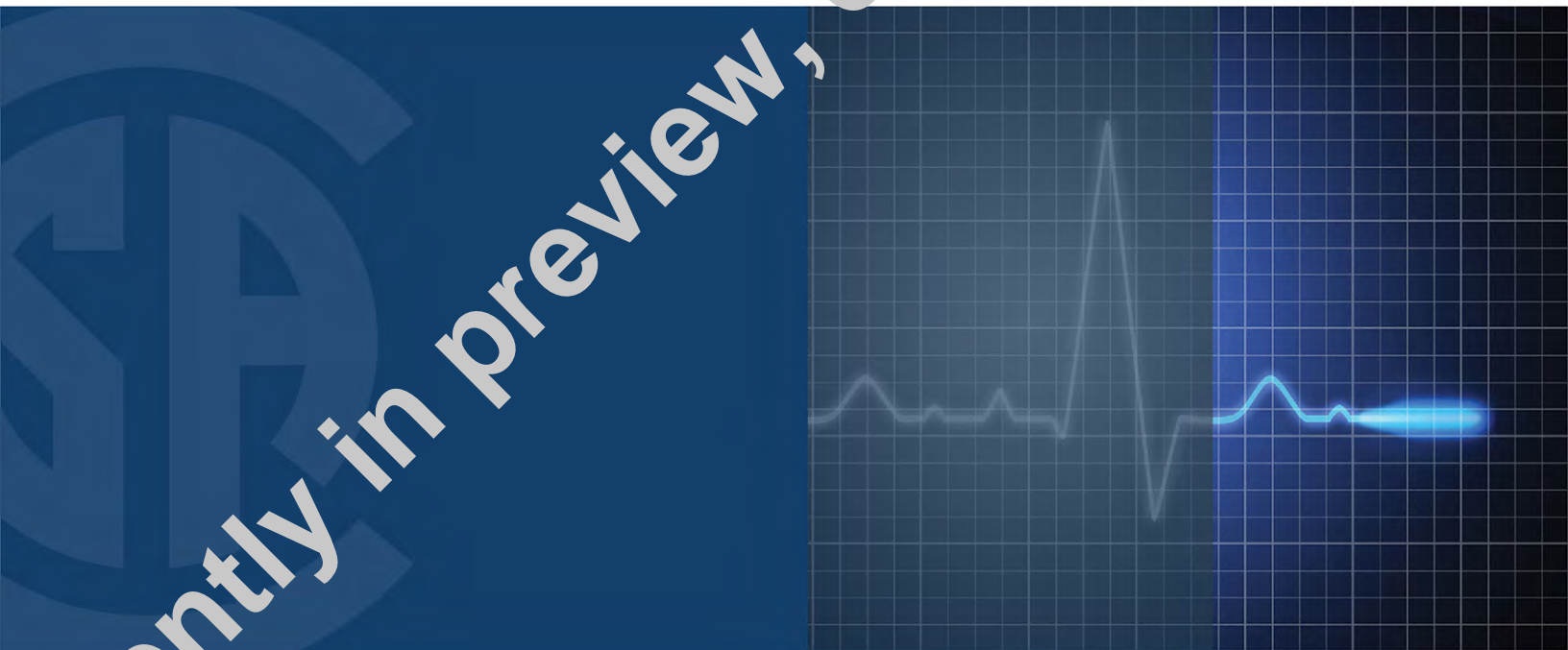




Operation and maintenance of health care facilities



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The Subcommittee would like to thank Greg Kuzmenko for his leadership as past Subcommittee Chair of Z8002.

Preface

This is the second edition of CSA Z8002, *Operation and maintenance of health care facilities*. It supersedes the previous edition published in 2014.

This Standard is part of the Z8000 series of Standards on health care facility design and construction, which includes

- a) CSA Z8000, *Canadian health care facilities*; and
- b) CAN/CSA-Z8001, *Commissioning of health care facilities*.

This Standard was prepared by the Subcommittee on Operation and Maintenance in Health Care Facilities, under the jurisdiction of the Technical Committee on Health Care Facilities and the Strategic Steering Committee on Health and Well-being, and has been formally approved by the Technical Committee.

