

## STANDARD INFORMATION

**Standard Number:** ANSI Z83.7 / CSA 2.14  
**Standard Name:** Gas-Fired Construction Heaters  
**Standard Edition and Issue Date:** 3<sup>rd</sup> Edition Dated November 1, 2017  
**Date of Revision:** November 1, 2017  
**Date of Previous Revision of Standard:** 2<sup>nd</sup> Edition Revised January 1, 2016

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** **April 1, 2019**

## IMPACT, OVERVIEW, AND ACTION REQUIRED

**Impact Statement:** A review of all Listing Reports is necessary to determine which products comply with new/revise requirements and which products will require re-evaluation. **NOTE:** Effective immediately, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revise requirements.

### Overview of Changes:

- New requirements for universal construction heaters
- New requirements for instructions
- New requirements for heaters intended for operation above 2000 feet
- New requirements for markings
- New requirements for the combustion test

Specific details of new/revise requirements are found in table below.

**If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).**

### Client Action Required:

**Information** – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revise paragraphs noted in the attached or explain why these new/revise requirements do not apply to your product (s).

***Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.***




## STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		<i>Additions to existing requirements are underlined and deletions are shown lined out below.</i>
1	Info	<b>Scope</b>
1.2		The clause was revised to allow connection to ducts. The wording “supplied by the manufacturer” was struck since the duct system may not be provided with the construction heater. When the ductwork is not supplied with the heater the manufacturer must specify the maximum static pressure in the duct.
1.3		The scope of the standard has been expanded to encompass ground thawing equipment.
1.4		The scope of the standard has been expanded to encompass universal fuel construction heaters which may be operated on either natural or propane gas incorporating a switching means without the use of special tools or additional parts for selecting the type of fuel being used.
4	Info	<b>Construction</b>
4.1	Info	<b>General</b>
		Heaters equipped with a tip-over shutoff device shall not tip over when set in any normal operating position on a surface inclined 15 degrees (0.26 rad) from a horizontal plane.
4.1.7		<u>A tank mounted heater shall be tested with a full cylinder and then with an empty cylinder in place.</u>
		The tip-over shutoff device shall function to cause complete shutoff of all gas to the heater within 5 seconds after the heater is fully tipped over from any direction on a level surface. A manual reset function shall be required to restart the heater.
4.18		<b><i>New section added;</i></b>
		<b>Universal construction heaters</b>
4.18.1		The use of special tools or additional components shall not be necessary to switch a universal heater from one tested fuel to another.
4.18.2		The switching means shall consist of a one-step single action process, such as the repositioning of a valve handle, when selecting the appropriate fuel gas for which the appliance is intended to use once installed. Additional adjustment of the heater, such as manifold pressure adjustment, shall not be permitted to achieve proper operation on either fuel.





CLAUSE	VERDICT	COMMENT
4.18.3		<p>Prior to modification, a manual valve that has been modified as the switching means on a universal heater shall comply with the requirements of Clause 4.9, Manual gas valves.</p> <p>After modification, the valve shall comply with the body leakage test in the Standard for Manually operated gas valves and hose end valves, ANSI Z21.15 • CSA 9.1.</p>
4.18.4		A universal heater shall be provided with instructions detailing the method of switching from one fuel to another. (See Clause 4.20.3.)
4.18.5		A universal heater shall be marked to indicate the fuel (e.g., “N” for natural gas and “P” for propane gas) for the positions of the switching means to achieve proper operation on each fuel. (See Clause 4.20.18.)
4.18.6		<p>The switching means shall not:</p> <ul style="list-style-type: none"> <li>a) allow the mixing of gases on a continuous basis when an appliance is capable of being connected to both a natural gas supply and a propane gas supply;</li> <li>b) be located or constructed so it will not be subject to an accidental change of setting; and</li> <li>c) impose gas pressure from the gas supply having the higher gas pressure on the gas from the gas supply having the lower gas pressure such as to cause rupture or venting.</li> </ul>
4.19	Info	<b>Instructions</b>
4.19.1		<p>Each heater shall be accompanied by clear, concise printed instructions and diagrams, stated in terms clearly understandable to an operator, adequate for proper field assembly, maintenance, safe use, and operation.</p> <p>The safety-related items included in the instructions shall be prominently displayed and shall precede the instructions concerning the functional use of the heater.</p> <p>The instructions shall be marked with directions to the operator to retain them for future reference.</p> <p>The instructions shall be reviewed by the testing agency for comprehensibility, accuracy, and compatibility with results of test.</p> <p><u>Instructions shall bear the symbol of the organization conducting tests for compliance with this Standard.</u></p> <p>Either the front cover or the first page of the instructions shall bear the following boxed warnings. The letters used for the boxed warning 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). * Lowercase letters shall be compatible with the uppercase letter size specification.</p> <p>* This letter height and line spacing correspond to 12-point type.</p>



