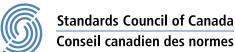


CSA B149.1:20National Standard of Canada



Natural gas and propane installation code





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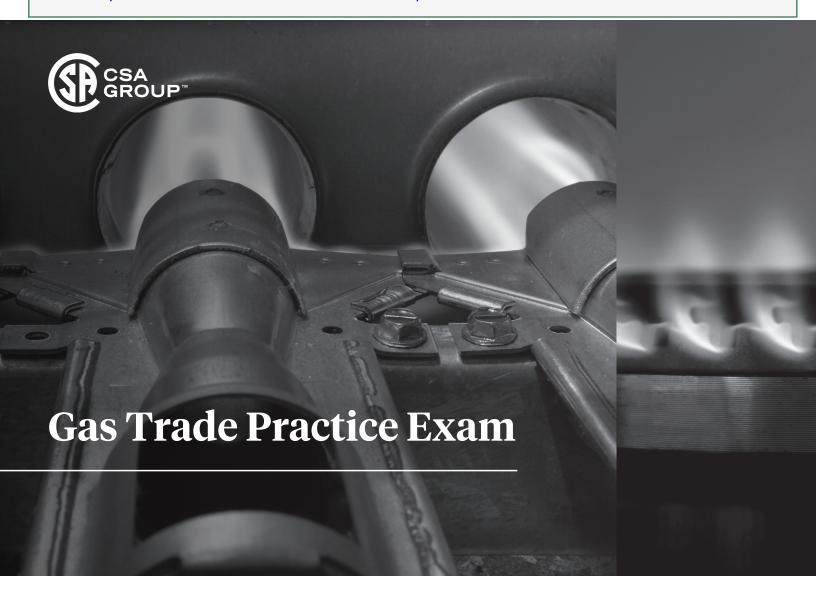
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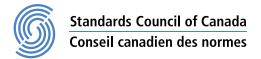
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CSA B149.1:20

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Contents

Interprovincial Gas Advisory Council 6

Technical Committee on Installation Code for Natural Gas and Propane Appliances 8

Preface 13

- 0 Introduction 15
- **1 Scope** 15
- 2 Reference publications 16
- 3 Definitions 22
- 4 General 36
- 4.1 Application 36
- 4.2 Approval of appliances, accessories, components, equipment, and material 37
- 4.3 Responsibilities of the installer 37
- 4.4 Training and quality of labour 38
- 4.5 Suitability of use 38
- 4.6 Meter and service regulator installations 39
- 4.7 Electrical connections and components 39
- 4.8 Mobile homes and recreational vehicles 40
- 4.9 Hazardous and corrosive locations 40
- 4.10 Smoking *41*
- 4.11 Isolation of safety devices 41
- 4.12 Leak detection 41
- 4.13 Appliance clearances to combustible material 41
- 4.14 Accessibility 46
- 4.15 Outdoor installations 47
- 4.16 Appliances in garages 47
- 4.17 Appliance ductwork connections 47
- 4.18 Combined heating systems 48
- 4.19 Appliances protected by automatic fire-extinguishing systems 48
- 4.20 Control of appliances with self-energizing pilots 48
- 4.21 Defective heat exchangers 49
- 4.22 High-altitude installations 49
- 4.23 Protection of appliances from physical damage 49
- 4.24 Odorization 49
- 4.25 Mobile homes and recreational vehicles 50
- **5** Pressure controls 52
- 5.1 Delivery pressure *52*
- 5.2 Pressure regulators 54
- 5.2.1 General *54*
- 5.2.2 Additional requirements for delivery pressures of 2 psig (14 kPa) or less 55
- 5.2.3 Additional requirements for delivery pressures greater than 2 psig (14 kPa) 56

