

FOR REVIEW AND COMMENT ONLY

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Proposed Revisions to

AMERICAN NATIONAL STANDARD/CSA STANDARD FOR VENTED GAS FIREPLACES

Note: The following draft revisions were adopted by the Z21/CSA Joint Technical Advisory Group at its December 13, 2011 meeting for distribution for review and comment. These revisions are based on the American National Standard/CSA Standard for Vented Gas Fireplaces, Z21.50-2007/CSA 2.22-2007; Addenda “a” Z21.50a-2008/CSA 2.22a-2008; Addenda “b” Z21.50b-2009/CSA 2.22b-2009 plus those revisions awaiting approval by the Z21/83 Technical Committee and the CSA Technical Committee.

Once approved, these revisions will constitute the “a” addenda of the sixth edition of the standard.

Additions are “redlined” (shaded) and “strike-out” is used to show deletions (e.g., ~~proposed deletion~~).

Editorial corrections, such as commas, any misspelling, spacing, etc., will be made during the CSA America editorial review. Editorial review will take place following this Review and Comment distribution. Accordingly, those making comment have the option to comment on or ignore such editorial changes when submitting comments on these proposed standard revisions.

Part 1: Construction

1.2 General Construction and Assembly

1.2.23 (new)

An appliance design having an outside glass viewing area temperature that exceeds 172 °F (78 °C) as measured in section 2.14.4, shall be provided with a barrier for the appliance glass viewing area.

The barrier shall be constructed to maintain a fixed relationship between essential parts under normal and reasonable conditions of handling and usage.

RATIONALE: *The temperature limit of the outside glass viewing area is based on American National Standard For Household Cooking Gas Appliances, Z21.1, Table XII, Maximum Surface Temperature. The barrier is designed to mitigate burn hazards from the glass viewing area of a gas fireplace for example when young children or other persons at risk may be present.*

A broad scope of residential and commercial applications was considered during development of revisions to the standard.

Applies existing requirement under 1.2.3 in American National Standard/CSA Standard For Vented Gas Fireplace Heaters, Z21.88/CSA 2.33, to a new device.

1.28 Instructions

1.28.1

Each appliance shall be accompanied by clear, concise printed instructions and diagrams adequate for proper field assembly, installation, maintenance, safe use and operation.


The front cover or, in the absence of a cover, the first page shall bear the following statements. They shall be boxed as shown:

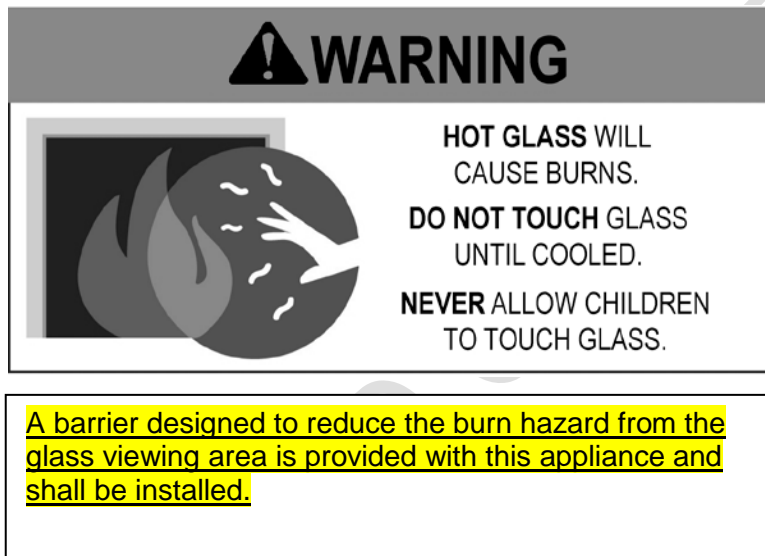
(First Boxed Warning, unchanged.)

For a glass fronted gas appliance where the temperature of the glass viewing area outside surface exceeds ~~95°F (53°C) above room temperature when measured in accordance with 2.13, Glass Fronts,~~ the limits specified in 2.14.4, the following graphic warning and statement shall be shown.