CLAUSE	VERDICT	COMMENT
		<p><i>New clause added;</i></p> <p>a statement stressing the need for adequate ventilation;</p> <div style="text-align: center;"><b>WARNING</b> <b>Air Quality Hazard</b></div> <ul style="list-style-type: none"><li>• Do not use this heater for heating human living quarters.</li><li>• Use of direct-fired heaters in the construction environment can result in exposure to levels of CO, CO<sub>2</sub>, and NO<sub>2</sub> considered to be hazardous to health and potentially life threatening.</li><li>• Do not use in unventilated areas</li><li>• Know the signs of CO and CO<sub>2</sub> poisoning<ul style="list-style-type: none"><li>• Headaches, stinging eyes</li><li>• Dizziness, disorientation</li><li>• Difficulty breathing, feels of being suffocated</li></ul></li><li>• Proper ventilation air exchange (OSHA 29 CFR 1926.57) to support combustion and maintain acceptable air quality shall be provided in accordance with OSHA 29 CFR Part 1926.154, ANSI A10.10 Safety Requirements for Temporary and Portable Space Heating Devices and Equipment used in the Construction Industry or the Natural Gas and Propane Installation Codes CSA B149.1<ul style="list-style-type: none"><li>• Periodically monitor levels of CO, CO<sub>2</sub> and NO<sub>2</sub> existing at the construction site – at the minimum at the start of the shift and after 4 hours.</li><li>• Provide ventilation air exchange, either natural or mechanical, as required to maintain acceptable indoor air quality</li></ul></li></ul> <hr/> <p>for addressing derating at altitudes above 2000 ft (610 m), the instructions shall indicate one of the following:</p> <ul style="list-style-type: none"><li>i) installation of this appliance at altitudes above 2000 ft (610 m) shall be in accordance with local codes, or in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1/NFPA 54, or National Standard of Canada, Natural Gas and Propane Installation Code, CSA B149.1.</li><li>ii) for appliances requiring modifications other than only gas orifice and/or manifold pressure adjustment for installation at high altitude, “Installation of this appliance at altitudes above 2000 ft (610 m) shall be made in accordance with the Listed High Altitude Conversion Kit available with this appliance.” See Annex C.</li><li>iii) for appliances requiring only gas orifice and/or manifold pressure adjustment for installation at high altitude, the appliance installation instructions shall provide adequate details on proper adjustments for various altitudes. See Annex C.</li><li>iv) if the appliance has been derated by the manufacturer, no additional derate is required. The appliance shall be marked for the altitude the appliance shall be operated at.</li></ul>
4.19.1 c		
4.19.1 u		



CLAUSE	VERDICT	COMMENT
4.19.2		<p>In addition to the applicable requirements of Clause 4.19.1, the following boxed warnings shall also be included:</p> <p><b><i>New picture added;</i></b></p> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p> <b>WARNING: FIRE, BURN, INHALATION, AND EXPLOSION HAZARD. DO NOT PLACE OVER COMBUSTIBLE MATERIALS SUCH AS BUILDING MATERIALS, WOOD, PAPER OR CARDBOARD OR MATERIALS SUBJECT TO DISINTEGRATION DUE TO EXPANSION, SUCH AS CONCRETE.</b></p> <p> <b>WARNING: FOR OUTDOOR USE ONLY.</b></p> </div>
4.19.3		<p><b><i>New clause added;</i></b></p> <p>The instructions for a universal heater shall provide detailed procedures for switching from one fuel to another. These instructions shall include the following:</p> <p>a) pictorial references to the switching means, such as a manual valve handle.  b) a statement that the heater has been shipped from the factory equipped for operation on propane gas.</p>
4.20	Info	<b>Marking</b>
4.20.2		<p>Rating Plate. Heaters shall bear a rating plate of Class IIIA marking material located where it can be easily read when the appliance is in a normal operating position, on which shall appear the following:</p> <p>a) the manufacturer's or distributor's name and location;  b) the manufacturer's or distributor's model designation of the heater;  c) a distinctive number that will identify an individual appliance or production lot;  <u>d) the manufacturer's maximum BTU/h (W) input rating and manifold pressure in appropriate units for heaters having multi-rate or modulating controls;</u>  <u>e) the manufacturer's normal BTU/h (W) input rating and manifold pressure in appropriate units for fixed input heaters;</u>  f) the manufacturer's minimum BTU/h (W) input rating for heaters having multi-rate or modulating controls;  g) the type of gas(es) for which equipped: natural or propane. This information may appear as a separate Class IIIA marking adjacent to the rating plate;  h) the maximum and the minimum gas supply pressures acceptable at the gas connection for the heater. oth pressures shall be compatible with the provisions of the standard with which the gas pressure regulator complies. The minimum pressure also shall be adequate to incur the pressure drop imposed by the valve train and provide the burner manifold pressure specified in compliance with "-d",</p>



