THE THREE JOBS OF AN RCD, AND ADDITIONAL PROTECTION FOR SOCKETS

DOES MRS SMITH NEED A NEW BOARD?

THE THREE JOBS OF AN RCD

An RCD is used for three jobs. There's no such thing as buying a "fault protection RCD" or a "fire protection RCD". The **same kind of device** does all three. What changes is the **rating (mA)** the job needs.

1 · ADDITIONAL PROTECTION

30 mA
Sockets, domestic lighting, cables hidden in walls, and wherever Part 7 asks for it.

2 · FAULT PROTECTION

any size
TT systems, or where Zs is too high to meet the disconnection time. Size it with $R_A \times I\Delta n \leq 50$ V.

3 · FIRE PROTECTION

≤ 300 mA
Locations with an increased risk of fire (Chapter 42).

> **Sparky's tip**
> It's all about the **milliamp rating**, not the make or model. As the installer, designer or inspector, you need to know **which job** each RCD is doing so the right protection is actually provided.

ADDITIONAL PROTECTION: SOCKETS AND LIGHTING

> **Additional protection means a 30 mA RCD.** An RCD rated above 30 mA can't provide additional protection. RCBOs count, because they contain an RCD.

Strictly, the regulation says a rated residual operating current **not exceeding** 30 mA. In practice that means a 30 mA device.

1. SOCKET-OUTLETS UP TO AND INCLUDING 32 A

30 mA RCD protection must be installed for **all new socket-outlets rated up to and including 32 A**.

You may see the exception given as: unless a risk assessment shows they will only be used by a **BA4** (instructed) or **BA5** (skilled) person. BA5 is an electrically skilled person, such as an electrician. BA4 is someone working under a skilled person's instruction, such as their apprentice.

A typical example is a **locked switch room** with a distribution board, where someone wants a socket to plug in lights and battery chargers. Only skilled people, or people under their instruction, should be in there. So that socket might not need 30 mA RCD protection, but a **risk assessment** has to be provided.

Any socket that **anyone** can use, for example in a house, an office or a school corridor, must have 30 mA additional protection.

BS 7671 · Reg **411.3.3** · additional protection for socket-outlets ≤ 32 A

> **Watch out: the 411.3.3 exception**BS 7671:2018+A4:2026 sets 411.3.3 out as three cases, all up to 32 A: socket-outlets where they're liable to be used by **ordinary persons (BA1) or children (BA2)**; socket-outlets in **other locations**; and **mobile equipment for use outdoors**. The RCD can only be left off in the **second** case, where a **suitably documented risk assessment, done with a skilled person (electrically) involved**, decides it isn't necessary, and that risk assessment goes **with the certificate**. Instructing an ordinary person doesn't make them anything other than an ordinary person. The locked switch room example still works, because ordinary people and children don't use it. A home is exactly where they do, so in practice it never applies there.

"OUTLETS", NOT "CIRCUITS"

Note the word **OUTLETS**. The regulation says **socket-outlets**, not socket *circuits*. That matters when you **add a socket** to an existing circuit.

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MRS SMITH'S EXTRA SOCKET
Mrs Smith has an old rewireable-fuse consumer unit with no RCDs.
She wants one more socket in the hallway for her hoover.

Many electricians: "You need 30 mA RCD protection, so you need a new board."
  → around £800 to £1,000 before she even gets her socket

But the regulation says OUTLETS.
  → fit an RCD socket-outlet. The new outlet has 30 mA protection
    and the board doesn't need changing.
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RCD sockets might not be Mrs Smith's cup of tea. They're bulkier than a normal socket and have test and reset buttons on the front. But they are an **option**.

There's another regulation to keep in mind with this. It's the one about cables hidden in walls, covered in section 5.

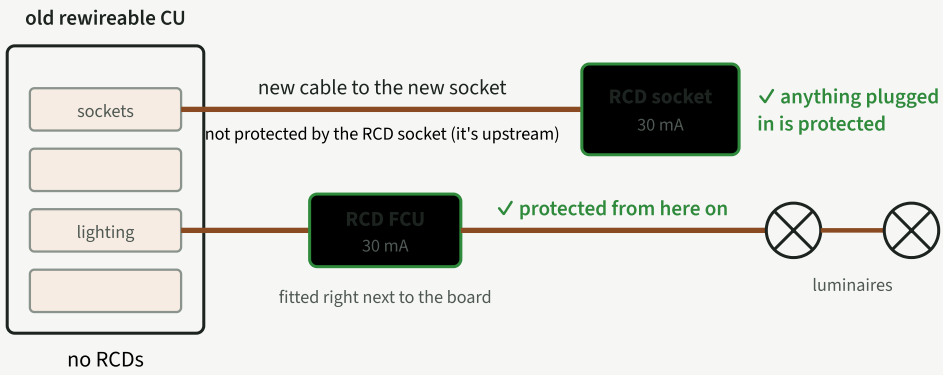
2. DOMESTIC LIGHTING CIRCUITS

30 mA RCD protection must be installed for all **domestic lighting circuits**. This means domestic only, not commercial or industrial. It's the **next regulation** after 411.3.3.

This applies to **new circuits**. If you're altering an existing domestic lighting circuit, it's good practice to consider adding 30 mA protection too. That's hard to get around, because there's **no lighting equivalent of an RCD socket**.

One option people use (and it isn't wrong) is to fit a **30 mA RCD fused connection unit** next to the old board. The existing lighting circuit leaves the fuse carrier, goes into the RCD FCU, and carries on to the luminaires.

BS 7671 · Reg **411.3.4** · domestic lighting circuits · the regulation after 411.3.3



Two ways to give 30 mA protection without changing Mrs Smith's board. An RCD only protects what's **after** it (downstream). So the new cable feeding an RCD socket isn't covered by that socket. See section 5 for why that matters.

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