RATIONALE: *The temperature limit of the outside glass viewing area is based on Z21.1, Table XII. The use of Table XII is more specific than simply stating 95°F above room temperature by specifying room temperature variation.*

The Warning letter-type shall be a sans-serif font with a minimum letter height of the following:

1. The symbol and word, “  WARNING,” shall be boldfaced type having a minimum uppercase letter height of 0.498 in (12.65 mm)**; and
2. The words, as shown above, in the boxed statement shall be boldfaced type having a minimum uppercase letter height of 0.120 in (3.05 mm). The minimum vertical spacing between lines of type shall be 0.046 in (1.17 mm).* Lower case letters shall be compatible with the uppercase letter size specifications.



* This letter height and line spacing measurements correspond to 12-point type.

RATIONALE: To further inform the consumer of the availability of a barrier in the most prominent place in the instruction manual.

These instructions shall include:

(Remainder of text, unchanged.)

1.28.2

The printed instructions accompanying the appliance shall also include the following minimum information presented in a readily obvious and prominent manner, such as by being underlined, encircled, or printed in larger or different color type:

- a. “Due to high temperatures, the appliance should be located out of traffic and away from furniture and draperies.”

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- b. "Children and adults should be alerted to the hazards of high surface temperature and should stay away to avoid burns or clothing ignition."
- c. "Young children should be carefully supervised when they are in the same room as the appliance. Toddlers, young children and others may be susceptible to accidental contact burns. A physical barrier is recommended if there are at risk individuals in the house. To restrict access to a fireplace or stove, install an adjustable safety gate to keep toddlers, young children and other at risk individuals out of the room and away from hot surfaces."
- d. For appliances requiring a barrier, as determined under section 2.14.4,
"A barrier designed to reduce the burn hazard from the glass viewing area is provided with this appliance and shall be installed."
- e. "If the barrier becomes damaged, the barrier shall be replaced with the manufacturer's barrier for this appliance."
- f. "Clothing or other flammable material should not be placed on or near the appliance."
- g. "Any safety screen, guard, or barrier removed for servicing the appliance, must be replaced prior to operating the appliance." (see 1.2.4).
- h. "Installation and repair should be done by a qualified service person. The appliance should be inspected before use and at least annually by a professional service person. More frequent cleaning may be required due to excessive lint from carpeting, bedding material, et cetera. It is imperative that control compartments, burners and circulating air passageways of the appliance be kept clean."
- i. The instructions for an appliance optionally for use with glass doors (or equivalent) shall state that, "Only doors certified with the appliance shall be used."
- j. The instructions for an appliance not intended for use with glass doors (or equivalent) shall emphasize that the appliance is not for use with glass doors.
- k. Where applicable, provide a means by which the consumer can identify the barrier, (such as graphic representation, clear description or reference marking).

RATIONALE: *To inform the consumer in a prominent place in the instruction manual that a barrier is provided with for units with glass temperatures exceeding 172°F and to*

make notification that a damaged barrier needs to be replaced and to provide means to identify the barrier.

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1.29 Markings

1.29.2

RATING PLATE(S). Each appliance shall bear a plate, or a combination of plates in proximity, of Class IIIA marking material located so as to be easily read when the appliance is in a normally installed position. A rating plate(s) applied to the inner surface of a control compartment door is considered acceptable. The following information shall appear on the plate(s):

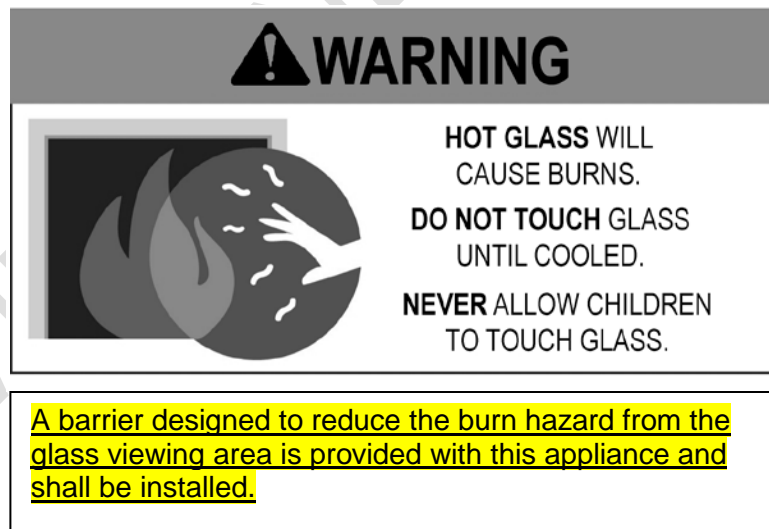
(Present “a” through “t,” unchanged.)

u. Where applicable, “For use only with barrier(s) Part No(s). . Follow installation instructions.”


