

Legislation & the Mains Position

Study notes from the Day 2 webinars. The morning covers the Building Regulations, Part P, notifiable and minor work, the Electricity at Work Regulations and BS 7671 definitions. The afternoon covers the intake position, earthing systems (TN-C-S, TN-S, TT) and protective devices.

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📖 **Book reference** page numbers appear in highlighted tags like this.

"New" = current green/orange editions. "Old" = previous green/brown editions. Page numbers are as the tutor gave them on screen. Tab them in your books, but remember you **can't write** in them.

AM Legislation & definitions

01 Statutory vs non-statutory

Two words come up all the time with legislation. Know the difference.

	STATUTORY	NON-STATUTORY
What it is	Law. It has been through Parliament.	Guidance only
Must you follow it?	Yes. You can be prosecuted for breaking it.	Not legally, but if something goes wrong you'll be asked in court why you didn't
Examples	Building Regulations 2010 · Electricity at Work Regulations 1989 · ESQCR	BS 7671 (Wiring Regs) · On-Site Guide · Electrician's Guide to the Building Regs · Approved Documents
Departing from it	Not allowed	Allowed, but you must record the departure and the reason on the certificate

WHY FOLLOW GUIDANCE?

BS 7671 and the guides are written to line up with the law. If you follow them, your work should be safe and comply with the Electricity at Work Regulations. If a company asks you to do something that breaks the Building Regulations (the law), **you can refuse**.

02 The Building Regulations

- The **Building Regulations 2010** apply in **England and Wales** (amended in England in 2013). **Scotland and Northern Ireland have their own**. Know the rules where you're working.
- **Building work** is defined in **Regulation 3**. It includes putting up or extending a building, installing or extending a controlled service or fitting, material alterations, cavity wall insulation, and underpinning foundations.
- The regulations are split into **Parts**, each with an **Approved Document** giving guidance. Part P is electrical safety in dwellings, but electrical work often touches other parts too. Chasing a wall or drilling a joist is **Part A** (structure). Going through a fire barrier is **Part B** (fire safety).

📄 **Electrician's Guide to the Building Regs** · Building work, Regulation 3 and a list of regulations · **pp.16–17** (new)

📄 **Electrician's Guide to the Building Regs** · Table of all Parts and Approved Documents (A to S) · **p.20** new · p.18 old

THE TUTOR SAID "HIGHLIGHT THIS TABLE"

PART P'S REQUIREMENT

"Reasonable provision shall be made in the design and installation of electrical installations in order to protect persons operating, maintaining or altering the installations from fire or injury." You meet this by following the **fundamental principles in Chapter 13 of BS 7671**. You're responsible for the fixed wiring behind the socket, not the appliance someone plugs into it.

Working ≠ safe. A circuit that turns on hasn't been shown to be safe. You prove it's safe by **inspecting, testing and certifying** it, then giving the paperwork to the client.

03 Part P: scope and dwellings

Part P applies to electrical installations in:

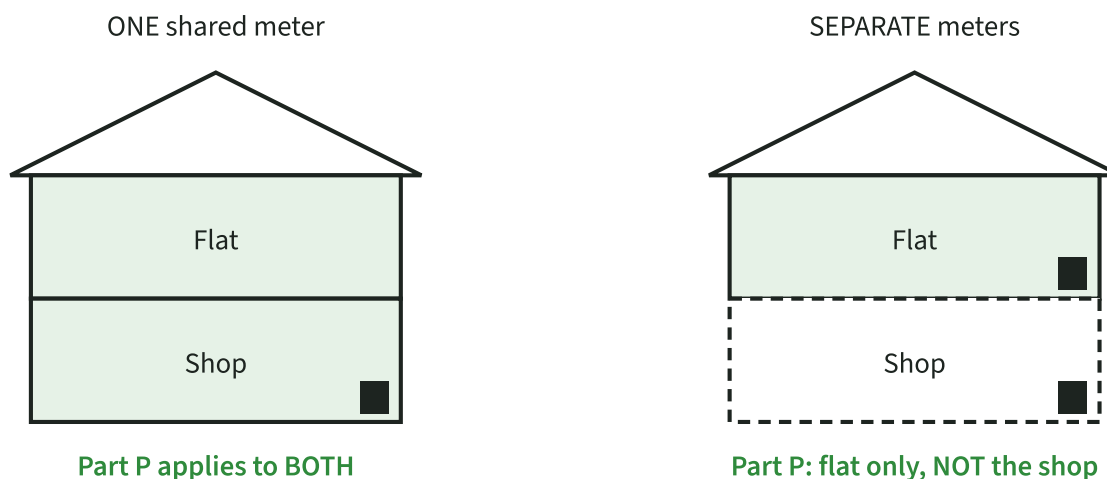
- Dwelling houses and flats
- Dwellings and business premises that share a **common supply**
- Common access areas in blocks of flats (corridors, staircases)
- Shared amenities of flats (laundries, gyms)
- Land belonging to the dwelling: **fixed garden lighting, pond pumps**
- Outbuildings: **sheds, detached garages, greenhouses**

Not "dwellings", so not covered by Part P:

- Hospitals · schools · care homes for the elderly
- Hotels · boarding houses · halls of residence · hostels

Other parts of the Building Regs still apply there, such as **A** for chasing walls and **B** for fire.

