



Guide to the Wiring Regulations

17th Edition IEE Wiring Regulations (BS 7671: 2008)

Darrell Locke

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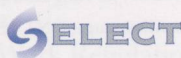
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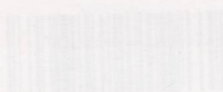
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Foreword by Giuliano Digilio

Head of Technical Services, Electrical Contractors' Association (ECA)

The IEE Wiring Regulations and more lately BS 7671 have always been important for electrical contractors and for installation designers, and they are a key factor in the implementation of electrical safety within the UK and indeed overseas. The IEE Wiring Regulations go back to the end of the 19th century, almost to the time of the very first electrical installation within the UK.

The ECA is fully committed to the development of standards for the national BS 7671 committee as well as corresponding work in both the European Committee for Electrotechnical Standardisation (CENELEC) and the International Electrotechnical Commission (IEC). This includes a considerable amount of work in the preparation for BS7671: 2008.

I am pleased that you have purchased the ECA *Guide to the Wiring Regulations* and I trust that this quality publication will aid to enhance the understanding and knowledge within the electrical industry for both electrical contractors and electrical designers.

Preface

This book discusses the requirements of BS 7671: 2008, also known as the IEE Wiring Regulations 17th Edition, published during January 2008.

The aim of the guide is to provide an explanation of the theory and reasons behind the Regulations, their meaning and the intent of their drafting. The book provides advice and guidance, demystifying the 'requirements' wherever possible. Practical and original solutions have been provided, which are often not found in other industry guidance.

The guide is a valuable resource for all users of BS 7671 including apprentices, electricians who perhaps want to 'dig a bit deeper' into the background of the Regulations, together with electrical technicians, installation engineers and design engineers. Most individuals who have any involvement with BS 7671 will find the book of considerable help and benefit in their everyday work.

To derive use and benefit from the book it is assumed that readers have knowledge of electrical installation engineering to a basic level. However, 'defined scope' installers and those at similar levels will also gain from working through the book thanks to its clear diagrams. Given these prerequisites, the book can be used as a learning text for the 17th Edition Wiring Regulations as long as readers have a copy of the Standard itself. Indeed, a copy of BS 7671: 2008 is required as a reference document when using this book, and readers should at least familiarize themselves with the terminology and definitions used in the basic Standard.

Guide to the Wiring Regulations is intended to be read on a chapter-by-chapter basis by those involved at the level of designing and constructing installations. This is something that is not easy to achieve with books on this subject as accessing the basic Standard itself can be quite daunting and heavy going.

A particular emphasis or expansion has been made to those subjects that are often confused by readers of BS 7671. In this respect the text does not wander off to discuss ancillary subjects; the text stays focused on providing an understanding of those concepts demanded of BS 7671 so that design and installation decisions can be made by readers.

The book's coverage is comprehensive, and all Parts of the Regulations have been addressed within the topic lead chapters. Design aspects have been included as they are integral to installations. Often, individuals or organizations consider themselves to be either pure designers or pure installers. However, even by the act of an 'installer' in selecting equipment that was unspecified by the designer, e.g. selecting cables or other equipment, an element of design is being carried out. The same concept is true of domestic installers who select 'standard designs' but perhaps feel that they do not design. These individuals are considered to be designers even where the design is not calculated for each installation. The adoption of a 'standard design' or a 'standard cable size' by the installer is in fact design by the installer.

The book is arranged into topic lead chapters, at the heart of which are Chapters C (Circuitry) and D (Selection and Erection of Equipment). Although the titles of these chapters seem simple enough, they are comprehensive and encompass about 70% of the Regulations.

Most requirements of the Regulations have been condensed and summarized using tables aided by clear, simple diagrams. Some tables seem quite long but they are still very condensed compared with the regulations that they summarize. As an example, the new Section 559 in BS 7671 includes 44 regulations, but these are summarized in a 15-row table. The nature of the Regulations is that they must state all facts. However, the repetition of the most basic information in the guide was not considered beneficial; for example, where the regulation is written in the following style:

'cables shall be large enough for the anticipated current'

This type of regulation is either not expanded upon in the guide or it is explained as follows:

'cables shall be 6 mm² minimum'.

The book includes five printed appendices and further appendices are available as downloads from the companion website. Appendices that have been included on the Companion Website were either considered to be non-essential for most readers,

or were items that may be subject to change at a future date. The Companion Website can be found at: http://www.wiley.com/go/eca_wiringregulations

Although more experienced readers may wish to jump to Chapter C, the introductory Chapters A and B are worth spending some time on. Within these chapters, the legal standing of BS 7671: 2008 is discussed together with its relationship with key UK law in the area of electrical installations. The general requirements of BS 7671: 2008 are also summarized within these chapters.

