STANDARDS UPDATE NOTICE (SUN)
ISSUED: November 19, 2025

STANDARD INFORMATION

Standard: CSA/ANSI Z83.7 / CSA 2.14
Standard ID: Gas-Fired Construction Heaters [CSA/ANSI Z83.7/CSA 2.14:2023 Ed.4]
Previous Standard ID:
Gas-Fired Construction Heaters [ANSI Z83.7:2017 Ed.3]
Gas-Fired Construction Heaters [CSA 2.14:2017 Ed.3]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **August 1, 2027**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

Overview of Changes:

- Addition of requirements for vents
- Addition of requirements for heat exchangers
- Addition of requirements for heater openings for indirect gas-fired construction heaters
- Addition of requirements for combustion air and ventilation
- Addition of requirements for draft hoods
- New tests for gas hoses and guards
- Addition of requirements for formula for calculation of input for construction heaters
- Addition of requirements for revisions for listed high-altitude conversion kits

Specific details of new/revised requirements are found in table below

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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
		Additions to existing requirements are <u>underlined</u> and deletions are shown ~~lined out~~ below.
4	info	**Construction**
4.1	Info	**General**
4.1.12		***New clause added;*** **Vent pipe sizing** If applicable, the pipe size of any required venting shall be specified by the heater manufacturer.
4.1.13		***New clause added;*** **Vent location** The heater venting system shall not be exposed to the suction (non-positive pressure side) or to the discharge (positive side) of the air-circulating blower.
4.1.14		***New clause added;*** **Vent and intake connections** If applicable, the heater shall be provided with secure means for attachment to the vent and air intake pipes. Connections shall be secured against distortion, warpage, or other damage and supported to maintain a fixed relationship between essential parts under normal and reasonable conditions of handling and usage.
4.1.15		***New clause added;*** **Flue connection** If applicable, a flue connection shall extend beyond the heater casing a sufficient distance to facilitate fastening of the vent pipe or draft hood. When a draft hood of other than the readily detachable type is employed, the construction shall be such as to provide a tight joint between the flue collar and the draft hood.
4.3	Info	**Thickness of materials for indirect gas-fired construction heaters**

CLAUSE	VERDICT	COMMENT
4.3.1		***New clause added;*** **Heat exchanger** When sheet metal is used in construction of the heat exchanger, the thickness shall be such as to provide strength, rigidity, durability, resistance to corrosion, and other physical properties equivalent to 0.0304 in (0.772 mm)–thick AISI C1010 hot rolled sheet steel. (For minimum thickness of certain other materials, see Table 1.)
4.5		***New clause added;*** **Joints in heat exchangers for indirect gas-fired construction heaters** The joints in a heat exchanger shall be substantially continuous and of a type of construction to provide permanent joining of parts. Joints of the following types may be used: a) welded; b) spot welded on no more than 1/4 in (6.4 mm) centres; c) brazed; d) threaded; e) machined and bolted; f) rigid flanges tightly bolted together and enclosing gaskets; g) a machined slip joint; or h) a rigid pressed joint. A machined slip joint shall not be constructed entirely of sheet metal or depend upon friction of the joint itself for strength. Heat exchangers located on the non-positive pressure side of the circulating air blower shall employ welded joints or the equivalent as determined by the certification body.
4.6		***New section added;*** **Heater openings for indirect gas-fired construction heaters**
4.6.1		**Guarding requirements for burner air intakes** The combustion air intake of heaters suitable for outdoor use shall be guarded or shielded at the entrance of an air-intake assembly or located to exclude rain, snow, debris, and birds. A screen, if used, shall have a mesh of not less than 1/4 in (6.4 mm). A louvre, if used, shall have openings that shall pass a rod of 1/4 in (6.4 mm) diameter.