What is a dwelling? Generally taken as a home for **6 people or fewer**. That's a rule of thumb, not a legal limit.



Green shows where Part P applies. Example from the session: fitting a shower circuit in the flat above a shop on a separate meter doesn't involve the shop at all.

❏ **Electrician's Guide to the Building Regs** · 1.3.2 Scope of Part P · **p.22** new

❏ **Electrician's Guide to the Building Regs** · Figure: scope of Part P (houses, flats, shop with shared or separate meter) · **p.23** new · p.20 old

KITCHENS

In **Wales**, a kitchen counts as an area of increased risk, so it's treated as a special location. In England it isn't. A kitchen is *"a room or part of a room which contains a sink **and** food preparation facilities"*. In open-plan areas, the kitchen may be taken to extend **3 m from the edge of the sink** or to a nearer dividing wall. A sink in an open-plan office doesn't make the office a kitchen.

A **skilled person** doesn't have to hold a particular qualification. BS 7671 defines one as someone with **adequate** education, training and practical skills to see the risks and avoid the hazards. You prove it through qualifications, site experience, signed-off work and paperwork.

BS 7671 · Part 2 Definitions · "Skilled person" · p.44 new

KEY WORD: ADEQUATE

04 Minor work vs notifiable work

Minor work doesn't involve a new circuit. It's an alteration or addition to an existing installation.

NOT notifiable (minor work)

- Replacing accessories: sockets, switches, ceiling roses
- Replacing a single circuit's cable, **same size and same route**
- Refixing or replacing enclosures of existing components
- Adding mechanical protection to existing fixed wiring (conduit, trunking)

Also not notifiable, as long as it's NOT in a special location:

- Adding lighting points to an existing circuit
- Adding sockets or fused spurs to an existing ring or radial
- Installing or upgrading main or supplementary bonding
- An outside light or socket fed from an existing circuit, e.g. an IP65/66 socket through the wall from a kitchen socket

Notifiable

- **A new circuit**, e.g. a new cooker or shower circuit
- **Replacing a consumer unit**
- **Any addition or alteration to circuits in a special location**

The tutor said EV chargers and solar PV count as notifiable, and each has its own guidance.

Electrician's Guide to the Building Regs · Notifiable work table · p.29 new · p.26 old

"HIGHLIGHT THIS TABLE, THIS IS IMPORTANT"

Electrician's Guide to the Building Regs · 1.6 Non-notifiable work (list) · p.30 new · p.27 old

Don't confuse Part P with BS 7671. Non-notifiable work must **still comply with BS 7671** and still be **inspected, tested and certified**. For minor work that means a Minor Electrical Installation Works Certificate (MEIWC).

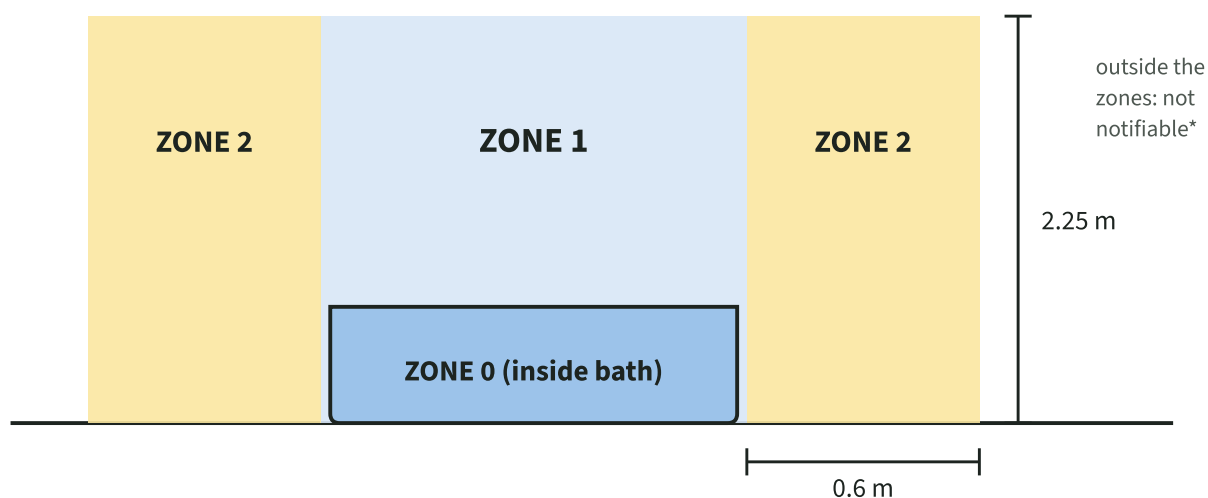
Plugging in an extension lead isn't installation work, because it isn't fixed wiring.
Replacing twin and earth with singles in conduit *is* a new circuit, so it's notifiable.

