



**18TH  
EDITION  
BS7671**



**HOW THIS  
AFFECTS  
YOU.**

## **BITESIZE II**

# INTRODUCTION.

Choosing the right solutions for every job is an important task that takes knowledge and careful thought. There are lots of factors to take account of, and the proposals in the 18th Edition give you more to think about. Let's look at a few of the proposed requirements.

## CONTENTS.

- MAIN SWITCH AND MEANS OF ISOLATION
- INTEGRATION OF COMPONENTS AND DEVICES
- PROTECTION AGAINST THERMAL EFFECTS - ARC FAULT DETECTION DEVICES
- PROTECTION AGAINST TRANSIENT OVERVOLTAGES
- DEVICES FOR PROTECTION AGAINST OVERVOLTAGES
- SELECTION & ERECTION OF WIRING SYSTEMS
- UNWANTED TRIPPING OF RCDS – THE 30% RULE
- ADDITIONAL PROTECTION – LUMINAIRE CIRCUITS
- SOCKET CIRCUITS ADDITIONAL PROTECTION EXTENDED



A BITESIZED LOOK AT SOME OF THE PROPOSALS IN THE 18TH EDITION.



WHY CHOOSE ANYTHING LESS?



## MAIN SWITCH AND MEANS OF ISOLATION

### NEW REGULATION NUMBER CHAPTER 46

BS7671 requires a means of isolation (a main linked switch or circuit breaker) at the origin of the installation. It states that a main switch intended to be operated by ordinary persons, e.g. in a household or similar installation, shall interrupt all live conductors of a single phase supply (L&N).

This suggests that the only type of device suitable for use by ordinary persons is one that switches live and neutral. This in turn suggests that ordinary persons should not operate single pole devices such as MCB's for routine maintenance tasks such as switching off a circuit while decorating, or replacing a lamp.

### GOOD TO KNOW

It is not practical or safe for an entire installation to be switched off for routine maintenance purposes. Regardless of whether the power is isolated by an ordinary person or electrically qualified professional, it is safer to use switched neutral devices and working practices that allow live and neutral to be switched off during such activities.



WHY CHOOSE ANYTHING LESS?

# INTEGRATION OF COMPONENTS AND DEVICES



## NEW REGULATION CHAPTER 53

In low voltage assemblies - such as consumer units - the devices and components used shall only be those declared suitable according to the manufacturer's instructions.

Regulation 134.1.1 also states that 'good workmanship by one or more skilled or instructed persons shall be used, the installation shall take account of manufacturer's instructions'.

## GOOD TO KNOW

Installers should never use mixed brands of devices or components from different manufacturers. This invalidates manufacturer guarantees and could result in unsafe installations



WHY CHOOSE ANYTHING LESS?



# PROTECTION AGAINST THERMAL EFFECTS - ARC FAULT DETECTION DEVICES

## NEW REGULATION CHAPTER 42

Arc fault detection devices (AFDDs) are recognised as a means of providing additional protection against fires that are caused by electrical arc faults. AFDDs are expected to be included in the 18th Edition. They are already mandated in other EU and IEC countries.

In 2016/17 there were 5,574 domestic fires recorded as having wiring, cables and plugs as the source of fire ignition. Countries using AFDD technology have recorded reductions in such incidents of as much as 10%.

