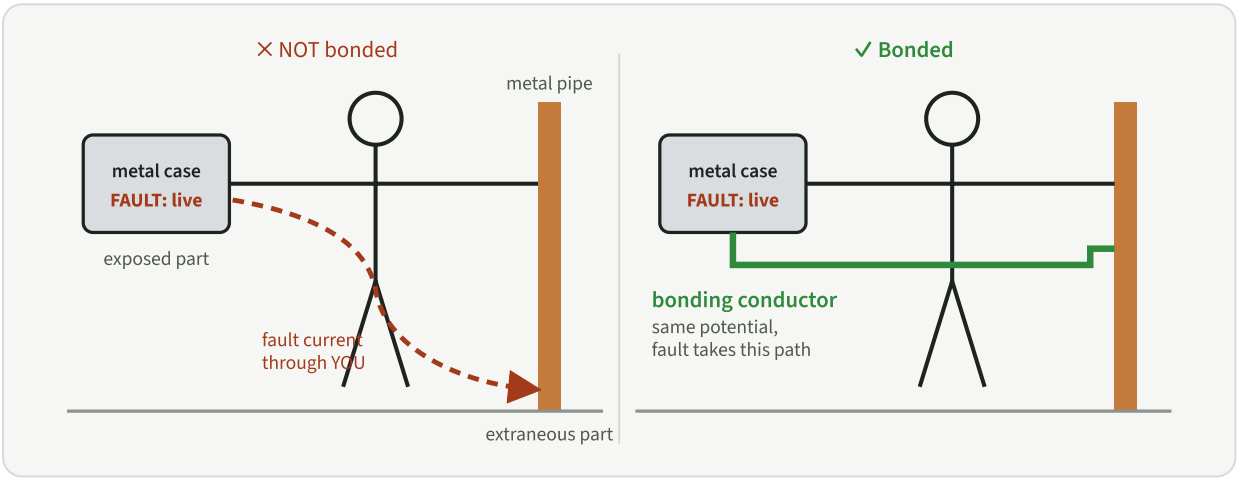
WHY BOND? TOUCH VOLTAGE AND 1667 Ω

WHAT DOES BONDING ACTUALLY PROTECT YOU FROM?

Worth highlighting: the purpose of main protective bonding is to **reduce the potential difference between exposed and extraneous conductive parts**, so that **no more than 50 V** can pass from one to the other when an **earth fault** occurs.



CURRENT THROUGH A BODY

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Body resistance ≈ 1000 Ω (less when
I = V ÷ R = 230 ÷ 1000 = 0.23 A = 23

About 50 mA (0.05 A) can stop your h
(cardiac arrest). 230 mA is far more
→ it's the CURRENT that kills.
```

WHERE 50 V TOUCH VOLTAGE COMES FROM

```
Table 41.5: Zs × IΔn ≤ 50 V
so with a 30 mA RCD, Zs up to 1667 Ω
V = I × R = 0.03 × 1667 = 50.01 V

The same 50 V ÷ IΔn figure (Reg 415.
is used to check that bonding is eff
```

A **30 mA RCD** is set below the ~50 mA that can cause cardiac arrest. It gives **additional protection** by cutting off before serious harm.

BS 7671 · Table 41.5: max earth fault loop impedance for RCDs (30 mA → 1667 Ω) · **p.77**

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