05 Special locations and bathroom zones

BS 7671 **Part 7** lists the **special installations or locations**. There are about 20, and the first is **locations containing a bath or shower**. Any room with a bath or shower, en-suites included, is a special location. A sink on its own doesn't count.

BS 7671 · Contents · Part 7 special installations or locations (701 = bath/shower) · **p.3** new

The zones are the same above a shower tray. Without a tray, zone 1 extends 1.2 m from the fixed water outlet.



Anything installed **in zones 0, 1 or 2**, such as an extractor fan, light or electric shower, is **notifiable**. *Work outside the zones isn't notifiable, but the tutor's example shows the room is still covered by Part P. A pull-cord switch fixed to the ceiling outside the zones is fine.

Electrician's Guide to the Building Regs · Figure: extent of the special location in a bath or shower room (zones 0, 1, 2 and 600 mm) · next page after the notifiable table · **p.30** new

Electrician's Guide to the Building Regs · Bathroom zone drawings: bath, shower tray, walk-in shower with no tray · **pp.88–89** new · pp.82–83 old

Electrician's Guide to the Building Regs · Swimming pool zones · **p.93** new · p.87 old

06 How to notify: the three routes

Notifiable work must be **pre-notified to Local Authority Building Control** (your local council) unless it's an emergency, or unless the person doing the work is in a competent person scheme. "Person" is a legal term meaning the firm or sole trader doing the work.

Join a Competent Person Scheme (CPS) **1**

e.g. **NICEIC** or **NAPIT**. No need to pre-notify, so you can start straight away.

- Tell the scheme within **25 days** of finishing
- The scheme sends a Building Regulations Compliance Certificate to the householder **and** Building Control within **30 days**
- You **still** issue your BS 7671 certificates to the client

Tutor's rough cost: NICEIC £750–850/year · NAPIT £500–600/year plus a fee per notification. You get a 24/7 technical helpline, discounted books and less admin. If you work for a registered company, you'll usually be covered by their scheme.

Use a registered third-party certifier **2**

Pay someone who is registered to inspect, certify and sign off your work, and notify on your behalf.

Notify Building Control yourself **3**

Before starting, submit a building notice or full plans. **Allow up to about 30 days**. Building Control then becomes responsible for checking the work.

- If you're qualified to complete BS 7671 certificates, **give Building Control a copy**. They decide what further inspection is needed.
- They may issue a completion certificate or inspect it themselves
- **Build a good relationship with your local council**. Once they trust your work, they're less likely to inspect every job.

❏ **Electrician's Guide to the Building Regs** · 1.4.1 Prior notification · 1.4.2 Competent person · 1.4.3 Registered third-party certifier · 1.4.4 Conditions of authorisation · **pp.24–25** new · pp.21–22 old

❏ **Electrician's Guide to the Building Regs** · 1.4.5 Certification by a building control body · 1.4.6 Unregistered persons · **p.27** new

THE TUTOR SAID TO HIGHLIGHT 1.4.1 TO 1.4.6. EXAM QUESTIONS ASK ABOUT NOTIFICATION METHODS.

TUTOR'S OPINION (NOT ADVICE)

If 90% of your work is non-notifiable, a scheme costing around £900 a year may not be worth it for the other 10%. Notify Building Control yourself and put the cost in your quote. If most of your work is notifiable, join a scheme. Never turn work down just because it's notifiable. **In an emergency**, make it safe. You can't leave something dangerous.

07 Responsibility and penalties

- The **primary responsibility** for complying with the Building Regulations lies with **the person carrying out the work** (you, or your firm). Not the client.
- **The installer**, qualified or not, faces a fine of up to **£5,000 plus £50 per day** the non-compliance continues. That's the slide figure. The tutor said it's usually treated as **unlimited**, depending on how serious it is.
- **The owner or person ordering the work** may also face enforcement action requiring them to alter or remove work that doesn't comply.

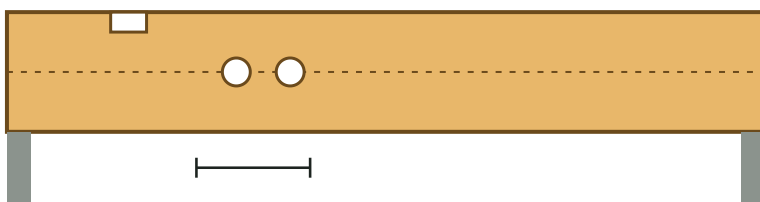
08 Approved Documents A, B, C, E, F, L, M

The tutor suggested **writing your own summary of every Approved Document**. It's good exam prep.

A: Structure (notches, holes and chases)

Joists (side view)

notch zone: $0.07-0.25 \times \text{span}$



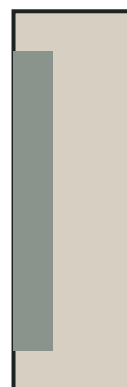
hole zone: $0.25-0.4 \times \text{span}$

Notch **on top**: max depth **$0.125 \times \text{joist depth}$**

Hole **on centre line**: max $\varnothing$ **$0.25 \times \text{joist depth}$**

Keep holes spaced apart. Never drill almost edge to edge.