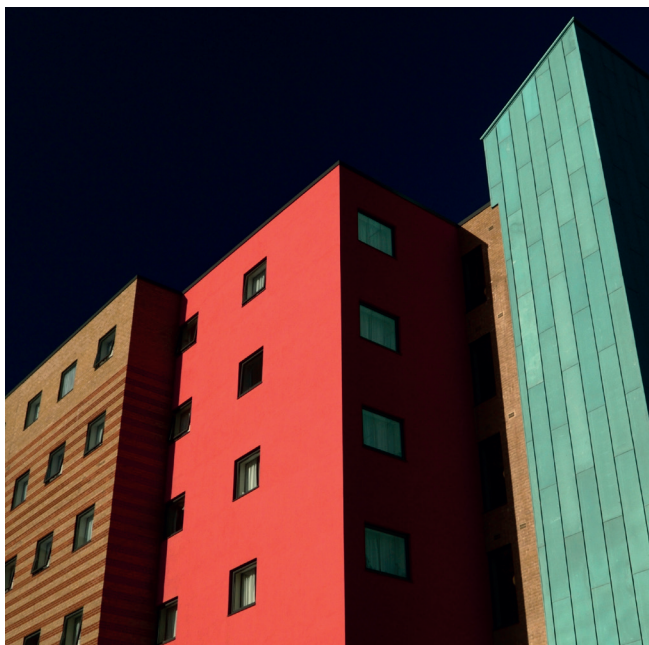
## GOOD TO KNOW

AFDDs detect faults that MCBs and RCDs can't. They can be attached to RCBOs in the consumer unit. AFDDs usefully include a self-test function on initial power-up, status indicators for healthy circuit and types of fault, AFDDs also incorporate a test button for periodic testing.

(source: [www.gov.uk/government/collections/fire-statistics](http://www.gov.uk/government/collections/fire-statistics))



WHY CHOOSE ANYTHING LESS?



# PROTECTION AGAINST TRANSIENT OVERVOLTAGES

## NEW REGULATION CHAPTER 43

It is proposed for the 18th Edition, protection against transient overvoltages shall be provided where the consequences of overvoltage results in: serious injury to or loss of human life, interruption of public services, damage to cultural heritage or interruption of commercial activity, or affects a large number of individuals.

For all other circumstances a risk assessment shall be carried out to determine if protection is required. If the risk assessment is not carried out, protection against transient overvoltages shall be provided. Where protection is provided devices shall be selected in accordance with section 534.

## GOOD TO KNOW

An exception is made for single dwelling units where the total value of the installation and equipment within does not justify such protection



WHY CHOOSE ANYTHING LESS?





# DEVICES FOR PROTECTION AGAINST OVERVOLTAGES

## NEW REGULATION CHAPTER 53

Section 433 requires devices for protection against overvoltage to be used under certain circumstances and if a risk assessment is not carried out. Section 534 requires SPDs to be used as follows.

### GOOD TO **KNOW**

Where the structure is equipped with an external lightning protection system or protection against the effects of direct lightning is specified, Type 1 SPDs shall be installed as close as possible to the origin of the electrical installation.

Where the structure is not equipped with an external lightning protection system or does not require protection against the effects of direct lightning, Type 2 SPDs shall be installed as close as possible to the origin of the electrical installation.



WHY CHOOSE ANYTHING LESS?

# SELECTION AND ERECTION OF WIRING SYSTEMS



## NEW REGULATION CHAPTER 52

In Amendment 3 of the 17th Edition, regulation 521.11.201 required due consideration to be given to support of cabling systems in escape routes so that these would protect against premature collapse in the event of fire. The use of non-combustible cable fixings was mandated.

In the 18th Edition, this requirement will probably be extended (by the introduction of a new regulation) to include the whole installation, not just escape routes. This is intended to ensure unhindered access and egress for all persons including emergency services.

## GOOD TO KNOW

Cables installed in (or on) steel containment systems are likely to meet this requirement. Suitably spaced steel clips, saddles, or ties will probably meet these requirements. The use of non-metallic cable clips saddles or ties is precluded.



WHY CHOOSE ANYTHING LESS?





## UNWANTED TRIPPING OF RCDs – THE 30% RULE

### NEW REGULATION CHAPTER 53

To avoid unwanted tripping of RCDs caused by protective conductor current (PE currents), the accumulated leakage current shall not be more than 30% of the RCD rating i.e. 30% of 30mA.

This is intended to allow a better match between the type of RCD and the circuit loads, and to maintain power continuity on healthy circuits to avoid danger and minimise inconvenience in the event of a fault, as required in regulation 314.1.

### GOOD TO KNOW

To avoid unwanted tripping, designers should divide installations into as many individual circuits as necessary to prevent cumulative effects of PE currents causing unwanted tripping - which will in turn achieve power continuity and aid user safety.



WHY CHOOSE ANYTHING LESS?

