



**CSA C71-1:99**

**Insulation co-ordination — Part 1: Definitions, principles and rules**  
(IEC 71-1:1993, MOD)

**CSA C71-1:99**

**Coordination de l'isolement — Partie 1 : Définitions, principes et règles**  
(IEC 71-1:1993, MOD)



**Standards Council of Canada  
Conseil canadien des normes**

# *National Standard of Canada*

*CSA C71-1:99*

## ***Insulation co-ordination — Part 1: Definitions, principles and rules (IEC 71-1:1993, MOD)***

*Prepared by  
International Electrotechnical Commission*



*Reviewed by*



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# CAN/CSA-C71-1-99

## ***Insulation co-ordination — Part 1: Definitions, principles and rules***

### ***CSA Preface***

This is the first edition of CSA Standard CAN/CSA-C71-1, *Insulation co-ordination — Part 1: Definitions, principles and rules*, which is an adoption, with Canadian deviations, of the identically titled CEI/IEC (International Electrotechnical Commission) Standard 71-1: 1993 (seventh edition, 1993-12).

CSA Standards are developed through the dedication of time by Committee members and by financial support through sales of standards and through voluntary contributions. Major funding in support of the consensus process for this Standard was provided by the Canadian Electricity Association (CEA), whose assistance is acknowledged with thanks.

This Standard was reviewed for Canadian adoption by the CSA Technical Committee on Insulation Coordination under the jurisdiction of the Standards Steering Committee on Electrical Engineering Standards, and has been formally approved by the Technical Committee. A list of the members of these committees is available upon request. This Standard has been approved as a National Standard of Canada by the Standards Council of Canada.

*July 1999*

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**Coordination de l'isolement**

**Partie 1:**  
Définitions, principes et règles

**Insulation co-ordination**

**Part 1:**  
Definitions, principles and rules

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## INSULATION CO-ORDINATION

## Part 1: Definitions, principles and rules

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

International Standard IEC 71-1 has been prepared by IEC technical committee 28: Insulation co-ordination.

This seventh edition cancels and replaces the sixth edition published in 1976 which dealt only with insulation co-ordination between phase and earth, and the first part of the first edition – published in 1982 – of IEC Publication 71-3 which dealt with insulation co-ordination between phases.

This standard constitutes a technical revision and forms Part 1 of IEC Publication 71.

IEC Publication 71-2 (in preparation) will constitute the Application Guide for the insulation co-ordination of electrical equipment.

The text of this standard is based on the following documents:

DIS	Report on voting
28(CO)58	28(CO)60

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

Annex A is for information only.

## INSULATION CO-ORDINATION

### Part 1: Definitions, principles and rules

#### 1 Scope

This part of International Standard IEC 71 applies to three-phase a.c. systems having a highest voltage for equipment above 1 kV. It specifies the procedure for the selection of the standard withstand voltages for the phase-to-earth, phase-to-phase and longitudinal insulation of the equipment and the installations of these systems. It also gives the lists of the standardized values from which the standard withstand voltages shall be selected.

This part recommends that the selected withstand voltages should be associated with the highest voltage for equipment. This association is for insulation co-ordination purposes only. The requirements for human safety are not covered by this Standard.

Although the principles of this part also apply to transmission line insulation, the values of the withstand voltages may be different from the standard withstand voltages.

The apparatus committees are responsible for specifying the withstand voltages and the test procedures suitable for the relevant equipment taking into consideration the recommendations of this Standard.

NOTE – In IEC 71-2 Application Guide, (under revision), all rules for insulation co-ordination given in this Standard are justified in detail, in particular the association of the standard withstand voltages with the highest voltage for equipment. When more than one set of standard withstand voltages is associated with the same highest voltage for equipment, guidance is provided for the selection of the most suitable set.

#### 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 71-1. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 71-1 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 38: 1983, *IEC standard voltages*

IEC 60-1: 1989, *High-voltage test techniques – Part 1: General definitions and test requirements*