION INSTRUCTIONS

7.1 Complete installation instructions in English and French shall be provided by the manufacturer.

7.2 The instructions shall be illustrated where required and shall include such directions and information for proper and safe installation, maintenance, and operation.

7.3 The instructions shall require the installer to attach the metal tag as required by Clause 5.1.11 using screws or nails to the fireplace, in a location readily visible should the *fireplace insert* be removed, if the fireplace has been modified to accommodate a *fireplace insert*.

7.4 The instructions shall include particular details concerning:

A The types, construction requirements and size limitations of the fireplaces into which the *fireplace insert* may be installed, including a warning against removal of bricks and mortar from the existing fireplace;

EXCEPTION: Masonry or steel, including the damper plate, may be removed from the smoke shelf and adjacent damper frame if necessary to accommodate a chimney liner, provided that their removal will not weaken the structure of the fireplace and chimney, and will not reduce protection for combustible materials to less than that required by the National Building Code.