Acknowledgements

I would like to thank my wife Joan and my children for their support throughout 2007, which much of the drafting of this book took place.

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I also thank James O'NEILL, Director of Engineering at NG Retail Limited, and Phil Mac Donald, Principal Project Electrical Design Engineer of Shepherd Engineering Services, for acting as critical readers, and Ken Morton, HM Principal Electrical Inspector, Humber Region, for his comments on Chapter B.

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David Lick, October 2007



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Darrell Locke, October 2007

Contents

Foreword by Giuliano Digilio	xi
Preface	xiii
Acknowledgements	xvii
Chapter A – BS 7671: 2008 – Introduction and Overview	1
A 1 Introduction to BS 7671: 2008	1
A 2 Plan and layout of BS 7671: 2008	4
A 3 Overview of major changes	5
Chapter B – Legal Relationship and General Requirements of BS 7671: 2008	11
B 1 Legal requirements and relationship	11
B 1.1 Key UK legislation	11
B 1.2 The Electricity at Work Regulations 1989 (EWR 1989)	12
B 1.3 The Electricity Safety, Quality and Continuity Regulations 2002 (as amended)	13
B 1.4 The Electricity Act 1984 (as amended)	14
B 1.5 The Building Act 1984, The Building Regulations and Part P	14
B 1.6 The Electromagnetic Compatibility Regulations 2005 (EMC)	16
B 1.7 Tort and negligence	16
B 2 The role of Standards	17
B 3 Part 3 of BS 7671: 2008 – assessment of general characteristics	19
Chapter C – Circuitry and Related Parts of BS 7671: 2008	21
C 1 Introduction	21
C 2 Design procedure overview	22
C 3 Load assessment	23

C 3.1	Principles and definitions	23
C 3.2	Maximum demand assessment	26
C 3.3	Diversity	28
C 4	Circuit design	30
C 4.1	Introduction	30
C 4.2	Protection against overcurrent in general	32
C 4.3	Overload protection	32
C 4.4	Fault protection	46
C 4.5	Voltage drop	49
C 4.6	Disconnection and electric shock	55
C 5	Submains	64
C 5.1	Diversity	64
C 5.2	Distribution circuit (submain) selection	64
C 5.3	Armouring as a cpc	65
C 5.4	Automatic disconnection for submains	67
C 6	Discrimination co-ordination	67
C 6.1	Principles and system co-ordination	67
C 6.2	Fuse-to-fuse discrimination	69
C 6.3	Circuit breaker to circuit breaker discrimination	70
C 6.4	Circuit breaker to fuse discrimination	71
C 7	Parallel cables	72
C 7.1	General and 7671 requirements	72
C 7.2	Unequal current sharing	73
C 8	Harmonics	73
C 8.1	Requirements	73
C 8.2	Harmonic assessment	74
C 9	Standard final circuit designs	74
C 9.1	Introduction and scope	74
C 9.2	Standard domestic circuits	77
C 9.3	All-purpose standard final circuits	79
C 10	RCDs and circuitry	83
C 10.1	Introduction, increased use of RCDs	83
C 10.2	Consumer unit arrangements for RCDs	84
C 11	Ring and radial final circuits	87
C 11.1	Introduction	87
C 11.2	Ring final circuits	87
C 11.3	Radial final circuits	89
Chapter D – Selection and Erection – Equipment		91
D 1	Introduction and fundamentals	91
D 2	Compliance with Standards	92
D 3	Identification of conductors	93

