

# 17th edition wiring

With the 17th Edition of the IEE Wiring Regulations now in full effect, Brian Tingham talks to the IET's man in the chair, Mark Coles, about new working practice

The 17th Edition Wiring Regulations (BS 7671 2008) came into effect on 1 July, following publication back in January – and engineers and technicians are being warned that, this time, there are significant changes.

Mark Coles, secretary to panels C and D of JPEL/64 (the joint IET/BSI committee), first warns plant engineers that the scope of the regulations has been widened. He cites installations such as marinas, but also electrical supplies to equipment including smoke extractors, emergency lighting, fire pumps and fire rescue service lifts.

He also says the new edition takes account of technology such as computers, while also recognising problems with ageing installations.

Coles starts with a definition change. "The term 'basic protection' replaces 'direct contact', where a person receives a shock from a damaged socket outlet. Similarly, 'indirect contact' where, for example, a fault leads to the metallic case of an electric heater becoming live, is now 'fault protection' – consisting of bonding, earthing and automatic disconnection."

## RCDs and high integrity

That leads to changes with respect to RCDs (residual current devices). "There's now much more call for them. The regulations require their use to protect all sockets for use by non-skilled persons in, for example, domestic situations. In commercial offices, if an employer is in control of all socket outlets – so electrical items from home are prohibited – they may not be needed. But, if not, then RCDs are, again, now mandatory."

None of this is retrospective – but whether it's private, commercial or industrial premises, if new lighting or sockets are connected, then circuits being altered must be upgraded to 17th edition – including the earthing and bonding arrangements.

As for technology updates, Coles gives the example of computer equipment. "On commercial sites, protective conductor currents can be high, due to switched mode power supplies. So, if an earth fault arises, a voltage could result on the computer case. It's a similar situation with variable speed drives on plant. The 17th edition deals with that by requiring a high integrity earthing system – and that's now in the main body of the regulations."


At a detailed level, other changes include Part 6,

inspection and testing (formerly Part 7), which now demands insulation resistance of 1Mohm, as opposed to the earlier 0.5Mohm – primarily to tighten up on problems with older installations. "There's also now a requirement to verify phase sequence and voltage drop, which will prevent problems with reversed motor connections etc."

Meanwhile, the new Part 7 (special locations, such as bathrooms, pools, construction sites and agricultural facilities) now applies to marinas, exhibitions, photovoltaic systems, and mobile and transportable units – including fairground installations. "These have been Cenelec HDs [harmonised documents] for years, but have now been incorporated into BS7671," says Coles.

Moving on to industrial sites, the greatest additional change concerns earth fault loop impedance, and the values to meet the required disconnection times for fuses and circuit breakers. "They were based on 240V, but, because of European harmonisation, that's dropped to 230V, so the values have been adjusted."

When is action likely to be required? "That depends," says Coles. "If, when undertaking a periodic inspection, an electrician tests a sample circuit that was on the cusp, and now no longer meets the earth loop impedance value, this would be given a code from one to four. If it's a 'one', then it's dangerous and needs urgent attention."

And here's the warning: "If someone is injured as a result of an electrical fault, then the owner of the building, or the operator of the electrical installation, could be prosecuted." 



## Pointers

- Scope of the wiring regulations has been widened to include, for example, marinas, but also supplies to emergency lighting, fire pumps and rescue service lifts
- RCDs are now mandatory in many more installations
- Any circuits being altered must be upgraded, including the earthing and bonding arrangements
- High integrity systems are now required for computers
- The earth fault loop impedance values on industrial sites have been changed to match 230V

Left: IET's Mark Coles, secretary to panels C and D of JPEL/64, the joint IET/BSI committee