CLAUSE	VERDICT	COMMENT
		<p>above;</p> <p>i) identification of this Standard by indicating the edition of the standard, with the following marking: “ANS Z83.7 • CSA 2.14(year) Construction Heater.”;</p> <p>j) the symbol of the organization making the tests for compliance with this Standard;</p> <p><u>k) the total hourly BTU input rating. An appliance having individually controlled main burners shall also be marked to show each individually controlled burner input. For an appliance listed for operation at altitudes over 2000 ft (610 m), the marking shall include the derated input(s) for high altitude(s) (e.g., At elevations above 2000 ft (610 m), derate the input X percent per 1000 ft (305 m) above sea level.).</u></p> <p><u>“For installation above 2000 ft (610 m), see the high-altitude rating plate.”; and</u></p> <p><u>l) minimum hourly BTU input rating for a construction heater for automatic operation at ratings less than full input rating. For an appliance listed for operation at altitudes over 2000 ft (610 m), the marking shall include the derated minimum input rating(s) for high altitude(s) [e.g., At elevations above 2000 ft (610 m), derate the minimum input X percent per 1000 ft (305 m) above sea level.].</u></p> <p><u>“For installation above 2000 ft (610 m), see the high-altitude rating plate inside appliance.”</u></p>
		<p><b><i>New clause added;</i></b></p> <p>On an appliance of such design that space does not permit proper location of these markings, they may be furnished on a metal tag or a Class IIIA-3 permanent tag attached to the appliance in accordance with the following:</p> <p>a) flexible type fasteners shall be permanently secured by tamper resistant mechanical means such as one way screws, rivets, etc., to the marking plate or tag and to a part of the appliance that is not removed for servicing;</p> <p>b) tags and their fastening systems shall not attach to a gas carrying component, unless the gas carrying components withstand the test outlined in Clause 5.16.2;</p> <p>c) tags and their fastening systems shall be capable of withstanding the pull test outlined in Clause 5.16.1;</p> <p>d) flexible type fasteners shall be made of materials suitable for the temperatures to which they are exposed during normal operation of the appliance; and</p> <p>e) tags secured to the appliances by a flexible type fastener shall have the statement, “Removal of this marking will void compliance of this appliance with ANSI Z83.7 • CSA 2.14.”</p>
		<p><b><i>New clause added;</i></b></p> <p>A heater for indoor use only shall bear a statement on Class IIIA marking material reading:</p> <p>“For indoor use only. Adequate ventilation shall be provided in accordance with OSHA 29 CFR 1926.154, Safety Requirements for Temporary and Portable Space</p>



CLAUSE	VERDICT	COMMENT
		<p>Heating Devices and Equipment, ANSI A10.10, National Fuel Gas Code, ANSI Z223.1/NFPA 54, Liquefied Petroleum Gas Code, NFPA 58 or the Natural Gas and Propane Installation Code, CAN B149.1, as appropriate. See instruction manual for more complete information.”</p> <p>A heater for either indoor or outdoor use without changes shall bear a statement on Class IIIA marking material reading: “For either indoor or outdoor use. Adequate ventilation shall be provided in accordance with OSHA 29 CFR 1926.154, Safety Requirements for Temporary and Portable Space Heating Devices and Equipment, ANSI A10.10, ANSI Z223.1/NFPA 54, Liquefied Petroleum Gas Code, NFPA 58 or the Natural Gas and Propane Installation Code, CAN B149.1 as appropriate. See instruction manual for more complete information.”</p> <p><b><i>New clause added;</i></b></p> <p><b>Ground thawing appliance</b>            In addition to the applicable requirements of Clause 4.20.4, a label of Class IIIC marking material shall be affixed to the appliance in a conspicuous location by the manufacturer. This label shall include the following boxed warnings:</p>
4.20.12		<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><b>⚠ WARNING: FIRE, BURN, INHALATION, AND EXPLOSION HAZARD. DO NOT PLACE OVER COMBUSTIBLE MATERIALS SUCH AS BUILDING MATERIALS, WOOD, PAPER OR CARDBOARD OR MATERIALS SUBJECT TO DISINTEGRATION DUE TO EXPANSION, SUCH AS CONCRETE.</b></p> <p><b>WARNING: FOR OUTDOOR USE ONLY.</b></p> </div>
		<p><b><i>New clause added;</i></b></p>
4.20.18		<p>Universal heaters shall be marked to indicate the proper fuel (e.g., “N” for natural gas and “P” for propane gas) for the positions of the switching means to achieve proper operation on the intended fuel.</p>
		<p><b><i>New clause added;</i></b></p>
4.20.19		<p>Universal heaters shall be provided with a marking on a Class IIIC marking material located near the switching means alerting the operator to verify that the switching means is in the proper position relative to the fuel being supplied to the heater.</p>
5	Info	<b>Performance</b>
		<p><b><i>New section added;</i></b></p>
5.16		<b>Permanently attached marking tags</b>



