CANADIAN STANDARDS ASSOCIATION

C22.3 No. 1-10

# Overhead systems

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# *C22.3 No. 1-10*
# ***Overhead systems***



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# Preface

This is the ninth edition of CSA C22.3 No. 1, *Overhead systems*, one of a series of Standards issued under the *Canadian Electrical Code, Part III*. It supersedes the previous editions, published in 2006, 2001, 1987, 1985, 1979, 1976, and 1970, and the original edition, which was published as a series of five Standards in 1959, 1953, 1947, and 1940.

Significant changes in this edition include

(a) modification of grounding requirements;
(b) revised requirements for crossings of railways;
(c) moving information about load factors related to linear analysis of wood poles to an Annex;
(d) updated criteria for clearance over navigable water;
(e) updated practices for conductor tensioning; and
(f) general updating of the Standard.

This edition of CSA C22.3 No. 1 covers both the linear and non-linear design methods for wood pole structures, with non-linear design being the preferred method. Non-linear design was first recognized as the preferred method in this Standard in a 2003 amendment to the 2001 edition. In the future, the non-linear method will be the sole method; the linear design method is retained in this edition of the Standard to facilitate the transition.

The reliability-based design of transmission lines is covered by CSA C22.3 No. 60826.

The purpose of the annexes is to provide the background information and reasoning necessary for the application of this Standard. It is not the intent of the annexes to modify the requirements of any of the clauses in this Standard.

CSA acknowledges the generous support of the Canadian Electricity Association (CEA) in the development of this Standard.

This Standard was prepared by the Technical Committee on Overhead Systems, under the jurisdiction of the Strategic Steering Committee on Power Engineering and Electromagnetic Compatibility, and has been formally approved by the Technical Committee. This Standard will be submitted to the Standards Council of Canada for approval as a National Standard of Canada.

*July 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 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.*

# *C22.3 No. 1-10*
# *Overhead systems*

## 1 Scope

### 1.1
This Standard applies to electric supply and communication lines and equipment located entirely outside of buildings and fenced supply stations.

### 1.2
Existing installations (including maintenance replacements, additions, and alterations) meeting the original designs that currently comply with prior editions of this Standard, need not be modified to comply with this edition of the Standard, except as might be required for safety reasons by the authority having jurisdiction.

### 1.3
This Standard, which forms part of the *Canadian Electrical Code, Part III*, provides requirements for the construction of overhead systems. It covers electric supply and communication circuits that
(a) are installed alone;
(b) are in joint use;
(c) are in proximity to each other or other facilities;
(d) cross each other or other facilities; and
(e) cross railways, highways, navigable waterways, or land that is likely to be traversed by vehicles or pedestrians.

### 1.4
This Standard presents a choice between deterministic and reliability-based design methods. Reliability-based design methods are covered by CSA C22.3 No. 60826.

### 1.5
The requirements contained in this Standard do not constitute complete design and construction specifications, but rather prescribe the minimum design requirements that are most important to the
(a) safety of persons;
(b) continuity of service; and
(c) protection of property.

### 1.6
Conditions not covered by this Standard are governed by equivalent Standards in common use or by the authority having jurisdiction.

### 1.7
In some cases in this Standard, specific types of construction are envisaged. This does not preclude the use of other types of construction, provided that the engineering representatives involved can demonstrate the safety and suitability of these alternatives.

### 1.8
The use of terms such as “where practicable” is not intended to provide an opportunity for not meeting the requirements of this Standard, but indicates the preferred clearance or method. Where an alternative is