5.2.4	Additional requirements for pressure regulators for natural gas applications 57	
5.3	Overpressure protection devices 57	
5.4	Hydrostatic relief devices for propane applications 58	
5.5	Venting of pressure control devices 59	
5.5.1	Venting of pressure control devices other than overpressure relief devices 59	
5.5.2	Venting of overpressure relief devices 59	
5.5.3	Additional requirements for venting of propane pressure control devices 60	
5.5.4	Venting exemptions for line pressure regulators 60	
5.6	Termination of vents 61	
5.7	Appliance and pilot pressure regulators 62	
5.7.1	Appliance and pilot pressure regulators in propane applications 62	
5.7.2	Appliance and pilot pressure regulators in natural gas applications 62	
6 Gas	piping systems 63	
6.1	General 63	
6.2	Material 63	
6.3	Size 65	
6.4	Volume of gas to be used for sizing gas piping systems 67	
6.5	Allowable pressure and pressure drop 67	
6.6	Extensions 68	
6.7	Location 68	
6.8	Piping practices 69	
6.9	Joints and connections 70	
6.10	Branch piping outlets 71	
6.11	Appliance connections 72	
6.12	Piping outlets 72	
6.13	Drip and dirt pockets 73	
6.14	Prohibited practices 74	
6.15	Underground piping and tubing 74	
6.16	Protection of piping and tubing 76	
6.17	Identification of piping or tubing 77	
6.18	Manual shut-off valves 78	
6.19	Manual-reset valves 79	
6.20	Gas hose and fittings 79	
6.21	Gas connectors 81	
6.22	Testing of piping, tubing, hose, and fittings 82	
6.23	Purging of gas piping systems after leak testing 84	
6.24	Purging gas from a piping or tubing system 86	
6.25	Rooftop gas piping systems 86	
6.26	Inspection 86	
6.27	Highway vehicles, recreational vehicles, mobile outdoor food service units, and wash-	
	mobiles 86	
7 Installation of specific types of appliances 87		
7.1	Boilers 87	
7.2	Generators, compressors/pressure boosters, engines, and turbines 88	
7.2.1	General requirements 88	
7.2.2	Compressors/pressure boosters 89	
7.2.3	Emergency generators 90	

7.2.4	Non-motive engines and turbines 90
7.2.5	Additional requirements for gas engines and turbines in buildings 91
7.3	Carbon dioxide generators 92
7.4	Commercial-type clothes dryers 92
7.5	Domestic-type clothes dryers 93
7.6	Conversions 94
7.7	Conversion burners 94
7.8	Conversion of warm air furnaces 95
7.9	Conversion of ranges 96
7.10	Counter appliances 96
7.11	Direct-vent appliances 96
7.12	Furnaces used with cooling units 96
7.13	Central furnaces 97
7.14	Downflow furnaces 98
7.15	Duct furnaces 98
7.16	Horizontal furnaces 99
7.17	Wall furnaces (recessed heaters) 99
7.18	Construction heaters and torches 99
7.19	Direct-fired door air heaters 100
7.20	Direct-fired make-up air heaters (DFMAH) 101
7.21	Non-recirculating direct gas-fired industrial air heaters (DFIAH) 103
7.22	Direct gas-fired process air heaters (DFPAH) 104
7.23	Infrared heaters 107
7.24	Room heaters 108
7.25	Decorative appliances and gas logs 109
7.26	Pool heaters 110
7.27	Water heaters 111
7.28	Unit heaters 111
7.29	Hotplates 112
7.30	Incinerators 112
7.31	Lighting 113
7.32	Commercial cooking appliances 113
7.33	Residential-type ranges 114
7.34	Refrigerators 115
7.35	Operation of appliances at shows, exhibitions, or other similar events 115
8 Ven	nting systems and air supply for appliances 115
8.1	General 115
8.2	Air-supply determination for central-heating furnaces, boilers, and hot-water heaters 116
8.3	Air-supply openings and ducts 123
8.4	Air-supply requirements for appliances having a total input exceeding 400 000 Btu/h (120 kW)
	(see Clause <u>8.1.4</u>) 124
8.5	Air-supply dampers, louvres, and grilles 125
8.6	Conditions created by exhaust fans, air-supply fans, circulating fans, or fireplaces 125
8.7	Engineered installations 126
8.8	Air supply by mechanical means 126
8.9	Appliance venting 126
8.10	Methods of venting appliances 127
8.11	Vent and chimney requirements 129

