

# Natural gas and propane installation code



# Legal Notice for Standards

Canadian Standards Association (CSA) standards are developed through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

## Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document's fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party's intellectual property rights. CSA does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA makes no representations or warranties regarding this document's compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA is a private not-for-profit company that publishes voluntary standards and related documents. CSA has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

## Intellectual property rights and ownership

As between CSA and the users of this document (whether it be in printed or electronic form), CSA is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA's and/or others' intellectual property and may give rise to a right in CSA and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by licence or by law, CSA reserves all intellectual property rights in this document.

## Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

## Authorized use of this document

This document is being provided by CSA for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF format.

Limited copies of this document in print or paper form may be distributed only to persons who are authorized by CSA to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.



CANADIAN STANDARDS  
ASSOCIATION

# ***CSA Standards Update Service***

*B149.1-10*

*January 2010*

**Title:** *Natural gas and propane installation code*

**Pagination:** **288 pages** (xiv preliminary and 274 text), each dated **January 2010**

To register for e-mail notification about any updates to this publication

- go to **www.ShopCSA.ca**
- click on **E-mail Services** under **MY ACCOUNT**
- click on **CSA Standards Update Service**

The **List ID** that you will need to register for updates to this publication is **2020605**.

If you require assistance, please e-mail [techsupport@csa.ca](mailto:techsupport@csa.ca) or call 416-747-2233.

Visit CSA's policy on privacy at [www.csagroup.org/legal](http://www.csagroup.org/legal) to find out how we protect your personal information.

Currently in preview, click buy full version

*CSA Standard*

*B149.1-10*

***Natural gas and propane installation code***



**CANADIAN STANDARDS  
ASSOCIATION**

®Registered trade-mark of Canadian Standards Association

*Published in January 2010 by Canadian Standards Association  
A not-for-profit private sector organization  
5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6  
1-800-463-6727 • 416-747-4044*

**Visit our Online Store at [www.ShopCSA.ca](http://www.ShopCSA.ca)**



The Canadian Standards Association (CSA) prints its publications on Rolland Enviro100, which contains 100% recycled post-consumer fibre, is EcoLogo and Processed Chlorine Free certified, and was manufactured using biogas energy.

To purchase CSA Standards and related publications, visit CSA's Online Store at [www.ShopCSA.ca](http://www.ShopCSA.ca) or call toll free 1-800-463-6727 or 416-747-4044.

ISBN 978-1-55491-239-1

**Technical Editor:** Tony Cautillo

© Canadian Standards Association — 2010

All rights reserved. No part of this publication may be reproduced in any form whatsoever without the prior permission of the publisher.

# Contents

CSA B149 Installation Code Committee *vii*

Interprovincial Gas Advisory Council (IGAC) *xi*

Preface *xiii*

## 1 Scope 1

## 2 Reference publications 2

## 3 Definitions 5

## 4 General 17

- 4.1 Application 17
- 4.2 Approval of appliances, accessories, components, equipment, and materials 17
- 4.3 Responsibilities of the installer 18
- 4.4 Training and quality of labour 19
- 4.5 Suitability of use 19
- 4.6 Meter and service regulator installations 20
- 4.7 Electrical connections and components 20
- 4.8 Mobile homes 20
- 4.9 Hazardous locations 21
- 4.10 Smoking 21
- 4.11 Isolation of safety devices 21
- 4.12 Leak detection 21
- 4.13 Appliance clearances to combustibles 21
- 4.14 Accessibility 25
- 4.15 Outdoor installations 26
- 4.16 Appliances in garages 26
- 4.17 Appliance ductwork connections 26
- 4.18 Combined heating systems 26
- 4.19 Appliances protected by automatic fire-extinguishing systems 27
- 4.20 Control of appliances with non-energized pilots 27
- 4.21 Defective heat exchangers 27
- 4.22 High-altitude installations 27
- 4.23 Protection of appliances from physical damage 28
- 4.24 Odorization of propane 28