CLAUSE	VERDICT	COMMENT
4.6.2		**Gasket requirements** Gaskets shall be suitable for the temperatures to which they are exposed. Gaskets of access panels or doors shall have sufficient durability to withstand expected usage.
4.6.3		**Heat exchanger leakage requirements** Connections between the heat exchanger and the casing that encloses air shall be constructed to prevent possible leakage of combustion products into the circulating air.
4.8	Info	**Combustion air and ventilation**
4.8.2		***New clause added;*** **Venting requirements for fuel component enclosures** For indirect gas-fired heaters, cabinet compartments housing gas piping and controls shall be ventilated with an opening of 1 in2 (645 mm2), minimum except compartments pressurized by combustion air.
4.8.3		**Air proving switch requirements** Heaters utilizing forced or induced draft, or both, for supplying combustion air shall be provided with means for automatically shutting off the gas supply to the burner(s) in the event of failure of the fan(s), unless the heater will comply with this Standard without the fan(s) in operation. A properly applied centrifugal switch, sail switch, pressure differential switch, or equivalent device meets the intent of this provision. If a centrifugal switch is used, the blower shall be secured to the shaft on which the centrifugal switch is located by means of a) keying; b) two set screws with at least one on a flatted shaft; c) a locking-type set screw on a flatted shaft; or d) the equivalent.

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4.8.4		**Pre-ignition purge cycle requirement** Direct-fired heaters utilizing forced or induced draft and having an input over 400 000 BTU/h (117 kW) shall provide a purge period of at least four complete air changes of the combustion chamber and any inlet ductwork prior to trial for ignition. An indirect-fired heater with an input rating in excess of 400 000 Btu/h (117 228 W), and where all air for combustion is supplied by mechanical means, shall have a purge period sufficient to provide a minimum of four air changes of the combustion chamber and flue gas passageways before a trial for ignition can occur.
4.8.5		***New clause added;*** **Burner primary air adjustment access requirement** The main burner primary air adjustment means shall be accessible with the burner in operation.
4.8.6		***New clause added;*** **Air shutter requirements** Air shutters shall be constructed of a corrosion-resistant material or have a corrosion-resistant finish, except when the type of material or construction employed shall prevent the air shutter sticking or corroding in position. Cast iron air shutters may be used. Sheet-metal air shutters shall be not less than 0.0254 in (0.645 mm) minimum in thickness. If sheet- metal air shutters are less than 0.0508 in (1.29 mm) minimum in thickness, they shall have the outer edges turned at 90° (1.57 rad) or be otherwise properly reinforced.
4.8.7		***New clause added;*** **Pilot and burner combustion air** In the case of indirect gas-fired heaters, the combustion air for pilot and burner operation shall not be drawn from the circulating air stream.
4.8.8		***New clause added;*** **Frozen condensate in heat exchangers** The design and orientation of the heat exchanger in an indirect-fired construction heater shall be such that there shall be no accumulation of condensate that would affect the operation of the unit if that condensate were to become frozen.

CLAUSE	VERDICT	COMMENT
4.16	Info	**Gas pressure regulators**
4.16.2		**Propane (under 200 000 BTU/h)** Heaters for use with propane shall be protected by a gas pressure regulator(s) which will satisfactorily reduce container pressure. This pressure regulator(s) shall comply with UL 144. For systems equipped with a liquid vaporizer, see Clause 6.4.
4.16.3		***New clause added;*** **Propane (over 200 000 BTU/h)** Heaters for use with propane over 200 000 BTU/h shall be supplied with a gas pressure regulator(s) located at the container which will satisfactorily reduce container pressure as outlined above, unless Item a) or b) applies. Alternatively, a heater for use with propane over 200 000 BTU/h may be supplied with a gas pressure regulator(s) at the inlet to the heater. The gas pressure regulator(s) shall a) have the capacity to allow the heater to operate at data-plate rate; b) comply with UL 144; and c) have an outlet sized to attach to the manufacturer-supplied gas hose for the heater.
4.22		***New clause added;*** **Flue connections and integral venting systems for indirect gas-fired construction heaters** Flue connections and integral venting systems shall comply with the following: a) When a flue pipe extension other than a standard 90° elbow (1.57 rad) is used between the flue outlet and draft hood, it shall be permanently attached to either the flue outlet or the draft hood. b) A flue connection shall be constructed of a material equivalent in strength and resistance to corrosion to that of the heat exchanger. When the heat exchanger is constructed of cast iron or of sheet steel more than 0.0399 in (1.01 mm)* thick, an extension of 0.0399 in (1.01 mm) thick shall be considered acceptable. * This corresponds to No. 18 US Standard gauge sheet steel with all applicable minus tolerances included. c) Flue connections shall extend beyond the casing a sufficient distance to facilitate fastening of the vent pipe or draft hood.

