

ICS 91.140.50

CCS P 63



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 50054-2011

Replacing GB 50054-1995

Code for design of low voltage electrical installations

Issued on: July 26, 2011

Implemented on: June 1, 2012

**Issued by: Ministry of Housing and Urban-Rural Development of the
People's Republic of China;
General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China**

Table of Contents

Foreword

- 1 The applicable voltage was changed from AC 500V power frequency to AC 1000V power
- 2 The provision that copper and aluminium conductors shall be selected in the General
- 3 The terms were added as a separate chapter while the term explanation in the Appendix was
- 4 The requirements for the selection and installation of functional switching devices and
- 5 The requirements of selecting switching device with neutral pole were added;
- 7 The requirements for selecting sectional area of protective bonding conductor for local
- 8 The "3.2 Safety Precautions in Layout of Switchgear Assembly" of "Chapter 3 Layout of
- 9 The "Protection against Electrical Fire of Power Circuits" was added in "Protection for
- 10 The requirements for "wiring of pliable metal conduit", "wiring of underground concealed
- 11 Supplement, improvement and adjustment were made the partial provisions in the former

2 Terms ... 2

3 Selection of Electrical Devices and Conductors ... 5

3.1 Selection of Electrical Devices ... 5

3.2 Selection of Conductors ... 7

4 Layout of Switchgear Assembly ... 13

4.1 General Requirements ... 13

4.2 Safety Precautions in Layout of Switchgear Assembly ... 13

4.3 Requirements for Buildings ... 14

5 Protection Against Electric Shock in Electrical Installation ... 16

5.1 Measure for Protection Against Direct Contact ... 16

5.3 SELV System And PELV System and FELV System ... 23

6 Protection for Power Circuits ... 26

6.1 General Requirements ... 26

6.2 Protection Against Short Circuit ... 26

6.3 Protection Against Overload ... 28

6.4 Protection Against Electrical Fire of Power Circuits ... 29

7 Erection of Wiring System ... 30

7.1 General Requirements ... 30

7.2 Wiring of Insulated Conductors ...	31
7.3 Wiring of Suspended Conductors ...	35
7.4 Wiring of Bare Conductors ...	36
7.5 Wiring of Enclosed Busbar ...	37
7.6 Wiring of Cables ...	38
7.7 Wiring of Electric Shaft ...	44
1 General Provisions	
2 Terms	

Foreword

According to the requirements of Document Jian Biao [2002] No. 85 issued by the former Ministry

of Construction (MOC)-"Notice on Printing and Publishing the Development and Revision Plan of

National Engineering Construction Standards in 2001~2002", this code was Formulated through

revising "Code for Design of Low Voltage Electrical Installations" GB 50054-95 jointly by China

Electric Design & Research Institute Co., Ltd. and organizations concerned.

During the revision process, this code was reviewed and finalized by the drafting group on the

basis of wide investigation, earnest summary of practical experience and reference to relevant

international standards and foreign advanced standards as well as extensive solicitation for opinions.

This code comprises 7 Chapters and 1 Appendix. the main technical content includes general

provisions, terms, selection of electrical devices and conductors, layout of switchgear assembly,

protection against electronic shock in electrical installation, protection for power circuits and erection

of wiring systems.

The main technical revisions are as follows .

1 The applicable voltage was changed from AC 500V power frequency to AC 1000V power

frequency;

2 The provision that copper and aluminium conductors shall be selected in the General

Provisions of the former code was cancelled;

3 The terms were added as a separate chapter while the term explanation in the Appendix was

deleted;

4 The requirements for the selection and installation of functional switching devices and

residual current action protection devices were added;

5 The requirements of selecting switching device with neutral pole were added;

6. The requirements of installing electrical devices for insulation monitoring in IT system were

added ;

7 The requirements for selecting sectional area of protective bonding conductor for local

equipotential bonding were added;

8 The "3.2 Safety Precautions in Layout of Switchgear Assembly" of "Chapter 3 Layout of

Switchgear Assembly" was incorporated into "4.4 Protection against Earth Fault" of "Chapter 4

Protection for Power Circuits" in the former code, and "SELV System, PELV System and FELV

System" were added in "Chapter 5 Protection against Electric Shock in Electrical

Installation";

9 The "Protection against Electrical Fire of Power Circuits" was added in "Protection for

Power Circuits" ;

10 The requirements for "wiring of pliable metal conduit", "wiring of underground concealed

metal trunking", "mineral insulated cable erection" and "pre-branch cable erection" were added;

11 Supplement, improvement and adjustment were made the partial provisions in the former

Contents

General Provisions ... 1

5 .1 Measure for Protection Against Direct Contact ... 16

5 .2 Measure for Protection Against Indirect Contact by Automatic Disconnection of Supply ... 18

7 7 Wiring of Electric Shaft ... 44

Appendix A Value of Factor k ... 46

Explanation of Wording of This Code ... 49

List of Quoted Standards ... 50

1 General Provisions

1.0.1 This code is Formulated with a view to ensuring personal and property safety, energy conservation,

advanced technology, full function, economic rationality, reliable electrical installation as well as

convenient installation and operation in the design of low-voltage electrical installations.

1.0.2 This code is applicable to the design of low-voltage electrical installations at 1 000V AC power

frequency in construction, extension and renovation engineering.