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.*
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 - 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.*

CSA Z8002:19

Operation and maintenance of health care facilities

0 Introduction

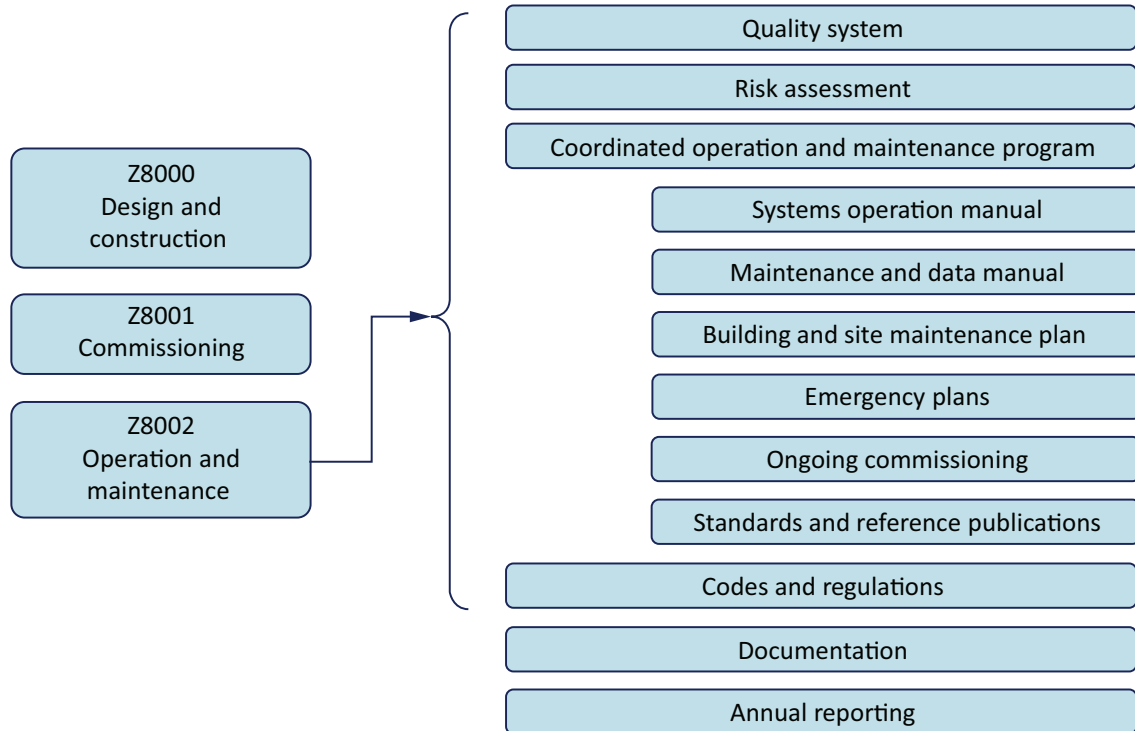
Proper operation and maintenance of a health care facility (HCF) is essential to the safe and effective delivery of services to patients and to the health and safety of personnel. Depending on facility size, operation and maintenance (O&M) activities may be the responsibility of one person or they may be distributed among a sizeable staff. Nevertheless, the principles are the same: for maximum safety, efficiency, and effectiveness, O&M functions should be managed by trained and qualified personnel using a well-organized and documented system.

The core of this Standard is the coordinated operation and maintenance program (COMP). The purpose of the COMP is to

- a) identify the HCF elements requiring O&M (i.e., building components, systems, and equipment);
- b) assign responsibility for the operation of each element;
- c) assign responsibility for maintenance of each element;
- d) ensure that the involved individuals and departments are aware of their responsibilities;
- e) ensure that the necessary supporting documents (reference manuals, plans, training documents, etc.) are available in electronic or printed form to those that need them, when and where they need them; and
- f) provide a means for ongoing documentation, record keeping, monitoring, and improvement of the O&M program.

This Standard sets out a framework for O&M and provides requirements for the essential elements of an O&M program, while leaving room for the HCF to shape the program to fit its size, scope of practice, and particular situation. As with any new program, some time could be needed before an HCF has all of the elements in place and in working order; however, each improvement in the organization and management of O&M activities makes a difference, and has the potential to increase the safety, reliability, and overall cost-effectiveness of the HCF.

Figure 1
Operation and maintenance documentation overview
 (See Clause 3.)