Chases in walls



Vertical chase
 $\leq \frac{1}{3}$ wall thickness

Horizontal chase
 $\leq \frac{1}{6}$ wall thickness

wall (plan)

Include the plaster in the thickness.

❑ **Electrician's Guide to the Building Regs** · 10.1.1 Notches and holes in joists (table and figure) · **p.166** new · p.168 old

❑ **Electrician's Guide to the Building Regs** · 10.1.2 Chases in walls · **p.167** new

❑ **On-Site Guide** · Same joist and chase drawings with extra detail, including cables in walls buried **at least 50 mm** deep unless protected · **pp.91–92** old edition

B: Fire safety

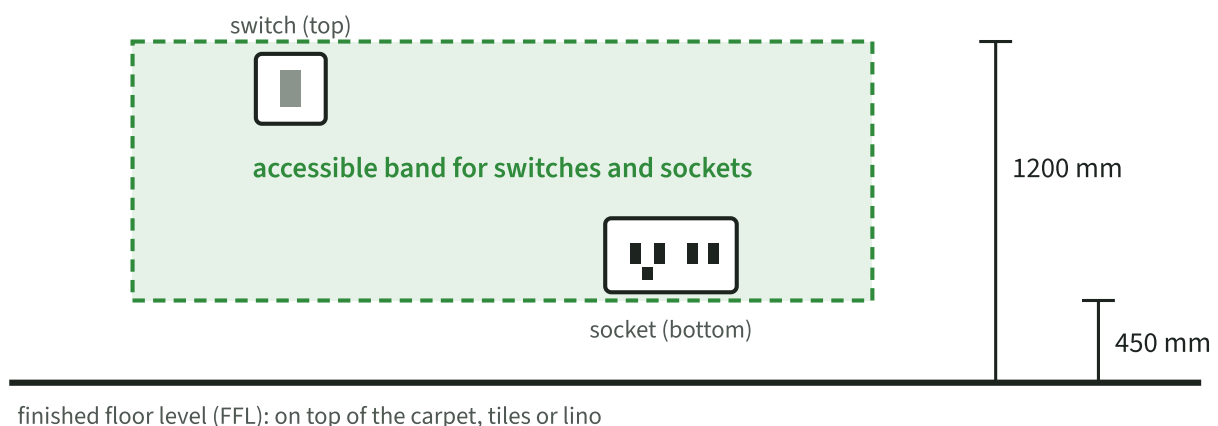
Fire barriers where cables pass through walls and floors, and smoke and heat alarm positions (including loft conversions). The tutor said she got smoke and heat alarm questions in her own Building Regs exam.

❑ **Electrician's Guide to the Building Regs** · Section 10: Approved Document B, fire safety and smoke/heat alarms · from **p.168** new

C · E · F · L

- **C**: site preparation and resistance to contaminants and **moisture**. Stop gas and water getting in where cables enter.
- **E**: resistance to the passage of **sound**. Cables running through sound insulation have a **reduced current-carrying capacity**. Take care with recessed downlights in ceilings that contain sound insulation.
- **F**: ventilation.
- **L1**: conservation of fuel and power in dwellings. **Energy-efficient lighting** and **automatic control of outside lights**.

M: Access to and use of buildings



Wall switches and sockets go **between 450 mm and 1200 mm** above finished floor level: the bottom of the socket at 450 mm or higher, the top of the switch or doorbell at 1200 mm or lower. This **mainly applies to new builds**.

- When **rewiring or altering** an existing circuit, you don't have to meet Part M. The finished installation just has to be **no less accessible** than it was before.
- When refurbishing or rewiring, it's fine to mount switches and sockets **in keeping with the existing property**.

📖 **Electrician's Guide to the Building Regs** · Approved Document M: switch and socket heights figure · **p.186** new · p.189 old

THE TUTOR SAID TO HIGHLIGHT OR TAB THIS IMAGE

P: Permitted cable routes

Cables hidden in walls must run in the **permitted zones**: horizontally or vertically in line with an accessory, or near the wall's edges and corners. If a cable runs outside the zones, e.g. diagonally between two outlets, it needs **extra protection**, such as earthed metal conduit or RCD protection. Capping over cables in a chase is common, but it's extra mechanical protection rather than a requirement.

📖 **Electrician's Guide to the Building Regs** · Permitted cable routes / zones figure (blue = OK, orange = needs extra protection) · **p.43** new

📖 **On-Site Guide** · Similar permitted-zones figure

09 EAWR 1989, BS 7671 and the On-Site Guide

EAWR 1989	The Electricity at Work Regulations 1989 came into force on 1 April 1990 . They're a statutory instrument , so you can be prosecuted for breaking them. You mainly need Regulations 1–16 , plus Regulation 29 (the defence). Get the free HSE guide HSR25 (search "HSR25"). NVQ assessors will expect you to know it.
BS 7671	The IET Wiring Regulations (the big orange book). Not a statutory instrument. Its fundamental principles cover protection for safety, design, selection of equipment, and erection, verification and inspection and testing.
On-Site Guide	A user-friendly, toolbox-sized handy reference from the IET. It's the book you'll carry every day. The big BS 7671 comes out when you're unsure.
ESQCR	The Electricity Safety, Quality and Continuity Regulations: the law the DNO (distribution network operator) follows for supplies and earthing.