## 5 Pressure controls 28

- 5.1 Gas system pressure 28
- 5.2 Pressure regulators 29
  - 5.2.1 General 29
  - 5.2.2 Additional requirements for pressure regulators for propane applications 30
  - 5.2.3 Additional requirements for pressure regulators for natural gas applications 30
- 5.3 Relief devices 31
  - 5.3.1 Hydrostatic relief devices for propane applications 31
  - 5.3.2 Venting of pressure control devices 31
- 5.4 Appliance and pilot pressure regulators 33
  - 5.4.1 Appliance and pilot pressure regulators in propane applications 33
  - 5.4.2 Appliance and pilot pressure regulators in natural gas applications 34

<b>6</b>	<b>Piping and tubing systems, gas hose, and fittings</b>	<b>34</b>
6.1	General	34
6.2	Material	34
6.3	Size	36
6.4	Volume of gas to be used for sizing piping and tubing systems	37
6.5	Allowable pressure and pressure drop	38
6.6	Extensions	38
6.7	Location	38
6.8	Piping practices	39
6.9	Joints and connections	40
6.10	Branch piping outlets	41
6.11	Appliance connections	41
6.12	Piping outlets	42
6.13	Drip and dirt pockets	42
6.14	Prohibited practices	43
6.15	Underground piping and tubing	43
6.16	Protection of piping and tubing	44
6.17	Identification of piping or tubing	46
6.18	Manual shut-off valves	46
6.19	Manual-reset valves	48
6.20	Gas hose and fittings	48
6.21	Gas connectors	49
6.22	Testing of piping, tubing, hose, and fittings	50
6.23	Purging of piping and tubing systems and hose after leak testing	52
6.24	Purging gas from a piping or tubing system	53
6.25	Rooftop gas piping and tubing	53
6.26	Inspection	53
<b>7</b>	<b>Installation of specific types of appliances</b>	<b>54</b>
7.1	Boilers	54
7.2	Generators, compressors/pressure boosters, stationary engines, and turbines	54
7.2.1	General requirements	54
7.2.2	Compressors/pressure boosters	55
7.2.3	Emergency use generators	56
7.2.4	Stationary gas engines and turbines	57
7.2.5	Stationary gas engines and turbines in buildings	58
7.3	Carbon dioxide generators	58
7.4	Commercial-type clothes dryers	60
7.5	Domestic-type clothes dryers	60
7.6	Conversions	61
7.7	Conversion burners	61
7.8	Conversion of water air furnaces	62
7.9	Conversion of ranges	62
7.10	Counter appliances	63
7.11	Direct-vent appliances	63
7.12	Furnaces used with cooling units	63
7.13	Central furnaces	63
7.14	Downflow furnaces	64
7.15	Duct furnaces	65
7.16	Horizontal furnaces	65
7.17	Wall furnaces (recessed heaters)	66
7.18	Construction heaters and torches	66
7.19	Direct-fired door air heaters	67
7.20	Direct-fired make-up air heaters (DFMAH)	67

7.21	Non-recirculating direct gas-fired industrial air heaters (DFIAH)	69
7.22	Infrared heaters	70
7.23	Room heaters	71
7.24	Decorative appliances and gas logs	72
7.25	Pool heaters	73
7.26	Water heaters	74
7.27	Unit heaters	74
7.28	Hotplates	75
7.29	Incinerators	75
7.30	Lighting	76
7.31	Commercial cooking appliances	76
7.32	Residential-type ranges	76
7.33	Refrigerators	77