D 3.1	Principle of required identification (514.3.1)	94
D 3.2	Identification by colour	95
D 3.3	Identification by marking	97
D 3.4	Additions and alterations – identification	97
D 3.5	Interface marking	98
D 3.6	d.c. identification	98
D 4	EMC and prevention of mutual detrimental influences	101
D 4.1	Introduction	101
D 4.2	EMC directive and BS 7671	101
D 4.3	EMC cable separation – power, IT, data and control cables	102
D 4.4	Cable management and EMC	105
D 5	Wiring systems	106
D 5.1	The choice of wiring systems	106
D 5.2	Circulating currents and eddy currents in single-core installations	110
D 5.3	Electrical connections and joints	112
D 5.4	Wiring systems – minimizing spread of fire	117
D 5.5	Proximity to other services	119
D 6	Circuit breakers	119
D 6.1	General	119
D 6.2	Operation and characteristics	120
D 6.3	Ambient temperature de-rating	124
D 7	Residual current devices	125
D 7.1	BS 7671 applications	125
D 7.2	Operation and BS 7671 requirements	127
D 7.3	Unwanted RCD tripping and discrimination	128
D 7.4	d.c. issues for RCDs	130
D 7.5	TT installations and RCDs	130
D 8	Other equipment	132
D 8.1	Isolation and switching	132
D 8.2	Consumer units for domestic installations	132
D 8.3	Overvoltage, undervoltage and electromagnetic disturbances	132
D 8.4	Surge protective devices	133
D 8.5	Insulation monitoring devices (IMDs)	135
D 8.6	Residual current monitors (RCMs)	135
D 9	Generating sets	137
D 10	Rotating machines	138
D 11	Plugs and socket outlets	139
D 12	Electrode water heaters and electrode boilers	140
D 13	Heating conductors	141
D 14	Lighting and luminaires	141
D 15	Safety services	144

D 15.1	Introduction	144
D 15.2	Classification of break times	144
D 15.3	Safety sources	145
D 15.4	Circuits for safety services	146
D 16	Ingress protection (IP), external influences	146
D 16.1	General	146
D 16.2	Equipment applications and examples	149

Chapter E – Earthing and Bonding 151

E 1	Introduction	151
E 2	Earthing arrangements	153
E 3	General requirements of earthing and bonding	159
E 4	Protective conductors	162
E 4.1	General	162
E 4.2	Physical types of protective conductor	162
E 4.3	Sizing protective conductors	164
E 4.4	Protective conductors up to 16 mm ²	165
E 4.5	Earthing conductor	167
E 5	Armoured cables as protective conductors	167
E 5.1	General	167
E 5.2	ERA report on current sharing between armouring and cpc	168
E 5.3	ECA advice and recommendations	169
E 6	Protective equipotential bonding	169
E 6.1	Purpose of protective equipotential bonding	169
E 6.2	BS 7671 requirements	170
E 6.3	Bonding solutions for the modern installation	170
E 6.4	Sizing protective bonding conductors	177
E 6.5	Domestic protective equipotential bonding layouts	178
E 6.6	Supplementary equipotential bonding	178
E 7	High earth leakage installations	183

Chapter F – Inspection, Testing and Certification (Part 6) 185

F 1	Introduction	185
F 1.1	Inspection and testing – an integrated procedure	185
F 2	Visual inspection	186
F 3	Testing	188
F 3.1	Introduction – pass and fail nature	188
F 3.2	Required tests	188
F 3.3	Continuity testing	189
F 3.4	Ring continuity	193
F 3.5	Insulation testing	196
F 3.6	Polarity testing	200

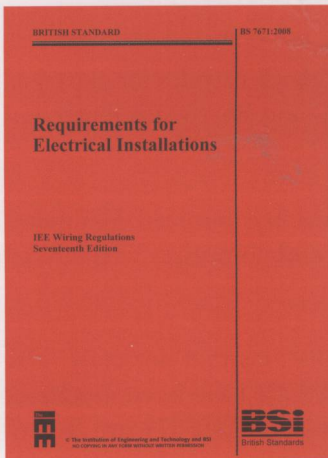
F 3.7	Earth fault loop impedance (ELI) testing	201
F 3.8	Prospective fault current testing	205
F 3.9	Testing RCDs and other functional tests	206
F 3.10	Verification of voltage drop	208
F 4	Certification paperwork	208
F 4.1	Introduction, various certificates and schedules	208
F 4.2	Overview of certificates and schedules	208
F 4.3	Completing the paperwork	209
Chapter G – Special Locations		219
G 1	Introduction: Purpose and principles	219
G 1.1	Introduction	219
G 1.2	Purpose and principles	220
G 1.3	Particular requirements and numbering	221
G 2	Locations containing a bath or shower (701)	221
G 2.1	Introduction and risks	221
G 2.2	Zone concept	222
G 2.3	Electric shock requirements	226
G 2.4	Equipment selection and erection	227
G 3	Swimming pools and other basins (702)	228
G 3.1	Introduction and risks	228
G 3.2	Zone concept	229
G 3.3	Requirements and guidance	232
G 4	Agricultural and horticultural premises (705)	234
G 4.1	Introduction, purpose and principles	235
G 4.2	Requirements and guidance	235
G 5	Caravan parks and camping parks (708)	239
G 5.1	Introduction, purpose and principles	239
G 5.2	Requirements and guidance	240
G 6	Exhibitions, shows and stands (711)	243
G 6.1	Introduction and risks	244
G 6.2	Requirements and guidance	244
G 7	Solar photovoltaic (PV) power supply systems (712)	246
G 7.1	Introduction, principles and terminology	246
G 7.2	Requirements	249
G 7.3	Notes and guidance	249
G 8	Mobile or transportable units (717)	253
G 8.1	Scope and application	253
G 8.2	Requirements	254
G 8.3	Notes and guidance	254
G 9	Floor and ceiling heating systems (753)	256
G 9.1	Introduction	256