BS 7671 Part 2 is the definitions section. In the exam, a definition sometimes sends you somewhere else. "Trunking" says see *cable trunking*, and "low voltage" is found under **voltage**. Practise using the book.

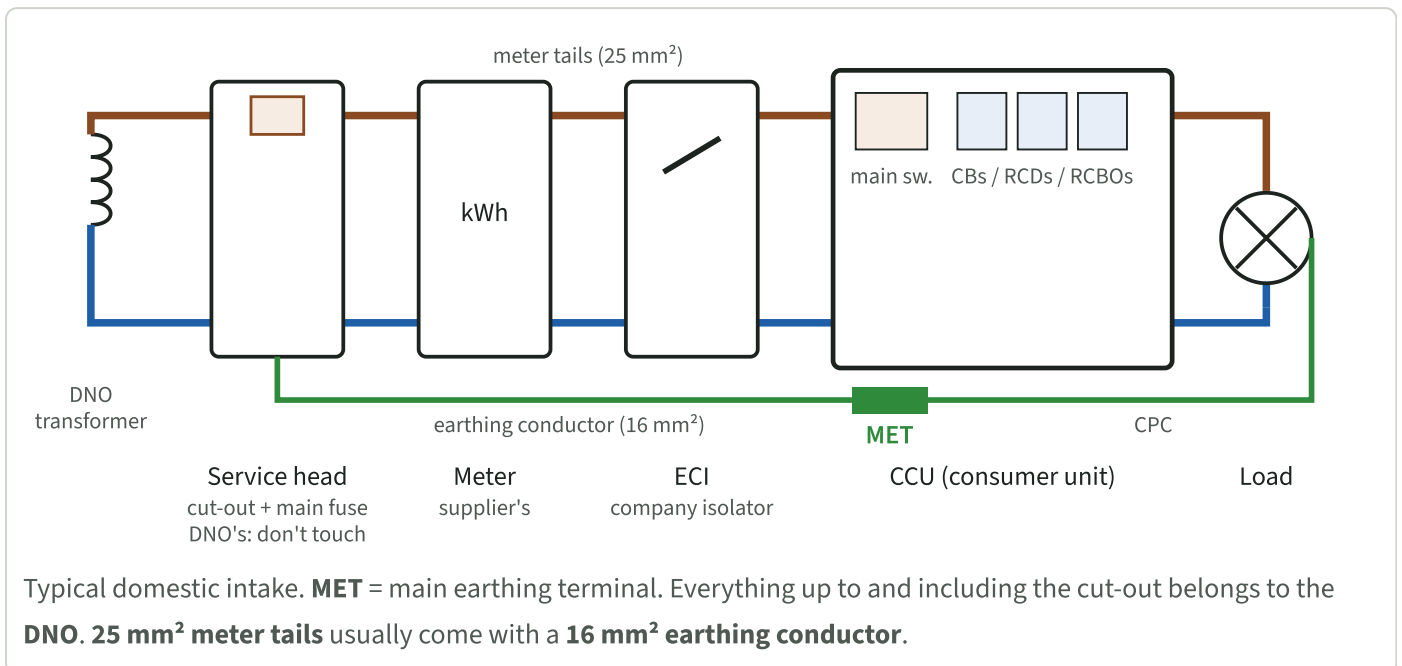
📖 **BS 7671** · Part 2 Definitions · **pp.33–50** new

📖 **BS 7671** · "Voltage": low voltage and extra-low voltage defined here · **p.50** new

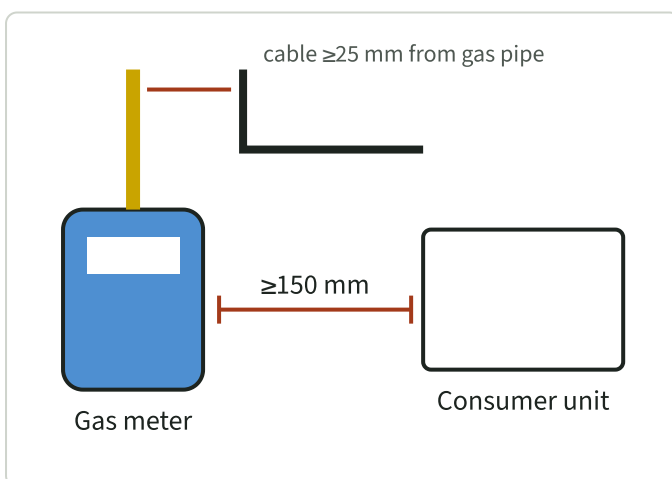
WHICH BOOK GOES INTO WHICH EXAM

For the **Building Regs exam**, take only the **Electrician's Guide to the Building Regulations**. Any other book is taken off you. Highlighting and tabs are allowed, writing isn't. The tutor recommended the free mock exams in the Google Drive before the portal homework (90% pass mark). Most exams are expected to be multiple choice.