CLAUSE	VERDICT	COMMENT
5.16.1		<p>Tags and their fastening systems shall not become detached from the appliance when tested according to the following Method of Test.</p> <p><b>Method of Test</b></p> <p>The tag shall be preconditioned for 2 weeks at the test temperature determined in Clause 5.15(b). A 25 lb (11 kg) weight shall be securely attached to the marking tag in such a way that it does not interfere with the attachment of the marking to the fastening system. The appliance shall be securely supported above the floor a sufficient distance to allow the fastening system, marking tag, and attached weight to hang straight down without impact and without touching the floor for 60 seconds. The marking shall not become detached from the appliance.</p>
5.16.2		<p>Tags and their fastening systems which are attached to gas carrying components shall not cause damage or leakage to any of the appliance's gas carrying components when tested according to the following Method of Test.</p> <p><b>Method of Test</b></p> <p>A 50 lb (23 kg) weight shall be securely attached to the marking tag in such a way that it does not interfere with the attachment of the marking to the fastening system. The appliance shall be securely supported above the floor a sufficient distance to allow the fastening system, marking tag, and attached weight to hang straight down without impact and without touching the floor for 60 seconds. The marking may become detached from the appliance, but there shall be no evidence of damage or leakage to any of the appliance's gas carrying components.</p>
Annex A	Info	<b>Items unique to Canada</b>
A.5	Info	<b>Combustion</b>
A.5.2		<p>A heater shall not produce a concentration of carbon monoxide in excess of 0.02 percent <u>under the following Method of Test in an air-free sample of the combustion products when tested in an atmosphere having normal oxygen supply</u></p> <p><b>Method of Test</b></p> <p><u>Before each reading of heated discharge air, a reading of the incoming air shall be taken at the inlet of the heater. The difference in readings, between incoming and discharge air, shall be considered to be the parts per million of carbon monoxide added by the burner.</u></p> <p>The heater shall be operated in an atmosphere having approximately a normal oxygen supply until stabilized at each of the operating conditions specified in Table 6, Operating test conditions, and corresponding flue gas samples obtained. Combustion sample shall be an average of the measurements taken across the heater outlet. Fan equipped heaters shall also be tested under the air flow conditions specified in Clause 5.1.5.</p>
Annex B	Info	<b>Items unique to the United States</b>





CLAUSE	VERDICT	COMMENT
B.4	Info	<b>Combustion</b>  A heater shall not produce a concentration of carbon monoxide in excess of 0.08 percent <del>under the following Method of Test in an air-free sample of the combustion products when tested in an atmosphere having normal oxygen supply</del>  <b>Method of Test</b> <u>Before each reading of heated discharge air, a reading of the incoming air shall be taken at the inlet of the heater. The difference in readings, between incoming and discharge air, shall be considered to be the parts per million of carbon monoxide added by the burner.</u>  The heater shall be operated in an atmosphere having approximately a normal oxygen supply until stabilized at each of the operating conditions specified in Table 6, Operating test conditions, and corresponding flue gas samples obtained. Combustion sample shall be an average of the measurements taken across the heater outlet. Fan equipped heaters shall also be tested under the air flow conditions specified in Clause 5.1.5.
B.4.2		
CUSTOMERS PLEASE NOTE: This Table and column "Verdict" can be used in determining how your current or future production is or will be in compliance with new/revised requirements.		