G 9.2	Requirements	256
G 9.3	Notes and guidance	257
Appendices		261
Appendix 1	Standards and bibliography	262
Appendix 2	Popular cables: current rating tables from BS 7671: 2008	
Appendix 4		267
Appendix 3	Limiting earth fault loop impedance tables from BS 7671: 2008	270
Appendix 4	Cable data-resistance, impedance and ' $R_1 + R_2$ ' values	272
Appendix 5	Fuse I^2t characteristics	276
Index		277

BS 7671: 2008 – Introduction and Overview

A 1 Introduction to BS 7671: 2008

BS 7671: 2008 was published during January 2008 as a significant new Edition of this fundamental Standard.



Although the document is a British Standard, it is also known as (and jointly labelled as) the *IEE Wiring Regulations 17th Edition*; this is for copyright reasons. In spite of the fact that the IEE changed to the IET in 2006, the IET has maintained the brand of IEE, mainly for use in its Wiring Regulations documents and products. Indeed, the IEE logo appears on the front cover and the IET logo inside the front cover.

Throughout this book, BS 7671: 2008 is referred to as BS 7671: 2008, or variously as BS 7671, the Wiring Regulations, the Regulations, the 17th edition or the Standard, depending upon the particular context.

In essence, BS 7671: 2008 is virtually a European document. In fact, two parent documents as parts of the corresponding IEC standard have been used or adapted.

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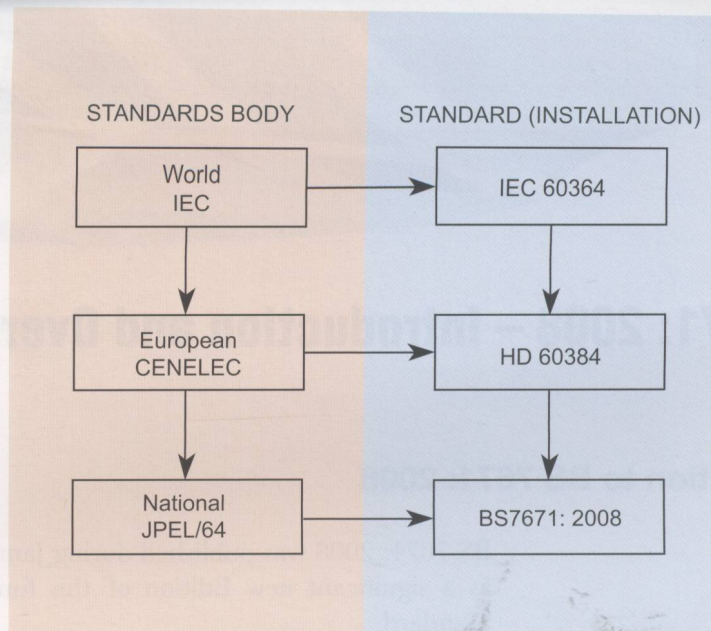


Figure A 1.1 Installation standards at world, European and national levels.

Both IEC and CENELEC have ‘wiring regulation’ standards or rules for electrical installations. The general structure of IEC, CENELEC and BS 7671 is illustrated in Figure A 1.1.

Many parts of the document originate in CENELEC in a ‘harmonized document’ (HD). The parent document is known as HD 60384 and comprises virtually all parts of the installation standard.

Within BS 7671: 2008 there are now only a few regulations that are truly ‘UK only’, although some of the CENELEC parts of HD 60384 have been modified, cut or expanded for BS 7671. Some of the appendices of BS 7671 are home-grown.

The Wiring Regulations committee has also used certain parts of the corresponding IEC document (IEC 60364) modified or virtually unmodified.

A list of the parts of the corresponding CENELEC parts of HD 60384 used in BS 7671: 2008 is shown in Table A 1.1.