ndts NewDale Technical Services Ltd

ELECTRICAL ENGINEERS & CONTRACTORS

17th Edition: FAQ's

A bite-sized breakdown of the 17th Edition wiring regulations.

Introduction

The 17th Edition of the IEE Wiring Regulations (BS 7671:2008) was published in January 2008, and came into effect 1 July 2008. From then on all commercial, domestic and industrial wiring installations must be designed, constructed, inspected, tested and certificated to meet the requirements of BS 7671: 2008.

We've produced this guide to answer some of the most frequently asked questions relating to the changes within the regulations.

Q1. Flat 'Twin & Earth' Cables shallow-chased in prescribed zones in walls (not mechanically protected or in earthed conduit or similar) – Must they have RCD protection?

Answer: Regulations 522.6.7 & 522.6.8 both allow for the omission of RCD protection for such cables installed in prescribed zones, where the installation is intended to be under the supervision of a skilled or competent person. This exemption is not intended to apply to domestic installations.

Larger / appropriately organised Commercial and Industrial installations would normally be expected to be supervised adequately to prevent dangers from electricity, as this is necessary in order to meet the requirements of health and safety legislation.

There will be some 'grey areas' e.g. a corner shop or smaller commercial concerns where it may be clear that little or no awareness of dangers from electricity exists.

Additionally, in installations, or areas within installations, where there is deemed to be a greater risk of damage to cables buried in walls, the designer would need to ensure that the wiring system is of a type that is suitable to protect against such damage (or is provided with suitable mechanical protection) before omitting RCD protection.

It would be strongly recommended that the designer/contractor, making the decision to omit the RCD protection to cables in walls, should detail this in writing for inclusion in the O&M manual or similar.

Q2: Must all socket-outlets be protected by an RCD?

Answer: Regulation 411.3.3 (i) states 'socket-outlets with a rated current not exceeding 20A that are for use by ordinary persons and are intended for general use' …shall be protected by a an RCD with a rated residual operating current not exceeding 30mA.

Exception 1: it is permitted to omit RCD protection where such socket-outlets are intended to be used under the supervision of a skilled or instructed person. This exception is not intended to apply to domestic installations.

The larger Commercial and Industrial installations would normally be expected to be supervised adequately to prevent dangers from electricity, as this is necessary in order to meet the requirements of health and safety legislation. However, there may be 'grey areas' e.g. a corner shop or a small commercial concern where it may be clear that little or no awareness of dangers from electricity exists.

In these cases a different thought process may be required, and as such the designer / installer may well be advised to treat this type of installation along similar lines to that of a domestic installation and provide RCD protection. Additionally, in installations, or areas within installations, where there is deemed to be a greater risk of damage to basic insulation or higher level of carelessness by users, the designer would need to carefully consider the hazards and specify a wiring system suitable to protect against the expected external influences, before omitting RCD protection.

Again, it would be strongly recommended that the designer/contractor, making a decision to omit RCD protection to certain socket-outlets, should detail this in writing for inclusion in the O&M manual or similar.

Exception 2: it is also permitted to omit RCD protection for 'a specific labelled or otherwise suitably identified socket-outlet provided for a connection of particular item of equipment.'

Labelling to socket-outlets could be used for a type of equipment e.g. computer or printer, and this together with the occupant / employer's operational systems & Health and Safety policy should ensure effective compliance with this regulation.

In a domestic situation within a kitchen, the labelling could be utilised for "stationary kitchen equipment" for socket-outlets below worktops etc.

Q3: When the Regulations specify additional protection by RCDs – Does this include RCBOs?

Answer: Where the generic term RCD is used, this refers to both RCCBs and RCBOs.

Q4: Is a front-end 30mA RCD an acceptable design?

Answer: Generally, a front-end 30mA RCD would not be considered acceptable.

There may be exceptions such as small single-storey flats (Studio flats etc).

Any improvement on a single front-end device would, pragmatically, be considered acceptable.

Examples could include:

- Dual RCD split board - the 'Wimpey method'
- Split board with some RCBOs/MCBs on non-RCD side
- Triple (or more) split board
- RCBOs/MCBs mixture

Q5: Can flat 'twin and earth' cable still be used for ring final circuits if installed in insulation?

Answer: Current-carrying capacities of flat 'twin and earth' cables under insulation sitting on plasterboard or in a stud wall with thermal installation are detailed in Table 4D5 – Reference Methods 100-103.

Reference methods 101* and 103**, with their increased detail to the installation methods, will generally need to be considered as non-compliant for a standard 2.5mm2 ring final circuit, as they do not allow an effective current carrying capacity (Iz) of "not less than 20A". (as required by Regulation 433.1.5)

* Above a plasterboard ceiling covered by more than 100mm of thermal insulation

** In a stud wall with thermal insulation, with cable not touching the inner wall surface.

Q6: How can a 200ms disconnection time be verified for an RCD, as required for final circuits in a 230 V TT system (Table 41.1)?

Answer: From Appendix 3 p:243

For a 30mA non-delay RCD - 2 x IΔn - 60mA - will cause operation within 150ms, so meeting the 200ms disconnection time.

This could be achieved as long as the Zs for any given circuit was below 3833Ω

.

i.e. Uo/Zs = 60mA 230/3833 = 60mA

These figures would need to be adjusted for different rated residual operating currents.

Regulation 411.5.3ii (RA x IΔn < 50V) would still also need to be complied with.

All ndts electricians hold 2382 Level 3 Certificates in the Requirements for Electrical Installations (16th—17th Edition).

National Inspection Council for Electrical Installation Contracting

APPROVED CONTRACTOR

If you have any questions, or need advice on any aspect of the new regulations, please contact us.

Phone: **0191 4302638**

Fax: **0191 4302639**

E-mail: **mail@NDTekS.co.uk**

Suite 7, Walker Davison House, High Street, Newburn, Newcastle Upon Tyne NE15 8LN

January 2009 Update