CANADIAN STANDARDS ASSOCIATION

Z317.1-09
(reaffirmed 2014)

Special requirements for plumbing installations in health care facilities

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CANADIAN STANDARDS ASSOCIATION

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Z317.1-09
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Title: *Special requirements for plumbing installations in health care facilities* — originally published March 2009

The following revisions have been formally approved and are marked by the symbol delta (Δ) in the margin on the attached replacement pages:

Revised	Clause 3
New	None
Deleted	None

CSA Z317.1-09 originally consisted of **38 pages** (vii preliminary and 31 text), each dated **March 2009**. It now consists of the following pages:

March 2009	iii–vii, 1–4, and 7–31
August 2009	5 and 6

- Update your copy by inserting these revised pages.
- Keep the pages you remove for reference.

Hands-free operation — operation of devices without the use of the hands.
Note: *Hands-free operation includes elbow, knee, foot, or electronic operation.*

Hazardous waste — a material or substance that, if handled improperly, has the potential to harm people, property, or the environment.

Health care facility (HCF) — a set of physical infrastructure elements supporting the delivery of health-related services.
Note: *For examples of different health care facilities by class, see Annex B.*

Class A-1 HCF — a facility in which patients are
(a) accommodated on the basis of medical need;
(b) provided with continuing medical care; and
(c) provided with supporting diagnostic and therapeutic services that can be extended beyond 12 h.

Note: *Class A-1 HCFs typically provide trauma and emergency services, have surgical operating rooms, and are referred to as "active treatment" or "acute care" institutions.*

Class A-1 HCFs fall into one of the following categories:

Category 1 — health care facilities designated by the authority having jurisdiction as a mission critical facility, including facilities designated as essential in infectious diseases outbreak management.

Category 2 — health care facilities that meet two of the following conditions:
(a) the HCF is an academic centre providing tertiary or quaternary services such as transplantation, oncology, or trauma services;
(b) the HCF provides regional programs such as oncological, trauma, cardiac, dialysis, pediatric, maternal, or newborn services;
(c) the expected travel time to a Class A-2 facility exceeds 1.0 h under normal driving conditions; and
(d) the HCF is the sole provider of acute care health services to populations in excess of 500 000 people.

Category 3 — health care facilities that meet one of the requirements listed in Category 2 and
(a) provide programs or services that are not generally provided by other nearby health care facilities; and
(b) include at least one of the following:
  (i) rehabilitation hospital;
  (ii) chronic patient care for hospitals with at least 200 licensed beds;
  (iii) mental health facilities;
  (iv) special rehabilitation services for disabled persons;
  (v) transplantation centres; and
  (vi) continuing care centres for management of chronic diseases.

Class A-2 HCF — a facility
(a) in which patients are
  (i) accommodated on the basis of medical need;
  (ii) provided with continuing medical care; and
  (iii) provided with supporting diagnostic and therapeutic services that can extend beyond 12 h; and
(b) that does not meet the other requirements of a Class A-1 HCF.

Notes:
(1) *Class A-2 HCFs include facilities for patients rendered incapable of self-preservation as a result of their medical condition.*
(2) *Class A-2 HCFs typically provide trauma and emergency services, have surgical operating rooms, and are referred to as "active treatment" or "acute care" institutions.*

Δ **Class B HCF** — a facility in which residents, as a result of physical or mental disabilities, are unable to function independently and are accommodated on the basis of medical need for constant care by health care professionals or the need for intensive therapies that require supervision by health care professionals, but where interventional and other invasive procedures are not performed.

Notes:

(1) *Class B HCFs include facilities for patients rendered incapable of self-preservation as a result of their medical condition.*

(2) *Class B HCFs include extended care, intermediate care, multi-level care, hospice, mental health, and rehabilitation facilities.*

Δ **Class C HCF** — a facility in which ambulatory patients

(a) are accommodated on the basis of medical need;

(b) are provided with supportive, diagnostic, non-invasive interventions and treatment services; and

(c) stay for no more than 12 h.

Notes:

(1) *Class C HCFs include facilities for patients who remain capable of self-preservation.*

(2) *Class C HCFs include outpatient clinics, dentists' offices, doctors' clinics, group homes, and private residences.*

Lavatory — a sink that is permanently installed and connected to a water supply and drainpipe located in a bathroom or in a patient care area and used for hand washing.