10 The intake: from service head to circuits



- **Adding a consumer unit** (e.g. for a garage or EV charger): a **Henley block** (connector block) splits the tails after the meter. It's usually fitted by the DNO or supplier.
- **Older consumer units** used **rewireable fuses** (BS 3036), which have fuse wire in a carrier. You'll still find them.



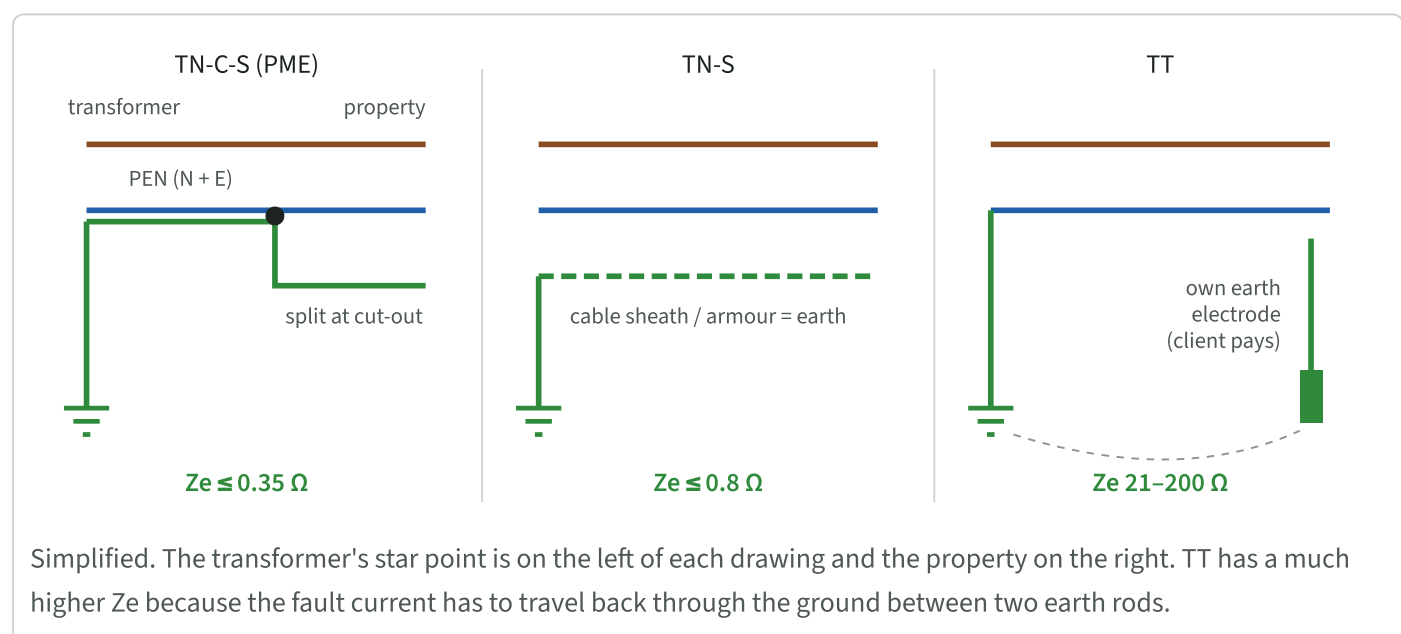
Mains position: separation from gas

- Keep at least **25 mm** between the supply or distribution cable and domestic gas pipework up to 35 mm. For pipework over 35 mm, keep **50 mm**.
- You can reduce this if the gas pipe is **PVC-wrapped** or there's an insulating barrier.
- Keep at least **150 mm** between the gas meter and the electrical intake or consumer unit.

11 Earthing systems: TN-C-S, TN-S, TT

Reading the letters: T = Terra (earth) · N = Neutral · C = Combined · S = Separate.

SYSTEM	HOW THE EARTH IS PROVIDED	MAX Z _e	WHERE YOU'LL FIND IT
TN-C-S also called PME	Neutral and earth are combined in the supply cable (PEN conductor), then separated at the cut-out. PME = protective multiple earthing, with many earth connections along the network. Provided by the DNO.	0.35 Ω	Most new builds and most homes today
TN-S	Earth and neutral are separate all the way. The earth is the metal sheath or armour of the supply cable, clamped and taken to the MET. Provided by the DNO.	0.8 Ω	Older properties
TT	No earth from the DNO. The installation has its own earth electrode (rod or plate) in the ground. The client pays for it , and you install it.	21–200 Ω	Rural areas, farms, caravan parks and other places too far from a transformer's star point



❏ **Electrician's Guide to the Building Regs** · Supply systems: expected maximum Ze values (TN-C-S 0.35 Ω , TN-S 0.8 Ω) · **p.53**
new · p.47 old

❏ **Electrician's Guide to the Building Regs** · Figure: cable sheath earth (TN-S), earthing and main bonding · **p.55** new · p.49 old

❏ **On-Site Guide** · List of earth electrode types (rods, plates, etc.) for TT

The earth fault path

Suppose a line conductor comes loose and touches the metal case of a load. The fault current travels through the case, along the **CPC** to the **MET**, down the earthing conductor, back through the supply to the **transformer star point**, and round to the protective device, which **trips**. This is **automatic disconnection of supply (ADS)**.