## **8 Venting systems and air supply for appliances** 78

8.1	General	78
8.2	Air-supply determination for central-heating furnaces, boilers, and hot-water heaters	78
8.3	Air-supply openings and ducts	83
8.4	Air-supply requirements for appliances having a total input exceeding 400 000 Btu/h (120 kW)	84
8.5	Air-supply dampers, louvres, and grilles	84
8.6	Conditions created by exhaust fans, air-supply fans, circulating fans, and fireplaces	85
8.7	Engineered installations	85
8.8	Air supply by mechanical means	85
8.9	Appliance venting	85
8.10	Methods of venting appliances	86
8.11	Vent and chimney requirements	88
8.12	Chimneys	88
8.13	Vent and chimney sizing	89
8.14	Vent and chimney termination	90
8.15	Vent and chimney support	92
8.16	Vents and chimneys serving two or more appliances	93
8.17	Vents outside buildings	93
8.18	Vent connectors	93
8.19	Chimney connections	97
8.20	Size and height of interconnected vent connectors	97
8.21	Multi-storey venting	97
8.22	Dampers and attachments	97
8.23	Draft hoods	98
8.24	Venting arrangements	98
8.25	Draft regulators	99
8.26	Automatic vent damper or automatic flue damper	100
8.27	Manually operated flue dampers	100
8.28	Installation of draft-control devices	101
8.29	Induced- or forced-draft devices	101
8.30	Venting of appliances into canopies	101
8.31	Heat reclaimers	102

## **9 Natural gas compressors and cylinders** 102

9.1	Installation of compressors	102
9.2	Requirements for cylinders	102
9.3	Cylinder filling and cylinders	103
9.4	Cylinder storage	104
9.5	Cylinders connected for use	104

**10 Vehicle refuelling appliances (VRA) without storage (for natural gas only) 105**

- 10.1 Installation 105
- 10.2 Pressure relief devices and other vents and vent lines 106
- 10.3 Piping, tubing, and hose 106
- 10.4 Testing of piping, hose, and fittings 106
- 10.5 Installation of safety equipment, signs, and/or symbols 107
- 10.6 Refuelling of vehicles 107

**Annexes**

- A** (informative) — Sizing and capacities of piping and tubing for natural gas 108
- B** (informative) — Sizing and capacities of piping and tubing for propane 143
- C** (informative) — Vent sizing tables for Category I natural gas and propane appliances 169
- D** (informative) — Customer's meter and regulator installations 234
- E** (informative) — Example of piping design sizing (imperial and metric) 236
- F** (informative) — Suggested general dimensions for draft hoods 239
- G** (informative) — Piping expansion and flexibility 243
- H** (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 245
- I** (informative) — General information 248

**Index 257****Tables**

- 4.1** — Appliance clearance reductions with specified forms of protection 23
- 5.1** — Pressure inside buildings 28
- 5.2** — Clearance from discharge, ft (m) 33
- 6.1** — Maximum allowable pressure drop 36
- 6.2** — Spacing of supports for piping 39
- 6.3** — Pressure test requirements 51
- 8.1** — Combustion/dilution air requirements for appliances having draft-control devices when the combined input is up to and including 400 000 Btuh (120 kW) and the structure complies with Clause 8.2.1(a) or (b) 79
- 8.2** — Combustion air requirements for appliances not having draft-control devices when the combined input is up to and including 400 000 Btuh (120 kW) and the structure complies with Clause 8.2.1(a) or (b) 80
- 8.3** — Combustion/dilution air requirements for appliances having draft-control devices when the combined input is up to and including 400 000 Btuh (120 kW) and the structure does not comply with Clause 8.2.1(a) or (b) 81
- 8.4** — Combustion air requirements for appliances not having draft-control devices when the combined input is up to and including 400 000 Btuh (120 kW) and the structure does not comply with Clause 8.2.1(a) or (b) 82
- 8.5** — Type of venting system to be used 87
- 8.6** — Appliance vent connector clearances 95
- 8.7** — Vent connector clearance reductions with specified forms of protection 96

