



# Installation code for hydronic heating systems



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# Preface

This is the fifth edition of CSA B214, *Installation code for hydronic heating systems*. It supersedes the previous editions, published in 2016, 2012, 2007, and 2001.

The main changes from the previous edition are as follows:

- a) added requirements for use of potable water as a hydronic fluid (Clause [4.2.5.1](#));
- b) clarified recycling requirements for prevention of stagnation (Clause [4.2.5.2](#));
- c) added requirement for pipe insulation in unconditioned spaces (Clause [8.2](#));
- d) removed allowance for PVC pipes and tubing, and PVC fittings;
- e) clarified that metal/plastic pipes refer to PEX-AL-PEX and PERT-AL-PERT composite pipes (Clauses [9.2.3](#) and [9.2.4](#));
- f) clarified that polypropylene random copolymer refers to PP-R & PP-RCT pipes and tubing (Clauses [9.2.5](#));
- g) added requirements for flexible pre-insulated plastic piping and installation of non-metallic piping in return air plenums (Clauses [9.2.7](#) and [9.2.8](#));
- h) added requirements for support of larger sizes PEX and PERT tubing as per ASTM F876 (Clause [9.4.1](#));
- i) added requirements for support of non-metallic pipe and tubing in support channels, and vertical run support for non-metallic pipe and tubing in support channels (Clauses [9.4.2](#) and [9.4.7](#));
- j) added requirements for pipe insulation, pipe sleeves, thermal expansion and contraction, and contact with building materials (Clauses [9.5](#) to [9.8](#));
- k) added requirements for PERT-AL-PERT composite pipe fittings, and plastic-to-metal connections (Clauses [10.4](#) and [10.10](#));
- l) removed restriction on use for compression valves for isolation purposes;
- m) added requirements for manifolds (Clause [11.3](#));
- n) changed high-temperature requirement limit for radiant floor heating panels (Clause [12.2.2](#));
- o) clarified requirements for makeup supply connection (Clause [12.5.4](#));
- p) added exception for differential pressure regulation (Clause [12.5.5.1](#));
- q) clarified requirements for air space above insulation (Clause [14.5.3.2](#));
- r) added space limits for air space behind insulation (Clause [14.6.2](#));
- s) added requirements for types of tube fasteners (Clause [17.4.2](#)); and
- t) added requirements for heat exchanger and piping and materials (Clause [18.4.1](#)).

This Code was prepared by the Technical Committee on the Installation Code for Hydronic Heating Systems, under the jurisdiction of the Strategic Steering Committee on Fuels and Appliances, and has been formally approved by the Technical Committee.

This Code 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.

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- 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 Standard to judge its suitability for their particular purpose.*
- 3) *This Code 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 Code.*

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# CSA B214:21

## ***Installation code for hydronic heating systems***

### **1 Scope**

#### **1.1 General**

This Code sets out the minimum provisions for the installation, extension, alteration, and renewal of hydronic heating systems.

#### **1.2 Inclusions**

This Code applies to open and closed hydronic heating systems. These systems include

- a) hydronic space heating;
- b) radiant heating (wall, floor, and ceiling);
- c) convectors;
- d) fan coils;
- e) combination potable-water-heating and space-heating (combo) systems;
- f) integrated mechanical systems;
- g) indirect-fired domestic-water heating;
- h) pool and spa heating;
- i) snow and ice melt systems; and
- j) other auxiliary systems.

#### **1.3 Interchangeable terms**

The terms “pipe” and “piping”, as well as “tube” and “tubing”, are used interchangeably in this Code, unless otherwise stated.

#### **1.4 Terminology**

In this Code, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the Code; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the Code.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

#### **1.5 Units of measure**

The values given in SI units are the units of record for the purposes of this Code. The values given in parentheses are for information and comparison only.