Earth is not a current-carrying conductor under normal conditions. It only carries current when there's an **earth fault**. If a circuit breaker trips because of an earth fault, the RCD should also trip within **300 ms** to meet ADS.

WHY TN-C-S HAS A RISK

Because the neutral and earth are combined in the supply cable, damage to that PEN conductor (a nick or a cut) could mean **losing your earth**. On TN-S, a problem with the sheath earth only affects that one property, so it's easier to spot. On your own circuits, you can use the **armour of SWA cable** as the CPC.

12 Ze, R1 + R2 and Zs

Ze	External earth fault loop impedance: everything from the transformer, through the supply, up to the intake. Measured live with test equipment.
R1	Resistance of the circuit's line conductor.
R2	Resistance of the circuit's CPC (circuit protective conductor): the green/yellow cable from the consumer unit to every socket, light, spur and so on. (Rn is the neutral.)
R1 + R2	Found by a continuity test (method 1) on each final circuit, done dead .
Zs	Total earth fault loop impedance.

THE FORMULA

$$Z_s = Z_e + (R_1 + R_2)$$

Example (made-up figures, for practice):

TN-C-S supply, measured $Z_e = 0.30 \, \Omega$

Ring circuit continuity test, $R_1 + R_2 = 0.52 \, \Omega$

$$Z_s = 0.30 + 0.52 = 0.82 \, \Omega$$

→ compare with the maximum permitted Z_s for that protective device

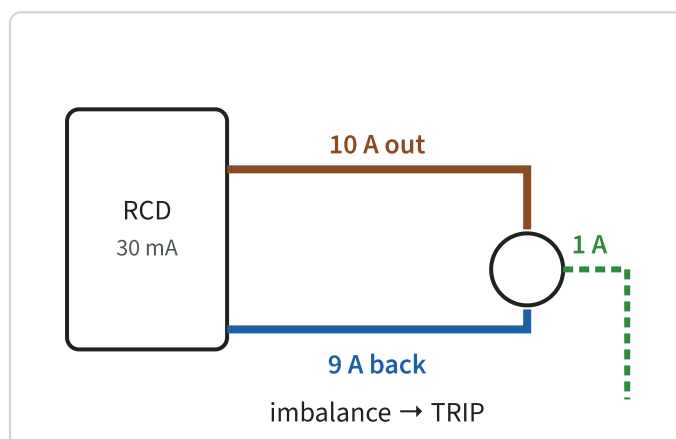
The tutor said this will be covered again in more depth during the 18th Edition and inspection & testing modules. For now, just know what each term means.

13 Protective devices

Consumer units contain devices that protect the **final circuits (cable and equipment)** against **overloads, short circuits** and **earth faults**.

DEVICE	STANDS FOR	OVERLOAD	SHORT CIRCUIT	EARTH FAULT / LEAKAGE
CB (MCB)	Circuit breaker, now just called "CB"	✓	✓	–
Fuse	e.g. BS 88, BS 3036, BS 1362	✓	✓	–
RCD (RCCB)	Residual current device	–	–	✓
RCBO	Residual current circuit breaker with overcurrent protection	✓	✓	✓

OCPD = overcurrent protective device. It's the family name for CBs, RCBOs and fuses.



How an RCD works

- It compares the current in the **line** with the current in the **neutral**. If some current is leaking to earth they don't match, and it **trips**.
- A domestic RCD is typically rated **30 mA** for additional protection, e.g. an **80 A** device protecting circuit breakers totalling up to 80 A.
- Press the **test button** regularly. The tutor said once or twice a year.
- A small amount of normal earth leakage is fine, but keep it below about **30% of the rating** to avoid nuisance tripping. That's why too many circuits on one RCD cause problems.

WORKED EXAMPLE: NUISANCE TRIPPING

RCD rating $I_{\Delta n} = 30 \text{ mA}$

30% of 30 mA = $0.3 \times 30 = 9 \text{ mA}$

→ keep total standing earth leakage on that RCD below ~9 mA

- **Split-load board** (CBs grouped under RCDs): if one circuit has an earth fault, the RCD trips **every circuit on that side**. An **RCBO board** trips **only the faulty circuit**. That costs more, but prices are coming down. A split-load board is **still compliant**, so you can't tell a client they must upgrade.
- **Overload example**: a 4-way extension lead full of 13 A appliances in one socket, or a kettle and a toaster on the same double socket. That causes overheating and melted accessories.