(Continued)

Figure 1 (Concluded)

Document	Scope / purpose	Examples of items covered
Quality system	Control, monitor, and continually improve the COMP.	<ul style="list-style-type: none"> Written procedures and policies for quality Staff training, qualifications, and responsibilities Process controls to ensure procedures are being followed.
Risk assessment	Evaluate, and manage where possible, potential risks related to the responsibilities and activities of the O&M service.	<ul style="list-style-type: none"> Document areas posing potential risks to patients, staff, or visitors in the facility, along with the methods to mitigate the risk involved.
Coordinated operation and maintenance program (COMP)	Overall operation and maintenance program that applies to all activities and elements relating to O&M.	<ul style="list-style-type: none"> Identify HCF elements requiring O&M Assign responsibilities, training, and supporting documents Means for ongoing monitoring and improvement.
Systems operation manual	Ongoing operation of all systems.	<ul style="list-style-type: none"> HVAC system (daily operation) Boilers and hot-water systems Pneumatic tube systems Safety and security systems
Maintenance and data manual	Maintenance of specific equipment and systems.	<ul style="list-style-type: none"> HVAC system (e.g., filters, cooling towers, fans) Plumbing systems (e.g., treatments and systems for infection prevention and control) Electrical / lighting systems
Building and site maintenance plan	Maintenance of building and site elements that are not covered in the maintenance and data manual.	<ul style="list-style-type: none"> Floors and other interior surfaces Building envelope and roof systems Architectural air seals in pressure-critical areas (e.g., operating rooms) Site Elements – access, parking, grounds Outdoor signage
Emergency plans	Define expectations for the plant maintenance and service actions, responses, and responsibilities in relation to HCF emergency plans.	<ul style="list-style-type: none"> Emergency evacuation plan Code response Hazardous materials management Isolation of systems Essential service provision in emergency situations Staff training
Ongoing commissioning	Process/program that monitors and documents the building's performance, using the original commissioning documentation as a benchmark.	<ul style="list-style-type: none"> Address all changes occurring in the facility and ensure commissioning is carried out and documented. Recommissioning at least every 5 years.
Standards and reference publications	Subsidiary standards and reference publications are included in Clause 2 of this Standard, with further detail in Table B.1.	<ul style="list-style-type: none"> Various related to operation and maintenance.
Codes and regulations	Follow applicable codes and regulations and document compliance.	<ul style="list-style-type: none"> Various related to operation and maintenance.
Documentation	Defined system for documentation (e.g., CMMS).	<ul style="list-style-type: none"> Documentation required by elements of this Standard.
Annual reporting	Report annually to HCF management on facility conditions and operation/maintenance needs.	<ul style="list-style-type: none"> Issues and recommendations Capital requirements Financial, clinical, and operational aspects, Infrastructure analysis.

1 Scope

1.1

This Standard describes the requirements, including quality system requirements, for the O&M of an HCF. It sets out specific requirements for

- a) buildings and architectural systems;
- b) site elements related to the building and its functions, including on-site access routes;
- c) on-site utilities;
- d) the building's mechanical, electrical, and information technology, and security systems;
- e) life safety systems;
- f) airborne isolation rooms, operating rooms, and specialized medical procedure rooms;
- g) permanently installed equipment as specified in Clause 1.4; and
- h) building services and interfaces for installed equipment, both medical and non-medical.

Note: *The HCF should be aware of federal, provincial/territorial, and municipal regulatory requirements applying to O&M and life safety systems, in addition to relevant CSA Group standards.*

1.2

This Standard establishes requirements for the HCF as a whole.

Note: *HCFs vary widely in size, scope, and organization. This Standard sets out the essential O&M requirements for an HCF: it is expected that the HCF will develop the appropriate administrative structures and reporting relationships.*

1.3

This Standard addresses the organization of, and the policies and procedures regarding, housekeeping and environmental services as they relate to O&M activities. It also includes requirements for the necessary coordination of O&M activities with other related HCF departments and functions.

Note: *Examples of other departments and functions include security, biomedical engineering, and nursing.*

1.4

This Standard addresses the operation and maintenance of permanently installed equipment used to support patient care (e.g., call systems, human waste disposal units). It also includes requirements for the O&M of interfaces between equipment and building systems (e.g., equipment docking and charging stations).

Notes:

- 1) *There is not always a clear line between the services and interfaces that support clinical equipment [see Clause 1.1, Item g)], and the clinical equipment itself. At a minimum, interfaces include physical space requirements and the use of utilities; however, there can be other connections (e.g., mechanical, electrical, computerization, telemetry, etc.). Problems can arise when different departments of the HCF each assume that the other is looking after a particular system. Among the tasks involved in planning an O&M program are to determine where the divisions are and then to document who is responsible for the different elements of the system.*
- 2) *In smaller facilities, O&M personnel or a department could have responsibility for equipment maintenance beyond the scope of this Standard. In that case, the person or department responsible for O&M should develop the appropriate expertise and consult relevant standards for these expanded duties (e.g., standards for biomedical engineering).*

1.5

This Standard does not assign responsibilities to specific job titles or departments.