**Figures**

- 0.1** — Vent passing through a pitched roof 91

# ***CSA B149 Installation Code Committee***

<b>B. Diggins</b>	MJS Mechanical Ltd., Calgary, Alberta	<i>Chair</i>
<b>J.M. Jones</b>	J.M. Jones Consulting Services, Leamington, Ontario	<i>Vice-Chair</i>
<b>D.J. Stainrod</b>	D.J. Stainrod & Associates Ltd. (PGAC), Bowmanville, Ontario	<i>Vice-Chair</i>
<b>J. Angus</b>	J.M.A. Associates, Midland, Ontario	
<b>B. Bachellier</b>	Government of Nunavut, Cambridge Bay, Nunavut	
<b>P. Baker</b>	Maxitrol Company, Hamilton, Ontario	
<b>D. Baxter</b>	Enbridge Gas Distribution, Toronto, Ontario	
<b>M. Binet</b>	Gaz Métro Inc., Montréal, Québec	
<b>K. Carlisle</b>	Karl Dungs, Inc., Blaine, Minnesota, USA	<i>Associate</i>
<b>P. Cavens</b>	Cavens & Associates, Roberts Creek, British Columbia	
<b>R. Charbonneau</b>	Budget Propane Inc., Valleyfield, Québec	
<b>S. Cooke</b>	Technical Standards & Safety Authority, Toronto, Ontario	<i>Alternate</i>
<b>C. Côté</b>	Gaz Métro Inc., Montréal, Québec	
<b>M. Davidson</b>	New Brunswick Department of Public Safety, Fredericton, New Brunswick	
<b>W. Drover</b>	Government of Newfoundland and Labrador, St. John's, Newfoundland and Labrador	<i>Alternate</i>
<b>A. Durnie</b>	Alberta Municipal Affairs, Edmonton, Alberta	
<b>D. Eastman</b>	Government of Newfoundland and Labrador, St. John's, Newfoundland and Labrador	

<b>G. Edgar</b>	Selkirk Inc., Logan, Ohio, USA	
<b>D. Evans</b>	Bruce Sutherland Associates Ltd., Dartmouth, Nova Scotia	
<b>Z. Fraczkowski</b>	Technical Standards & Safety Authority, Toronto, Ontario	
<b>J. Good</b>	Autogas Propane Ltd., Burnaby, British Columbia	
<b>A. Gould</b>	Reliance Comfort Ltd. Partnership, dba Reliance Home Comfort, Cambridge, Ontario	
<b>D. Green</b>	National Research Council Canada, Ottawa, Ontario	
<b>E. Hurd</b>	British Columbia Safety Authority, New Westminster, British Columbia	<i>Alternate</i>
<b>J. Jachniak</b>	ENEFEN Energy Efficiency Engineering Ltd., Leduc, Alberta	
<b>S. Katz</b>	S. Katz and Associates Inc., North Vancouver, British Columbia	
<b>W.C. LaRose</b>	St. Albert, Alberta	
<b>W. Lock</b>	British Columbia Safety Authority, New Westminster, British Columbia	
<b>S. McCarthy</b>	CSA International, Cleveland, Ohio, USA	<i>Associate</i>
<b>J. McCormack</b>	Superior Propane Inc., Moncton, New Brunswick	
<b>R. McRae</b>	Government of the Northwest Territories Public Works and Services, Yellowknife, Northwest Territories	
<b>J. Melling</b>	SaskPower, Saskatoon, Saskatchewan	<i>Alternate</i>
<b>H. Nachaj</b>	Le Groupe Charbonneau Inc., Montréal, Québec	
<b>V. Pao</b>	Manitoba Department of Labour and Immigration, Winnipeg, Manitoba	<i>Alternate</i>
<b>R. Pattison</b>	ATCO Gas, Edmonton, Alberta	