Micro-organism — an organism that is too small to be seen by the naked human eye.
Note: *Micro-organisms include bacteria, fungi, archaea, and protists, but not viruses and prions.*

Pathogen — a disease-causing microbe.
Note: *Pathogens include viruses, bacteria, helminths, and protozoa.*

Patient care area — an area intended primarily for diagnosis, therapy, or care.
Notes:

(1) *The administrator is responsible for determining whether an area should be classified as a patient care area and, if so, whether it is a basic, intermediate, or critical care area.*

(2) *Bathrooms and washrooms are not always considered part of the patient care area.*

Peak demand — the quantity of water necessary to maintain either the design or measured maximum quantity of water that the facility requires to maintain its normal operation at peak periods of water usage.

Potable water — water that meets Health Canada's *Guidelines for Canadian Drinking Water Quality — Summary Table*.

Private water supply system — an assembly of pipes, fittings, valves, equipment, and appurtenances that supplies water from a private source to a water distribution system.

Sanitary drainage system — a drainage system that conveys sewage.

Sanitizing — a process that results in a reduction of the microbial population on an inanimate object.

Sewage — liquid waste other than clear water waste or stormwater.

Sink — a utility or janitorial sink that is permanently installed and connected to a water supply and drainpipe.
Note: *Sinks are generally located in service areas, kitchens, and janitors' closets.*

Stormwater — water that is discharged from a surface as a result of rainfall or snowfall.

Subsoil drainage pipe — a pipe that is installed underground to intercept and convey subsurface water.

Water closet (toilet) — a plumbing fixture specifically designed to discharge human excrement into the sanitary drainage system.

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The Technical Committee would like to acknowledge the visionary leadership of Ain Allas, who passed away in January 2009. His dedication to the development of this and other standards will remain a valuable contribution to the field of standardization.

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Preface

This is the fourth edition of CSA Z317.1, *Special requirements for plumbing installations in health care facilities.* It supersedes the previous editions, published in 1999, 1988, and 1978. This Standard is one of a series of Standards related to health care facility engineering.

This Standard is intended to assist health care facilities to reduce the environmental impact of and manage the risks associated with plumbing installation and maintenance.

The following have been updated for this edition:

(a) the definitions (Clause 3);
(b) requirements on infection control, risk management, and commissioning (Clause 4);
(c) requirements on initial water system treatment, testing of potable water, and water conservation strategies (Clause 6); and
(d) requirements on plumbing fixtures and fittings (Clause 8).

This Standard was prepared by the Subcommittee on Plumbing in Health Care Facilities, under the jurisdiction of the Technical Committee on Health Care Facility Engineering and Physical Plant and the Strategic Steering Committee on Health Care Technology, and has been formally approved by the Technical Committee.

March 2009

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 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) *CSA Standards are subject to periodic review, and suggestions for their improvement will be referred to the appropriate committee.*

(5) *All enquiries regarding this Standard, including requests for interpretation, should be addressed to Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6.*

Requests for interpretation should

(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) be phrased where possible to permit a specific "yes" or "no" answer.

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 Web site at www.csa.ca.*

Z317.1-09
Special requirements for plumbing installations in health care facilities

1 Scope

1.1
This Standard specifies requirements for the following in health care facilities:
(a) hydraulic fire protection systems;
(b) pure water systems;
(c) drainage systems; and
(d) plumbing fixtures and fittings.
Note: *See CAN/CSA-Z7396.1 for design, installation, certification, and maintenance requirements for non-flammable medical gas piping systems.*

1.2
This Standard specifies minimum design, construction, installation, operations, and maintenance requirements in addition to the applicable requirements specified in
(a) the *National Building Code of Canada*;
(b) the *National Plumbing Code of Canada*;
(c) the CAN/CSA-B45 Series;
(d) the CAN/CSA-B64 Series;
(e) ASME A112.18.1/CAN/CSA-B125.1;
(f) ASME A112.18.2/CAN/CSA-B125.2; and
(g) CAN/CSA-B125.3.

1.3
This Standard is not intended to preclude the use of design concepts and the adoption of construction, installation, operations, and maintenance procedures more stringent than those specified in this Standard and in the documents listed in Clause 1.2.
Note: *Water quality and conservation efforts involve protection of public health and the rational use of water from intake to tap. Such efforts include educating the consumer, appropriate water treatment, verification of drinking water quality, and appropriate operation and maintenance of storage and distribution systems. Optimal plumbing design and installation can help health care facilities adopt water protection and water quality strategies that preserve natural resources and the ecosystem as a whole.*

1.4
This Standard applies to Class A-1, A-2, B, and C health care facilities.
Note: *Some requirements may be waived for smaller Class C health care facilities as determined by the application of engineering principles and in consultation with the administrator and the authority having jurisdiction.*

1.5
The requirements of this Standard apply to the retrofitting of existing systems when
(a) an existing health care facility is
  (i) extended; or
  (ii) subject to material alteration or repair; and
(b) the plumbing in existing facilities is adversely affected.