

# The IET Wiring Regulations - 17<sup>th</sup> Edition

## Introduction 2012

The course is designed to give the participant a knowledge and understanding of BS 7671 and the On-Site Guide. When you feel you have a good grasp of the book and the Regulations therein you can take the course exam with certification awarded to successful students.

We recommend you successfully take the Bycon exam in preparation for the C&G 2382-12 qualification. The Bycon exam is designed to be as challenging as the C&G 2382-12 exam therefore a pass with Bycon will be a good guide to your chances of success with the C&G award.

This course has been updated to meet the 1<sup>st</sup> January 2012 requirements of the current edition of BS 7671, 17<sup>th</sup> Edition.

## Required publications

You will require two publications in order to complete the course successfully, these are:-

- a current copy of BS 7671:2008, Requirements for Electrical Installations also known as the IET Wiring Regulations Seventeenth Edition (green book), and
- a current copy of the IET On Site Guide (green book).

Note:- Both books may be taken into the C&G exam for reference during the exam.

IMPORTANT:- You should read the above publications alongside these notes. To get the full benefit of the course the notes here should not be read in isolation.

## Objectives

There are eight parts to this course. These relate to Parts 1-7 and the Appendices of BS 7671:2008. You will have to be able to locate the information you require through a system of referencing. You will also be expected to gain significant knowledge about the information located within the book.

## BS 7671 (17<sup>th</sup> Edition) Structure and numbering

The Regulations take the form primarily of a design document and are divided into seven parts. These parts follow a logical pattern from the basic requirements to the final testing and inspection of an installation:

### Part 1 Scope, objects and fundamental Principles

*Areas covered and areas not covered. Why have regulations?*

### Part 2 Definitions

*Terminology and explanation*

### Part 3 Assessment of general characteristics

*All installations have to be assessed for how they are supplied, earthed, etc. How will they be affected by additions and/or alterations? It is important to note that Parts 1 and 3 of BS 7671 lay down the foundations for compliance whilst Parts 4 to 7 provide more specific requirements.*

### Part 4 Protection for safety

*Part 4 is about requirements for safety, for example, earthing, fuses and circuit breakers, maximum disconnection times in the event of a fault, etc. Protection of life and property under both normal conditions and in the event of faults arising within the installation are covered in this part.*

**Part 5 Selection and erection of equipment**

*Part 5 is about selecting the right equipment for the job and installing it correctly. It is about what equipment and accessories to use, when and where to use and how to install.*

**Part 6 Inspection and testing**

*Installation and periodic testing including certification.*

**Part 7 Special installations or locations**

*Additional requirements for installations with additional hazards such as in wet conditions.*

**Appendices** *Appendices 1-16 provide tabulated and other background information required by the electrical installation designer if his work is to comply with the Regulations.*

**Numbering**

The Regulations are divided into:

- Parts (identified by the first number of each group of digits),
- Chapters (identified by the second digit),
- Sections (identified by the third digit).
- After the first group of three digits, the digits separated by dots (.) identify the regulations themselves.

Example The Section number 521.8.1 is made up as follows:

5	PART 5	SELECTION AND ERECTION OF EQUIPMENT
52	Chapter 52	SECOND CHAPTER OF PART 5
521	Section 521	TYPES OF WIRING SYSTEM
521.8	521.8	CIRCUIT ARRANGEMENTS
521.8.1	Regulation 521.8.1	(details of circuit arrangements)

BS 7671 offers the designer the opportunity to comply with the Regulations by selecting the Regulations best suited to each particular installation from both economic and technical considerations.

**Tables**

You have probably noticed that included in the Regulations are several tables. One way of finding a particular table by its number is to understand that the table numbers match the chapters of the book in which they appear.

Example Table 44.1 and 44.2 appears in Chapter 44 and Table 55.1 appears in Chapter 55.

Tables which start with a number then a letter appear in the appendices.

Example Tables 7A and 7B appear in Appendix 7.