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4.23		***New section added;*** **Draft hoods for indirect gas-fired construction heaters** A draft hood shall be furnished with each heater except: See standard for details.
4.24		***New clause added;*** **Protection from mechanical hazards** When the heater is operated in its intended manner, inlet openings in external enclosures or guards for protection from mechanical hazards shall be designed, located, or guarded to reduce the risk of injury to persons due to unintentional contact with moving parts, such as fan blades, blower wheels, gears, and belts. See standard for details.
4.25	Info	**Instructions**
4.25.1		**Instructions for assembly, installation, and operation** The instructions shall include v) service instructions for indirect-fired heaters (including recommended frequency guidelines) suggesting i) periodic examination of the venting system, the heat exchanger, burner(s), and combustion air blower (if applicable); and ii) periodic cleaning of the screens in the vent terminal (where applicable); and w) the minimum environmental temperature for safe storage and operation of the heater. The suitability of this statement shall be examined by the certification body with respect to the listing of the gas-carrying components and gas safety controls.
4.25.2		***New clause added;*** **Additional requirements for universal heaters** The instructions for a universal heater shall provide detailed procedures for switching from one fuel to another. These instructions shall include a pictorial reference to the switching means, such as a manual valve handle.
4.25.3		***New clause added;*** **Instructions for adjustment of minimum input rating** See also Clause 4.19.

CLAUSE	VERDICT	COMMENT
4.25.4		***New clause added;*** **Installation manuals for indirect gas-fired construction heaters** For an indirect gas-fired construction heater, the printed installation manuals shall include instructions for installing vents, venting systems, and provisions for adequate combustion and ventilation air. They shall a) include the type of venting material to be used, vent size, and the minimum and maximum vent lengths; b) include when the manufacturer supplies the venting system, the instructions shall include a parts list and instructions covering the installation of properly identified parts to provide for the venting of the combustion gases to the outdoors; and c) specify that the horizontal portions of the venting system to be supported to prevent sagging, and the methods of and intervals for support. These instructions shall also specify that i) for heaters equipped with a draft hood, horizontal runs shall slope upwards not less than 1/4 in/ft (21 mm/m) from the heater to the vent terminal; or ii) for heaters not equipped with a draft hood, slope shall be as specified in the heater manufacturer's instructions.
4.25.5		***New clause added;*** **User's information manual** The user's information manual shall contain the following minimum instructions for indirect gas-fired construction heaters, being clearly defined, legible, and complete: a) Examine the heater if there are no obstructions to the flow of combustion and ventilation air. b) Examine the heater installation to determine i) all flue gas-carrying areas external to the heater (i.e., chimney, vent connector) are clear and free of obstructions; and ii) the vent connector is in place, sloped per the manufacturer's instructions, and is physically sound without holes or excessive corrosion. c) Examine all flue product-carrying areas of the heater, its vent system, and pilot and main burners for continued safe operation, with particular attention given to deterioration from corrosion or other sources. The manual shall indicate the necessity and minimum frequency of these examinations and shall also specify the periodic inspection of the heater by a qualified service agency. d) For horizontally vented heaters, provide information on preventing blockage by snow.