# ADDITIONAL PROTECTION – LUMINAIRE CIRCUITS

## NEW REGULATION CHAPTER 41

In domestic household premises, additional protection by a 30mA RCD shall be provided for circuits supplying luminaires

Regulation 314.1 (iii) is also important here. It states that designers should take account of hazards that may arise from the result of a failure of a single circuit such as a lighting circuit

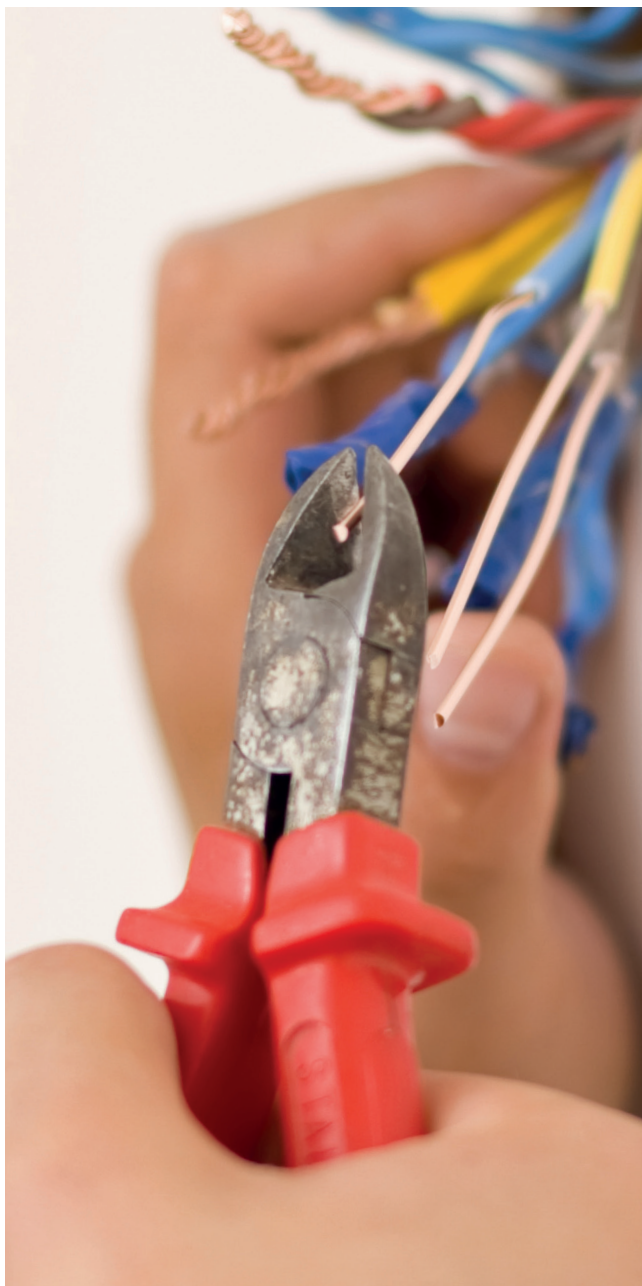


## GOOD TO **KNOW**

To avoid hazards and danger, and to maintain safety and power continuity, each lighting circuit should have its own 30mA RCD/RCBO.



WHY CHOOSE ANYTHING LESS?



## SOCKET CIRCUITS ADDITIONAL PROTECTION EXTENDED

### AMENDED REGULATION 411.3.3

In a.c. systems additional protection by means of an RCD rated not more than 30mA shall be provided for socket outlets with a rated current not more than 32A.

### GOOD TO **KNOW**

Regulations will require additional protection on all socket outlets up to and including 32A ratings in all installations. Exceptions are not permitted for installations in dwellings.



WHY CHOOSE ANYTHING LESS?

# #4



**UKAS** independent testers; quality you can believe in.

# #14



Cutting edge Siemens technology inside.

# #54



Consumer units in all shapes & sizes.

# #23



We supply more consumer units than anyone else.

# #41



**120 years.**  
That's a whole lot of know-how.

# #6



Continuous product innovation; we're always ahead of the game.

## ANY QUESTIONS? CONTACT

**Wylex Technical Team**

**Tel:** +44 (0) 1543 438320

**Fax:** +44 (0) 1543 438321

**Email:**

wylex.technical@electrium.co.uk



WHY CHOOSE ANYTHING LESS?