The numbering system can be quite difficult at first but will become easier to navigate after a very short time of reading.

## **On Site Guide**

The 'On Site Guide' (OSG) is an extremely important publication and a very useful one. It has been well thought out in order to contain many important points in order to assist the electrician relating to the design, selection, erection and testing of smaller electrical installations such as domestic premises, shops and offices.

During this course you will be directed relevant to sections of the IET On Site Guide. This book is an excellent addition to the electrician's toolbox and includes the more common regulations and tables needed in every day work.

The descriptions are illustrated in places and the wording is straightforward and easier to understand than some explanations within BS 7671 itself. The OSG can be taken into the exam together with BS 7671. You will see there is an additional section in this course dedicated to additional information within the OSG.

## **The Wiring Regulations and the Law**

The IET Wiring Regulations (BS 7671) are not statutory laws. They are only recommendations for the safe selection, erection and verification of electrical installations. They can be considered to be a 'code of practice' assisting in conforming to the 'Electricity at Work Regulations'.

## **How to find your way to the required information**

I consider BS 7671 as being a 'code of practice', that is, a guide to carrying out best practice when working on electrical installations. You cannot possibly try to remember everything in the book.

Remember – you take the books into the exam. Therefore the trick is to be able to find your way around the book to find the answers to the questions asked rather than try to memorise them.

So how do we go about finding our way through the book for the answers?

A general rule of thumb for finding out what the Regulations have to say about a particular subject is to start your search either by looking in the:-

- Contents (page 3)

A good place to start if, for example, you are looking for a Regulation concerning one of the special locations. The 'special installations or locations' regulations are in Part 7 and are usually covered in only a few pages for each section. Therefore going straight to the required section should bring you close to where your required information is likely to be.

- Index (page 437)

When looking in the index you will often see a reference to a particular item appears in several different places within the book and has several Regulation numbers associated with it. If the question is to do with installing equipment then Regulation numbers beginning with a 5 will probably suffice. If the question is to do with safety then Regulations beginning with the number 4 would be good.

- Part 2 Definitions (page 23)

Questions relating to definitions will lead you to Part 2 of the Regulations.

The Appendices also take up a large part of the book and are very important requiring a considerable amount of referencing.

To emphasise these points I have devised a number of simple starter questions which hopefully, even if you have little knowledge of the Regulations, will surprise you as to how it is still possible to succeed in finding the answers without too much effort.

Remember, use either the Contents, Index or Part 2 of the book to begin your search for the answers to the following questions.

#### Example. 1

Q.1 What Zone number relates to the area under water in a swimming pool?

A.1 Swimming pools come under Part 7 Special Locations. Start with the contents page; go to Part 7; locate swimming pools under Section 702 page 203. The answer being 'Zone 0' as defined on page 170 and illustrated on page 208.

#### Example 2

Q.2 What is meant by the term 'Basic Protection'?

A.2 This question is obviously asking for the definition of the term 'basic protection' which will be in Part 2 Definitions. These are listed alphabetically. The answer being on page 23 Basic protection is '*Protection against electric shock under fault-free conditions*'.

#### Example 3

Q.3 Can a plug and socket be used as a means of emergency switching?

A.3 This question is asking for detail about a specific Regulation therefore you would be best served to start at the index. Look up 'emergency switching' in the index. Look down the list of sub-headings and you will see 'plug and socket-outlet not to be selected for' (Regulation 537.4.2.8). As the Regulation starts with the number 5 the answer is obviously going to be in Part 5. Locate Regulation 537.4.2.8 and you will see the answer is 'no', the Regulation on page 153 clearly states it is not allowed.

#### Begin your search

Seems a bit early but there now follows a short initial test using questions similar to some you may encounter in the exam. Decide for yourself whether each of the following questions require your search to start in either the contents, index or part 2 sections of the book.