CLAUSE	VERDICT	COMMENT
5	Info	**Performance**
5.1	Info	**General**
5.1.7		***New clause added;*** **Venting configuration for indirect-fired construction heaters** The heater shall be connected to uninsulated sheet-metal vent pipe the same size as the heater flue outlet, or outlet of an external draft hood when employed, unless otherwise specified by the manufacturer. Elbows shall be 90° (1.57 rad), four-piece, sheet-metal elbows. The vent pipe shall have a reasonably smooth inner contour. For draft hood-equipped heaters, when the flue gases are vented horizontally, a 2 ft (610 mm) section of vent pipe extending horizontally, an elbow, and a sufficient length of vertical vent pipe shall be attached to provide a total height of 5 ft (1.52 m) measured from the highest point of the draft hood relief opening(s) to the top of the vertical vent pipe. When the flue gases are vented vertically, an elbow, a 2 ft (610 mm) section of vent pipe extending horizontally, a second elbow, and sufficient vertical vent pipe shall be attached to the draft hood outlet to provide a total height of 5 ft (1.52 m) measured from the highest point of the draft hood relief opening(s) to the top of the vertical vent pipe. The horizontal run of vent pipe shall be pitched upward 1/4 in to the ft (21 mm to the m). Non-fan-assisted combustion systems for outdoor installation shall be tested with the venting system provided by the manufacturer in place. Fan-assisted combustion systems shall be vented using specific venting system components either supplied by the manufacturer or specified in the heater installation instruction manual. The heater shall comply with all of the applicable performance provisions specified in this Standard with the heater installed with the minimum vent length specified by the manufacturer. In addition, the tests specified in Clauses 5.5through 5.8and 5.18shall be conducted with the heater equipped with the maximum vent length specified by the manufacturer. The vent terminal or cap supplied or specified by the manufacturer shall be in place during all performance tests, unless otherwise specified.

CLAUSE	VERDICT	COMMENT
5.2		**Test gases** In conducting the performance tests specified herein, gases with characteristics approximately as shown in Table 6shall be used. a) Heaters for use with natural gas shall have the tests specified herein conducted with natural gas. Additional tests shall be conducted with butane-air at normal inlet test pressure with no change in the natural gas adjustments and shall comprise those tests specified in Clauses 5.6.1a) and 5.7.2or 5.8.3. Note: Compliance with these supplemental tests does not imply that the device has been examined under this Standard for use with propane gas-air mixtures. b) Heaters for use with propane shall be tested with propane HD-5. c) Heaters incorporating an integral vaporizer shall be tested with liquid phase propane.
5.4		***New clause added;*** **Vent pressure determination** An appliance shall be determined to be a positive or non-positive vent pressure heater. Note: This determination does not apply to heaters for outdoor use only. Testing shall be conducted as follows: This test shall be conducted using natural gas only unless the heater is for use with LP gas only or if the manufacturer specifies different inputs for natural and LP gas. A straight length of insulated* vent pipe 5 ft (1.52 m) in length and of suitable diameter shall be equipped with a piezo ring (see Figure 4) installed 12 in (305 mm) from the inlet of the test vent. A differential pressure gauge that can be read directly to 0.005 in wc (1.24 Pa) pressure shall be attached to the piezo ring to measure static pressure. * Insulation is by means of foil-faced R7 material or greater. For a heater having a vertical flue, the test vent shall be attached directly to the point of connection of the venting system to the heater. For a heater having a horizontal flue, a 90° (1.57 rad) insulated* sheet-metal elbow of suitable diameter shall be attached directly to the point of connection of the venting system to the heater and the test vent attached to the elbow. * Insulation is by means of foil-faced R7 material or greater.

CLAUSE	VERDICT	COMMENT
		The heater shall be operated at normal inlet test pressure and shall be adjusted to obtain the maximum input rate. If the manufacturer specifies a minimum length of external duct, it shall be installed; otherwise, no external duct shall be installed on the heater. The heater shall be run to equilibrium conditions. The static pressure of the vent shall be measured by use of the piezo ring and recorded.
5.5		***New clause added;*** **Combustion** Information relating to the country-specific maximum allowable air-free carbon monoxide concentration is detailed in Clause 8.5 for Canada and in Clause 9.4 for the United States. Testing for direct gas-fired heaters shall be conducted as follows: A direct gas-fired heater shall be operated in an atmosphere having approximately a normal oxygen supply until stabilized at each of the operating conditions specified in Table 7 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 at normal input and normal voltage. Before each reading of heated discharge air, a reading of the CO contained in the incoming (ambient) air shall be taken at the inlet of the heater. The difference in readings, between incoming and discharge air, shall be the parts per million of carbon monoxide added by the burner. Testing for indirect gas-fired heaters shall be conducted as follows: An indirect gas-fired heater shall be operated in an atmosphere having approximately a normal oxygen supply until stabilized at each of the operating conditions specified in Table 7 and corresponding flue gas samples obtained. Samples shall be secured at a point preceding the inlet to the draft hood or vent terminal where uniform samples can be obtained. Samples for a positive pressure vent system heater shall be secured not more than 6 in (152 mm) from the outlet of the heater. When these methods of sampling are not practical, the procedure shall be determined by competent testing personnel. Ambient air CO levels shall not be measured for indirect-gas-fired heaters and may be discarded from the calculation. On direct- and indirect-fired heaters provided with a power burner, an additional combustion sample shall be secured with the heater operating at normal inlet test pressure and the supply voltage reduced to 85% of the heater rating plate voltage.