RATIONALE: The appliance always carries a reference to its specific barrier so it is available to the consumer.

1.29.6

INSTRUCTION PLATE. For a glass fronted gas appliance where the temperature of the glass viewing area outside surface exceeds 172°F (78°C) when measured in accordance with 2.14.4 the following graphic warning and statements shall be shown on a Class IIIA-2 Permanent Label.



The Warning letter-type shall be a sans-serif font with a minimum letter height of the following:

The symbol and word, “  WARNING,” shall be boldfaced type having a minimum uppercase letter height of 0.498 in (12.65 mm)**; and

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The words, as shown above, in the boxed statement shall be boldfaced type having a minimum uppercase letter height of 0.120 in (3.05 mm). The minimum vertical spacing between lines of type shall be 0.046 in (1.17 mm).* Lower case letters shall be compatible with the uppercase letter size specifications.

* This letter height and line spacing measurements correspond to 12-point type.

RATIONALE: To further inform the consumer of the availability of a barrier in a prominent place on the appliance.

Part II. Performance

2.13 Glass Fronts

2.13.2 (NEW)

Where the outside temperature of the glass viewing area surface exceeds the temperature of 172°F (78°C)*installed according to 2.23, Wall, Floor and Ceiling Temperatures, and operated to equilibrium, a provided barrier shall comply with burn hazard limits under 2.15, Burn Hazard Potential.

Method of Test

Evaluation of temperature criteria shall be performed using the outside temperatures of the glass viewing area surface as determined in 2.14.1.

* The maximum temperatures specified are based on a 77°F (25°C) room temperature. When the room temperature is other than 77°F (25°C) the allowable temperatures shall be increased or decreased 1 degree for each 1 degree of room temperature greater or less than 77°F (25°C), within a range of 70-80 degrees F.

RATIONALE: Manufacturers shall provide a barrier to cover the glass viewing area surface on gas fireplaces where high glass temperatures exist. A barrier covering the glass viewing area surface will reduce the risk of injury.

The Method of Test provides a uniform performance-based method to determine the burn hazard protection of the barrier.

Rationale is based on the Standard For Household Cooking Gas Appliances, ANSI Z21.1 Table XII, Maximum Surface Temperature. It was decided to use the ambient temperatures of the Z21.88/CSA 2.33 standard since the 70°F-80°F range is a subset of the 68°F-86°F range of the Z21.1 standard and therefore more conservative.

2.14 Barrier Burn Hazard Potential (Other Than A Glass Barrier) (NEW)

2.14.1

A barrier, which is intended to prevent direct contact with the glass viewing area surface by the accessibility probe shown in Figure 17, Accessibility Probe, shall be designed to prevent contact with the glass viewing area surface having temperatures in excess of 172°F (78°C)*.

Method of Test

The probe shall be applied: 1) with a force of 2.5 lb (11.1 N); and (2) in any possible configuration and to any depth that the size of an opening will permit. The probe shall be rotated or angled to any possible position before, during or after insertion through the opening. If necessary, the configuration shall be changed after the probe has been inserted through the opening.

Any glass surface the accessibility probe can contact with the barrier in place shall be measured according to section 2.14.1 to verify the glass surface temperature does not exceed 172°F (78°C)*. Removal of barrier may be required for measuring temperature.

* The maximum temperatures specified are based on a 77°F (25°C) room temperature. When the room temperature is other than 77°F (25°C) the allowable temperatures shall be increased or decreased 1 degree for each 1 degree of room temperature greater or less than 77°F (25°C), within a range of 70-80 degrees F.

RATIONALE: The articulating finger accessibility probe is considered the most suitable instrument to evaluate the barrier for adequately preventing access to glass surfaces that present a burn hazard.

This coverage was taken from Exhibit C, Items Unique to the United States, C.1.13, in ANSI Z21.88/CSA 2.33.

Rationale is based on the Standard For Household Cooking Gas Appliances, ANSI Z21.1 Table XII, Maximum Surface Temperature. It was decided to use the ambient temperatures of the Z21.88/CSA 2.33 standard since the 70°F-80°F range is a subset of the 68°F-86°F range of the Z21.1 standard and therefore more conservative.

