

Construction, fabrication, and installation requirements for concrete containment structures for CANDU nuclear power plants



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CANADIAN STANDARDS
ASSOCIATION

CSA Standards Update Service

N287.4-09

October 2009

Title: *Construction, fabrication, and installation requirements for concrete containment structures for CANDU nuclear power plants*

Pagination: **46 pages** (ix preliminary and 37 text), each dated **October 2009**

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CSA Standard

N287.4-09

***Construction, fabrication, and installation
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*Published in October 2009 by Canadian Standards Association
A not-for-profit private sector organization
5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6
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ISSN 1978-1-55491-303-9

Technical Editor: Laura Pelan

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Preface

This is the fourth edition of CSA N287.4, *Construction, fabrication, and installation requirements for concrete containment structures for CANDU nuclear power plants*. It supersedes the previous editions published in 1992, 1983, and 1977.

This Standard provides requirements for construction, fabrication, and installation for concrete containment structures. Together with the other CSA N287 Standards, it provides the requirements for concrete containment structures for CANDU® nuclear power plants. These Standards were initiated in response to the recognition by the utilities and industries concerned with nuclear power plant structures in Canada of a need for consistent standards for the design, construction, and testing of concrete containment structures for CANDU nuclear power plants.

Note: *CANDU (CANada Deuterium Uranium) is a registered trademark of Atomic Energy of Canada Limited (AECL).*

Users of this Standard are reminded that the design, manufacture, construction, commissioning, operation, and decommissioning of nuclear facilities in Canada are subject to the provisions of the *Nuclear Safety and Control Act* and its Regulations. Requirements additional to those specified in this Standard could be imposed by the Canadian Nuclear Safety Commission.

This Standard was prepared by the Subcommittee on Construction, Fabrication, and Installation Requirements for Concrete Containment Structures for CANDU Nuclear Power Plants, under the jurisdiction of the Technical Committee on Concrete Containment and Safety-Related Structures and the Strategic Steering Committee on Nuclear Standards, and has been formally approved by the Technical Committee.

October 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.*
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 - (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.

N287.4-09

Construction, fabrication, and installation requirements for concrete containment structures for CANDU nuclear power plants

1 Scope

1.1

This Standard specifies the construction, fabrication, and installation requirements that apply to concrete containment structures of a containment system designated as class containment components, parts, and appurtenances for CANDU nuclear power plants.

1.2

This Standard provides personnel qualification requirements for work performed as it pertains to the construction, fabrication, and installation of concrete containment structures for CANDU nuclear power plants, in accordance with this Standard.

1.3

This Standard may be applied, as appropriate, to nuclear facilities under the jurisdiction of the *Nuclear Safety and Control Act*.

1.4

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

2 Reference publications

This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below, including all amendments published thereto.

CSA (Canadian Standards Association)

A23.1-09/A23.2-09

Concrete materials and methods of concrete construction/Test methods and standard practices for concrete

N285.0-08/N285.6 Series-08

General requirements for pressure-retaining systems and components in CANDU nuclear power plants/Material Standards for reactor components for CANDU nuclear power plants