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		On direct- and indirect-fired heaters provided with a power burner, an additional combustion sample shall be secured with the heater operating at normal inlet test pressure and the supply voltage reduced to 85% of the heater rating plate voltage. The flue gas samples shall be analyzed for carbon dioxide and air-free carbon monoxide using the following equation $$CO_{air\ free} = (Measured\ CO - Amblient\ CO)x\ \frac{Ultimate\ CO_2}{Measured\ CO_2}$$ where the ultimate CO2 (also known as the stochiometric CO2) is specific for the gas being burnt. For natural gas, the value to use shall be 12.2%. For propane gas, the value to use shall be 13.8%. The ultimate CO2 values above shall be the highest theoretical values the family of gas is expected to obtain. For the purposes of this calculation, if the ultimate CO2 is known to be different from the above value, the known value may be used.
5.7	Info	**Manual and piloted ignition system**
5.7.10		***New clause added;*** **Pilot flame carryover** Flames shall travel freely to all pilot burner ports when the gas is ignited at any one port. Testing shall be conducted as follows: This test shall be applied only to those pilot burners in which separate ports are used for heating the thermal element of the safety shutoff device and for ignition of gas at the main burner(s). The pilot burner shall be adjusted according to the manufacturer's instructions and the pilot gas ignited. The flames shall then be extinguished by means other than interrupting the gas supply, and gas from the ports which serve to heat the thermal element of the safety shutoff device immediately re-ignited. The flames shall travel freely to all other ports on the pilot burner.

CLAUSE	VERDICT	COMMENT
5.7.11		***New clause added;*** **Draft protection** The pilot shall be protected from drafts. Testing shall be conducted as follows: With the pilot burner adjusted to its normal gas rate and with the gas supply to the main burner(s) shut off, a draft having a velocity of 300 ft/min (1.5 m/s) and of sufficient volume to encompass the entire heater shall be directed alternately at the front, sides, and rear of the heater. The pilot shall not be extinguished under these conditions.
5.7.12		***New clause added;*** **Bleed burner ignition** A bleed burner shall be located so that gas issuing from it will be ignited by a continuous pilot.
5.7.13		***New clause added;*** **Ignition component temperatures** The temperature of an automatic gas ignition system component shall not exceed the temperature for which each component is designed. Testing shall be conducted as follows: Thermocouples shall be peened into or brazed to the following points that are applicable to the device provided: a) pilot burner tip; b) pilot burner orifice fitting(s); c) electric igniter; d) flame sensor; e) surfaces of the hot and cold junction of thermoelectric types; f) valve body; g) electric switch; h) contact mechanism; i) magnetic assembly; j) spark electrode; and k) spark generator. The main burner(s) and pilot burner(s) shall be operated in accordance with Test condition 1 in Table 7until equilibrium pilot burner temperatures have been attained, at which time the temperatures at the points listed above shall be recorded.