8.12	Chimneys 129
8.13	Vent and chimney sizing 131
8.14	Vent and chimney termination 131
8.15	Vent and chimney support 136
8.16	Vents and chimneys serving two or more appliances 136
8.17	Vents outside buildings 137
8.18	Vent connectors 137
8.19	Chimney connections 141
8.20	Size and height of interconnected vent connectors 141
8.21	Multi-storey venting 141
8.22	Dampers and attachments 142
8.23	Draft hoods 143
8.24	Venting arrangements 143
8.25	Draft regulators 144
8.26	Automatic vent damper or automatic flue damper 144
8.27	Manually operated flue dampers 145
8.28	Installation of draft-control devices 145
8.29	Induced- or forced-draft devices 146
8.30	Venting of appliances into canopies 146
8.31	Heat reclaimers 146
9 Natu	ural gas compressors and cylinders 147
9.1	Installation of compressors 147
9.2	Requirements for cylinders 147
9.3	Cylinder filling and cylinders 148
9.4	Cylinder storage 149
9.5	Cylinders connected for use 149
	sidential fuelling appliances (RFAs) and vehicle fueling appliances (VFAs) used for natural gas
	out storage 150
10.1	Installation 150
10.2	Pressure relief devices and other vents and vent lines 151
10.3	Piping, tubing, and hose 151
10.4	Testing of piping, tubing, hose, and fittings 152
10.5	Installation of safety equipment, signs, and/or symbols 152
10.6	Refuelling of vehicles 152
	(informative) — Sizing and capacities of piping and tubing for natural gas 153
	(informative) — Sizing and capacities of piping and tubing for propane 220
	C (informative) — Vent sizing tables for Category I natural gas and propane appliances 271
	(informative) — Customer's meter and service regulator installations 334
	(informative) — Example of piping design sizing (imperial and metric) 336
	(informative) — Suggested general dimensions for draft hoods 339
	G (informative) — Piping expansion and flexibility 343
Annex H	I (normative) — Purging of piping and tubing systems where a readily accessible burner is not
	available or where an appliance is not equipped with a continuous pilot 345
	(informative) — General information 348
	(normative) — Acceptance criteria for visual inspection of welds 357
Annex K	((informative) — Pressure regulators and overpressure protection devices 360

Tracarat gas ana propane instanation coac

Annex L (informative) — Recommended requirements for automatic safety shut-off valves and		
automatic vent valves installed on gas turbines having capacities greater than		
12.5 MMBtu/h (3.66 MW) and inlet pressures greater than 150 PSI 367		
Annex M (normative) — Requirements for the operation of appliances at shows, exhibitions, or other		
similar events 368		
Annex N (informative) — Generators, compressors/pressure boosters, engines, and turbines 370		

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This edition of CSA B149.1 is dedicated to the life of our friend, colleague, and previous Chair, David Stainrod.

Preface

This is the sixteenth edition of CSA B149.1, *Natural gas and propane installation code*. It supersedes the previous editions, published in 2015, 2010, 2005, and 2000 by CSA Group (CSA) as CAN/CSA-B149.1, in 1995, 1991, 1986, 1980, 1978, 1976, and 1974 by the Canadian Gas Association (CGA), and in 1971, 1966, 1962, and 1958 by CSA Group.

The major changes from the previous edition include the following:

- Updated Scope exclusions (Clause <u>1.2</u>).
- Updated reference publications (Clause <u>2</u>).
- Updated definitions (Clause 3).
- Updated requirements for electrical connections and components (Clauses <u>4.7.3</u> and <u>4.7.4</u>).
- Updated requirements for high-altitude installations (Clause <u>4.22</u>).
- Updated requirements for delivery pressure (Clause 5.1).
- Updated requirements for pressure regulators (Clause <u>5.2</u>).
- Updated requirements for overpressure protection devices (Clause <u>5.3</u>).
- Updated requirements for venting of pressure control devices and added requirements for venting exemptions for line pressure regulators (Clauses 5.5.2, 5.5.3, and 5.5.4).
- Added new Clause 5.6 for termination of vents.
- Updated requirements for material (Clauses <u>6.2.2</u>, <u>6.2.3</u>, and <u>6.2.5</u>).
- Updated requirements for size (Clauses 6.3.2 and 6.3.3).
- Updated requirements for piping practices (Clause 6.8.10).
- Updated requirements for joints and connections (Clauses 6.9.1 and 6.9.4).
- Updated requirements for manual shut-off valves (Clause 6.18.1).
- Updated requirements for gas connectors (Clauses 6.21.8 and 6.21.9).
- Updated requirements for purging of gas piping systems after leak testing (Clause 6.23).
- Updated requirements for compressors/pressure boosters (Clause 7.2.2).
- Updated requirements for emergency generators (Clause 7.2.3).
- Updated requirements for non-motive engines and turbines (Clause 7.2.4).
- Updated requirements for additional requirements for gas engines and turbines in buildings (Clauses 7.2.5.1 and 7.2.5.3).
- Updated requirements for direct gas-fired process air heaters (DFPAH) (Clauses <u>7.22.6</u>, <u>7.22.7</u>, <u>7.22.8</u>, 7.22.9, 7.22.11, 7.22.12, 7.22.13, 7.22.16, 7.22.17, and 7.22.18).
- Updated requirements for lighting (Clause 7.31.4).
- Added requirements for operation of appliances at shows, exhibitions, or other similar events (Clause 7.35).
- Updated requirements for air-supply requirements for appliances having a total input exceeding 400 000 Btu/h (120 kW) (Clauses 8.4.2, 8.4.3, and 8.4.4).
- Updated requirements for air-supply dampers, louvres, and grilles (Clauses 8.5.4 and 8.5.6).
- Updated requirements for cylinder storage (Clauses 9.4.3 and 9.4.4).
- Updated requirements for residential fuelling appliances (RFAs) and vehicle fueling appliances (VFAs) used for natural gas without storage (Clauses 10.1.1, 10.1.2, and 10.1.3).
- Added new Annex J for acceptance criteria for visual inspection of welds.
- Added new Annex K for pressure regulators and overpressure protection devices.
- Added new Annex <u>L</u> for recommended requirements for automatic safety shut-off valves and automatic vent valves installed on gas turbines having capacities greater than 12.5 MMBtu/h (3.66 MW) and inlet pressures greater than 150 PSI.