Q.1 BS 7671 is divided into the seven:

- a) Appendices                      b) Chapters                      c) Parts                      d) Sections

Q.2 In Regulation 554.4.4, the first two numbers relate to which of the following:

- a) Part 5                      b) Chapter 55                      c) Section 55                      d) Regulation 554

Q.3. Electric motors shall be provided with overload protection when their power rating exceeds:

- a) 0.22kW                      b) 0.35kW                      c) 0.37kW                      d) 0.5kW

Q.4 In Regulation 533.1, the '5' relates to which of the following:

- a) Part 53                      b) Chapter 53                      c) Section 53                      d) Part 5

- Q.5 What is the maximum height, from the ground, allowable when installing a firefighter's switch.  
 a) 1.75m                      b) 2.0m                      c) 2.5m                      d) 2.75m
- Q.6 Construction site Regulations do not apply to which of the following areas:  
 a) earthworks              b) engineering works              c) canteens              d) extensions
- Q.7 Part 4 of BS 7677 relates to which of the following:  
 a) Selection and erection    b) Protection for Safety  
 c) Assessment of general characteristics                      d) Definitions
- Q.8 At what depth should buried cables be placed in caravan parks:  
 a) 0.5m                      b) 0.6m                      c) 1.0m                      d) at a sufficient depth
- Q.9 Table 4A1 can be found in:  
 a) Part 4                      b) Appendix 4                      c) Chapter 43                      d) Appendix 43
- Q.10 Using the contents page which of the following areas does Regulation 537.6.1 most probably relate to:  
 a) Definitions.    b) Bathrooms  
 c) Erection of switches                                      d) Main protective bonding conductors
- Q.11 Which of the following areas does Section 701 relate to:  
 a) Definitions.    b) Bathrooms  
 c) Erection of switches                                      d) Main protective bonding conductors
- Q.12 What does the letter 'A' signify within the classification of external influences listings:  
 a) Construction of buildings                                      b) Utilisation  
 c) External influences                                      d) Environment

### Answers

- Q.1 'c' Page 3 'contents'
- Q.2 'b' Part 5; Chapter 55
- Q.3 'c' Index - Motors - overload protection  
 Index - Overload - motors –  
 Regulation 552.1.2 0.37kW (page 173)
- Q.4 'd' Part 5
- Q.5 'd' Index - Firefighter's switch – provision of 537.6  
 (537.6.3 (iii)) 2.75m
- Q.6 'c' Construction sites come under Part 7 'special locations'. From the contents page locate construction sites under Section 704 on page 214. There are only two pages where the answer will be. Look under 'scope' at the beginning to see what is covered and what is not.  
 Note:- most or all of the special locations sections start with the 'scope', that is, a list of what is and isn't covered in each of these sections.
- Q.7 'b' Contents page

Q.8 'b' This is slightly harder than the previous questions. There are several references to buried cables throughout the Regulations. If you proceeded as follows you will have arrived at information in Parts 4 and 5.

Index - buried cables (see cables, buried)

Index - Cables – buried – 433.1.102 or 522.8.10 or 523.3

However, the question specifically asks about buried cables in caravan parks which comes under Part 7 'special locations'. There are two ways you could have approached this, you could have gone straight to Section 708 on page 223 via the contents page. You would have found the answer under Regulation 708.521.1.1 (0.6m).

Or you could have arrived there via the index as follows:-

Index - buried cables (see cables, buried)

Index - Cables – buried – (see also *Underground cables*)

Index - Underground cables - caravan pitch supplies – 708.521.1.1

Q.9 'b' Table starting 41 are in Part 4. Tables starting 4A1 are in Appendix 4 (page 316).

Q.10 'c' As the Regulation starts with the number 5 and Part 5 is about selection and erection, erection of switches is the likely answer.

Q.11 'b' Contents - Special installations or locations - 701 – bathrooms or showers

Q.12 'd' Contents - Appendix 5 (page 376) - A (Environment) or  
Index - External influences - classification of – Appendix 5

Did you surprise yourself and get at least half of the questions correct and we have not really started the course properly yet. The pass mark for the course is 50%.

Good luck with the rest of the course.