<b>G. Potter</b>	Cambridge Engineering, Chesterfield, Missouri, USA	
<b>G. Prociw</b>	Union Gas Limited, Chatham, Ontario	
<b>V. Quiring</b>	Engineered Air, Division of Airtex Manufacturing Partnership, Calgary, Alberta	
<b>B. Reid</b>	Prince Edward Island Department of Community Services & Attorney General, Charlottetown, Prince Edward Island	
<b>J. Renaud</b>	Régie du bâtiment du Québec, Montréal, Québec	
<b>D. Ricard</b>	Association Québécoise du Gaz Naturel, Montréal, Québec	
<b>T. Rieger</b>	Manitoba Department of Labour and Immigration, Winnipeg, Manitoba	
<b>J. Robertson</b>	Underwriters' Laboratories of Canada, Victoria, British Columbia	<i>Associate</i>
<b>C. Snow</b>	Enbridge Gas New Brunswick, Fredericton, New Brunswick	
<b>D. Stewart</b>	Nova Scotia Department of Environment and Labour, Halifax, Nova Scotia	
<b>M. Stornel</b>	Manitoba Hydro, Winnipeg, Manitoba	
<b>S. Thenappan</b>	Rheem Manufacturing Company, Montgomery, Alabama, USA	
<b>I. Tilgner</b>	Human Resources and Skills Development Canada, Ottawa, Ontario	
<b>I. Turnbull</b>	Terasen Gas Inc., Surrey, British Columbia	
<b>D. Weishuhn</b>	Blue Flame Heating & Air Conditioning Limited, Toronto, Ontario	
<b>G. Williams</b>	SaskPower, Regina, Saskatchewan	
<b>T. Windsor</b>	Sparling's Propane Co. Ltd., Flesherton, Ontario	
<b>C. Wolfe</b>	Government of Nunavut Community & Government Services, Iqaluit, Nunavut	<i>Alternate</i>

**D. Young**

Government of Yukon,  
Whitehorse, Yukon

**A. Cautillo**

Canadian Standards Association,  
Mississauga, Ontario

*Project Manager*

# ***Interprovincial Gas Advisory Council (IGAC)***

<b>S. Cooke</b>	Technical Standards & Safety Authority, Toronto, Ontario	<i>Chair</i>
<b>J. Renaud</b>	Régie du bâtiment du Québec, Montréal, Québec	<i>Vice-Chair</i>
<b>G. Williams</b>	SaskPower, Regina, Saskatchewan	<i>Vice-Chair</i>
<b>B. Bachellier</b>	Government of Nunavut, Cambridge Bay, Nunavut	
<b>M. Davidson</b>	New Brunswick Department of Public Safety, Fredericton, New Brunswick	
<b>W. Drover</b>	Government of Newfoundland and Labrador, St. John's, Newfoundland and Labrador	<i>Alternate</i>
<b>A. Durnie</b>	Alberta Municipal Affairs, Edmonton, Alberta	
<b>D. Eastman</b>	Government of Newfoundland and Labrador, St. John's, Newfoundland and Labrador	
<b>Z. Fraczkowski</b>	Technical Standards & Safety Authority, Toronto, Ontario	<i>Alternate</i>
<b>E. Hurd</b>	British Columbia Safety Authority, New Westminster, British Columbia	<i>Alternate</i>
<b>W. Lock</b>	British Columbia Safety Authority, New Westminster, British Columbia	
<b>R. McRae</b>	Government of the Northwest Territories Public Works & Services, Yellowknife, Northwest Territories	
<b>J. Melling</b>	SaskPower, Saskatoon, Saskatchewan	<i>Alternate</i>
<b>V. Pao</b>	Manitoba Department of Labour and Immigration, Winnipeg, Manitoba	<i>Alternate</i>
<b>B. Reid</b>	Prince Edward Island Department of Community Services and Attorney General, Charlottetown, Prince Edward Island	
<b>T. Rieger</b>	Manitoba Department of Labour and Immigration, Winnipeg, Manitoba	

<b>D. Stewart</b>	Nova Scotia Department of Environment and Labour, Halifax, Nova Scotia	
<b>I. Tilgner</b>	Human Resources and Skills Development Canada, Ottawa, Ontario	
<b>C. Wolfe</b>	Government of Nunavut Community & Government Services, Iqaluit, Nunavut	<i>Alternate</i>
<b>D. Young</b>	Government of Yukon, Whitehorse, Yukon	
<b>A. Cautillo</b>	Canadian Standards Association, Mississauga, Ontario	<i>Project Manager</i>

# Preface

This is the fourteenth edition of CSA B149.1, *Natural gas and propane installation code*. It supersedes the previous editions, published in 2005 and 2000 by the Canadian Standards Association (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 the Canadian Standards Association.