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- Added new Annex M requirements for the operation of appliances at shows, exhibitions, or other similar events.
- Added new Annex N for generators, compressors/pressure boosters, engines, and turbines.

This Code was prepared by the Technical Committee on Installation Code for the Natural Gas and Propane Appliances, under the Strategic Committee on Fuels and Appliances, and has been formally approved by the Technical Committee and the Interprovincial Gas Advisory Council.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Notes:

- 1) Use of the singular does not exclude the plural (and vice versa) when the sense allows.
- 2) Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.
- 3) This Standard was developed by consensus, which is defined by CSA Policy governing standardization Code of good practice for standardization as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.
- 4) To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include "Request for interpretation" in the subject line:
 - a) define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;
 - b) provide an explanation of circumstances surrounding the actual field condition; and
 - c) where possible, phrase the request in such a way that a specific "yes" or "no" answer will address the issue.

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are available on the Current Standards Activities page at standardsactivities.csa.ca.

- 5) This Standard is subject to review within five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include "Proposal for change" in the subject line:
 - a) Standard designation (number);
 - b) relevant clause, table, and/or figure number;
 - c) wording of the proposed change; and
 - d) rationale for the change.

Natural gas and propane installation code

0 Introduction

In 1958, CSA Group published the first edition of CSA B149, *Installation Code for Gas Burning Appliances and Equipment*. It was superseded by later editions in 1962, 1966, and 1971. Following the publication of the 1966 edition, the decision was made to split the Code into two parts: B149.1, dealing with the installation of appliances and equipment burning natural gas, and B149.2, dealing with the installation of appliances and equipment burning propane. As a first step, B149.2 was prepared and first published in 1969.

The Canadian Gas Association was accredited by the Standards Council of Canada as the standards development organization responsible for preparing standards for gas-burning appliances and equipment, and in this connection took over responsibility for the B149 Code in 1974. New editions of the Code were subsequently published in 1974, 1976, 1978, 1980, 1986, 1991, and 1995.

On June 30, 1997, CSA Group acquired International Approval Services (IAS), which was until then a joint venture of the American Gas Association (AGA) and the Canadian Gas Association. Under this agreement, CSA Group acquired the complete range of IAS standards administration, certification, and registration products and services for appliances and accessories fuelled by natural and liquefied petroleum gases. In 1998, the CSA B149 Installation Code Committee agreed to publish a Natural Gas and Propane Installation Code that would amalgamate the first seven sections of CAN/CGA-B149.1 and CAN/CGA-B149.2 to become CAN/CSA-B149.1-00. This amalgamation was in response to the trend among the authorities having jurisdiction of combining licensing and training for natural gas and propane. The remaining Clauses 8 to 14 of CAN/CGA-B149.2 became CAN/CSA-B149.2-00, *Propane Storage and Handling Code*.

1 Scope

1.1

This Code applies to the installation of

- a) appliances, equipment, components, and accessories where gas is to be used for fuel purposes;
- b) piping and tubing systems extending from the termination of the utility installation or from the distributor's propane tank;
- vehicle-refuelling appliances and associated equipment meeting the requirements of a generalpurpose appliance to fill a natural-gas-fuelled vehicle; and
- d) stationary gas engines and turbines.

1.2

This Code does not apply to

- a) marine or pipeline terminals;
- b) gas where used as a feedstock in petroleum refineries or chemical plants;
- c) utility pipeline distribution and transmission pipelines;
- storage and handling of liquefied natural gas or underground formations for natural gas;
- e) the installation of NGV fuel systems, containers, and refuelling stations;