2.14.2

A barrier shall be tested with the appliance in accordance with the Method of Test shown below.

Method of Test

An appliance with the barrier installed according to the manufacturer's instructions shall be installed according to 2.24, Wall, Floor and Ceiling Temperatures, and operated until

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equilibrium is attained. The framework of the barrier that is not over the glass viewing area surface shall comply with the temperature requirements under section 2.26.1-a and -b, *Surface Temperatures*.

Using a thermal imaging camera, thermocouple array, or other temperature sensing device, find the hottest point(s) for each different thermal mass on the barrier. The outside surface of the barrier at the hottest point(s) identified above shall be measured using a Thermesthesiometer,* or the prescribed Calculational Procedure, Method A, in the *ASTM Practice for Determination of Skin Contact Temperature from Heated Surfaces Using a Mathematical Model and Thermesthesiometer, ASTM C1057*.

Place the Thermesthesiometer on the hottest point(s) applying 10 lb (44.48 N) force. Record the Thermesthesiometer's output temperature at 5 seconds. The highest Thermesthesiometer reading shall be recorded.

The barrier passes this test if the Thermesthesiometer reading at 5 seconds does not exceed Threshold B as per ASTM C1055 formula 4.2.3T_B that equals 58°C** (137°F) where T_B is the critical contact temperature for reversible epidermal injury, °C. (See *Figure 1, Temperature-Time Relationship for Burns, in ASTM C1055*)

* See *National Bureau of Standards Technical Note 816 - Engineering and Construction Manual for an Instrument to Make Burn Hazard Measurements in Consumer Products*

**NOTE: The temperature under 2.15.2 is not to be considered a surface temperature, it is the reading from the Thermesthesiometer or the mathematical method in ASTM C1057.

RATIONALE: *The ASTM Standards cited comprise a comprehensive available methodology that includes criteria for passing or failing based on skin contact with a heated surface that takes into account a broad scope of tissue and material thermodynamic and physical properties, as well as the relationship between time of contact and scientifically derived empirical value in the determination of burn hazard potential.*

(Present 2.14, Impact Test of Glass Materials, through 2.39, Marking Material Adhesion And Legibility, become 2.15 through 2.40 respectively, unchanged.)

Part IV. Definitions

Barrier: A physical element that is intended to limit exposure to burn hazards from contact with the glass viewing area surface.

Glass Viewing Area Surface: The outermost surface of exposed glass.

Threshold B: Critical contact skin temperature limit for reversible epidermal injury. As defined in *ASTM Guide for Heated System Surface Conditions that Produce Contact Burn Injuries, ASTM C1055*.

Thermesthesiometer: An instrument constructed in accordance with the National Bureau of Standards Technical Note 816 - Engineering and Construction Manual for an Instrument to Make Burn Hazard Measurements in Consumer Products. As defined in *ASTM Practice for Determination of Skin Contact Temperature from Heated Surfaces Using a Mathematical Model and Thermesthesiometer, ASTM C1057*.

RATIONALE: Definitions are included for aspects of the new proposed coverage.

Notice

The Z21/83 Technical Committee is responsible for the development of standards for gas-burning appliances and accessories. Proposed Z21/Z83/LC/CSA standards and standards revisions are initially distributed for review and comment, and following consideration of the comments received, are then acted on by the Z21/83 Technical Committee for submittal to the American National Standards Institute (ANSI). Proposed standards and standards revisions submitted to ANSI undergo a 45-day public review period which is announced as a "Call for Comment" in ANSI's Standards Action, published biweekly at <http://web.ansi.org/standardsaction/default.htm>. Following the public review period, the ANSI Board of Standards Review (BSR) reviews the comments and the responses, and acts on approval of the proposed Z21/Z83/LC/CSA standard.

Any concerned party may appeal any action or inaction of the Z21/83 Technical Committee and the BSR. Appeals on such matters prior to submittal of a proposed standard to ANSI for approval should be directed, in writing, to CSA America, Inc., Standards Division, 8501 East Pleasant Valley Road, Cleveland, Ohio 44131, and the appealing party will be advised as to the appeal procedure. Appeals on such matters after submittal of a proposed standard to ANSI for approval should be directed to the Chairman of the BSR, American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036, and ANSI will advise the appealing party as to the appeal procedure.

Those interested in reviewing and/or commenting on proposed standards during the ANSI public review period should obtain copies of the ANSI Reporter from ANSI at the above address.