In 1958, the Canadian Standards Association 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, the Canadian Standards Association 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 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 sections 8 to 14 of CAN/CGA-B149.2 became CAN/CSA-B149.2-00, *Propane Storage and Handling Code*.

In this 2010 edition, where a major change or addition to the previous edition of the Code has been made, the clause, table, or figure affected is identified by the symbol delta ( $\Delta$ ) in the margin. Users of the Code are advised that the change markers in the text are not intended to be all-inclusive and are provided as a convenience only; such markers cannot constitute a comprehensive guide to the revisions made to the Code. Care must therefore be taken not to rely on the change markers to determine the current requirements of the Code. As always, users of the Code must consider the entire Code and any local amendments.

The CSA B149 Installation Code Committee, which is responsible for preparing this Code, consists of members of the provincial gas inspection authorities, natural gas utilities, propane distributors, appliance, equipment, and accessory manufacturers, certification organizations, and representatives from the Heating, Refrigeration and Air Conditioning Institute of Canada, the Mechanical Contractors association of Canada and federal government departments. This Code has been formally approved by the CSA B149 Installation Code Committee and by the Interprovincial Gas Advisory Council.

January 2010

## 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 Code is stated in its Scope, it is important to note that it remains the responsibility of the users of the Code to judge its suitability for their particular purpose.
- (3) This publication 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 publication.
- (4) To submit a request for interpretation of CSA Standards, please send the following information to [inquiries@csa.ca](mailto:inquiries@csa.ca) 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 published in CSA's periodical Info Update, which is available on the CSA website at <http://standardsactivities.csa.ca>.

- (5) CSA Standards are subject to periodic review, and suggestions for their improvement will be referred to the appropriate committee. To submit a proposal for change to CSA Standards, please send the following information to [inquiries@csa.ca](mailto:inquiries@csa.ca) 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.

# B149.1-10

## ***Natural gas and propane installation 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;
- (c) vehicle-refuelling appliances and associated equipment meeting the requirements of a general-purpose appliance to fill a natural-gas-fuelled vehicle; and
- (d) stationary gas **engines** and **turbines**.

#### Δ **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;
- (d) storage and handling of liquefied natural gas or underground reservoirs for natural gas;
- (e) the installation of **NGV** fuel systems, **containers**, and refuelling stations;
- (f) the storage and utilization of compressed natural gas on boats;
- (g) the installation of vehicle-refuelling appliances when **NGV** storage **containers** are installed as part of the system;
- (h) refrigerated storage or underground reservoirs for propane;
- (i) propane used on boats;
- (j) propane used as a propellant in aerosol containers;
- (k) butane fuel cylinders of 150 g capacity or less; and
- (l) the installation of **containers** and **equipment** to be used for propane in distribution locations and filling plants and on tank trucks, tank trailers, and cargo liners.

#### **1.3**

Where the term "gas" is used, the requirements of this Code include, and apply equally to, any of the following gases or mixtures of them: natural gas, manufactured gas, or mixtures of propane gas and air, propane, propylene, butanes (normal butane or isobutane), and butylenes.

#### **1.4**

This Code and any Standards referenced in it do not make or imply any assurance or guarantee with respect to the life expectancy, durability, or operating performance of equipment and materials referenced in the Code.

#### **1.5**

The values given in yard/pound units are the standard. This Code contains SI (metric) equivalents to yard/pound units so that the Code can be used in SI (metric) units. SI (metric) equivalents may be approximate.