CLAUSE	VERDICT	COMMENT
5.14	Info	**Wall, floor, ceiling, and electrical equipment and wiring temperatures**
5.14.2		**Maximum permissible temperature calculations** The maximum permissible temperature on combustible surfaces adjacent to heaters, including ductwork, during normal operation shall be as calculated below: See standard for details.
5.15		***New section added;*** **Draft tests for indirect-fired heaters** An indirect-fired heater equipped with means to provide a forced draft shall comply with the following provisions. An indirect-fired heater for outdoor installation with the venting system provided as a part of the heater shall not comply with the provisions of this Clause. See standard for details.
5.17		***New section added;*** **Heat exchanger and flue baffle temperatures** The external surface of the heat exchanger and load-bearing flue gas baffles shall not exceed the temperature indicated in Table 9for the type of metal involved when tested as outlined below. See standard for details.
5.18		***New clause added;*** **Leakage** All flue gases shall be discharged through the flue outlet. There shall be no leakage of flue gases through door cracks or other openings. Testing shall be conducted as follows: A fuming or smoking material, such as titanium tetrachloride, shall be introduced into the combustion chamber in sufficient amount to determine that, if flue gases are discharged through the door cracks or other openings, their presence will be revealed by the smoke. If the discharge of smoke is not continuous, this provision shall be deemed met.

CLAUSE	VERDICT	COMMENT
		New section added; **Construction heaters for outdoor use (optional) — Direct and indirect**
5.19		A heater for outdoor use shall be constructed so it will function normally after being subjected to a simulated rainstorm, when tested according to the following method of test. See standard for details.
		New section added; **Guard testing**
5.23		Compliance with the probe test shall be determined with doors, covers, and guards requiring a tool for removal in place. The probe shown in Figure 10shall be applied with a force of 1 lbf (4.45 N) for a maximum of 5 s in any possible configuration and to any depth that the size of the opening will permit. The probe shall be rotated or angled to any possible position before, during, or after insertion through the opening. The probe shall not come in contact with moving parts.* For opening sizes larger than 1 in (25.4 mm), see Table 10. See standard for details.
		New section added; **Gas hose testing**
5.24		As an alternative to compliance with UL 569, the gas hose assembly may comply with the following tests [see Clause 4.13.2 d)]: See standard for details.
		New section added; **Construction — Integral vaporizers**
6		This Clause applies to heaters with an integral vaporizer. Criteria included in this Clause are in addition to, or exceptions to, Clause 4, where applicable. See standard for details.

CLAUSE	VERDICT	COMMENT
9	Info	**Items unique to the United States**
9.1	Info	**Electrical equipment and wiring**
9.1.6		***New clause added;*** **Line voltage wiring protection** Except for low-voltage thermostat wiring, wiring that is external to the heater jacket when all panels are in place and that is part of the heater shall be protected by a metal conduit, metal-clad cable, or raceways.
9.1.17		***New clause added;*** **Wiring in compartments** When within a burner, fan, or similar compartment, factory wiring involving line voltage of not more than 300 V between parts attached to the same assembly with a predetermined fixed relationship, one to the other, may be done with Type SJO, SJT, or SPT3 cord or heater wiring material having neoprene, thermoplastic, or equally durable insulation of a thickness no less than as specified in Group B of Table 12or Group A of the Table when the wiring material is covered as specified in the footnote to Table 12, judged on temperature limitation and usage suitability as defined in NFPA 70, provided a) the compartment is normally closed, including a solid bottom furnished with the heater. No combustible material shall be beneath such wiring, but an air filter may be so located; b) wiring below openings located in other than vertical surfaces is protected; c) openings in vertical surfaces will not permit the entrance of a rod having a diameter of 33/64 in (13.1 mm) where such straight rod may cause damage to the wiring; and d) permitted openings, other than in Item a), are at least 2 in (50.8 mm) above the bottom of the compartment, if the compartment contains a motor. Cords and other wiring materials permitted in the preceding paragraphs shall be arranged to avoid being mechanically damaged, such as by closely following surfaces, and shall be supported.
Annex A		***New annex added;*** **Formula for calculation of input for construction heaters** The following is the rate calculation procedure necessary for measuring the gas input of a gas heater using a positive displacement–type gas meter. See standard for details.

CLAUSE	VERDICT	COMMENT
Annex B		***New annex added;*** **Provisions for listed high-altitude conversion kits** The following provisions may be used by manufacturers who wish to make available high-altitude field conversion kits for installations at altitudes above 2000 ft (610 m). Listing of high-altitude conversion kits may be permitted, provided the kits meet the following criteria. See standard for details.