SPD: surge protective device

Protects against **transient overvoltages** from **lightning strikes** and from the power coming back on after a **power cut**. The kind of surge that kills laptop and games console chargers. There are three types, **T1, T2 and T3**. The tutor set homework to look up what each is for and where it goes. Once an SPD has diverted a big surge it may need replacing, and its indicator shows this.

AFDD: arc fault detection device

Detects **small arcs**, where electricity jumps between loose or poor contacts, like a plug not fully pushed into a socket, which can start fires. The tutor listed places where AFDDs are **required**: **HMOs** (houses in multiple occupation), **purpose-built student accommodation**, **care homes**, and **high-rise residential buildings over 18 m**. Otherwise you can fit them anywhere.

📖 **BEAMA** guides (free online) · AFDDs and SPDs: where and why they're installed

Breaking capacity (I_{cn}) is the largest fault current a device can safely break. A typical domestic CB or RCBO is **6 kA** (6,000 A), and some are 10 kA or more. The DNO's main cut-out fuse is rated much higher, e.g. **33 kA**.

14 Circuit breaker types and fusing factor

TYPE	TRIPS INSTANTLY AT (WITHIN 0.4 S)	USED FOR
B	up to $5 \times I_n$	Domestic and small commercial
C	up to $10 \times I_n$	Commercial and light industrial (motors, fluorescent lighting)
D	up to $20 \times I_n$	High inrush loads: X-ray machines, welders, transformers

📖 **On-Site Guide** · Table 7.2.7: circuit-breaker types, tripping currents and applications · **p.102** new · p.90 old

"WE USE THAT QUITE A LOT"

I_n is the device's **rated current**, e.g. 6 A or 32 A.

WORKED EXAMPLES FROM THE SESSION

B6 lighting circuit (domestic lighting):

$$\text{current to trip within 0.4 s} = 5 \times I_n = 5 \times 6 = 30 \text{ A}$$

B32 ring final circuit (domestic sockets):

$$\text{current to trip within 0.4 s} = 5 \times 32 = 160 \text{ A}$$

If there's also an RCD, it must trip within 300 ms (0.3 s)

A CB has two ways of tripping:

- A **magnetic coil** handles big fault currents fast.

- A **bimetallic strip** heats up and bends under overload, so it trips more slowly.

FUSING FACTOR

Circuit breakers have a fusing factor of 1.45

→ the bimetal starts its tripping action at $1.45 \times I_n$

B6: $6 \times 1.45 = 8.7 \text{ A}$

So between 8.7 A and 30 A the B6 trips on a time curve;
at 30 A or more ($5 \times I_n$) it trips within 0.4 s

For lighting, work out the circuit current from the lamps' power, e.g. $10 \times 20 \text{ W} = 200 \text{ W}$, then $I = P \div V$. Tomorrow's topics are earthing and bonding, circuit design, In, Ib, Iz and ring vs radial circuits.

15 Fuses and ratings

BS 1362

The **plug-top** fuse (3 A or 13 A etc.). It only protects the **appliance's flex**, not the appliance or the fixed wiring.

BS 88-2

Bolted cartridge fuses, used in larger commercial and industrial installations.

BS 88-3

Cartridge fuses that **replaced BS 1361** (around 2010), e.g. the DNO cut-out fuse.

BS 3036

Rewireable fuses in old consumer units.

COLOUR	FUSE	CB (TYPE B)
 White	5 A	6 A
 Blue	15 A	16 A
 Yellow	20 A	20 A
 Red	30 A	32 A
 Orange	40 A	40 A
 Green	45 A	45 A

Typical domestic circuits: 2 lighting (upstairs and downstairs), 2 socket circuits, cooker, shower, immersion heater, maybe a separate kitchen circuit. Smoke alarms are often taken off a lighting circuit. How many you can fit depends on the number of **ways** in the board, and RCDs take up ways too.

16 All book references from Day 2

Tab these pages. "New" = green/orange editions, "old" = green/brown.

BOOK	WHAT	NEW	OLD
Electrician's Guide to the Building Regs	Building work, Regulation 3, list of regulations	16–17	–
Electrician's Guide to the Building Regs	Table of Parts / Approved Documents A–S ★	20	18
Electrician's Guide to the Building Regs	1.3.2 Scope of Part P	22	–
Electrician's Guide to the Building Regs	Figure: scope of Part P, shared or separate meters	23	20
Electrician's Guide to the Building Regs	1.4.1–1.4.4 Notification, CPS, third-party certifier ★	24–25	21–22
Electrician's Guide to the Building Regs	1.4.5 Building control certification, 1.4.6 Unregistered persons ★	27	–
Electrician's Guide to the Building Regs	Notifiable work table ★	29	26
Electrician's Guide to the Building Regs	Bath/shower special location figure; 1.6 Non-notifiable work	30	27
Electrician's Guide to the Building Regs	Permitted cable zones figure	43	–
Electrician's Guide to the Building Regs	Supply systems, max Ze values	53	47
Electrician's Guide to the Building Regs	Figure: TN-S cable sheath earth	55	49
Electrician's Guide to the Building Regs	Bathroom zone drawings	88–89	82–83
Electrician's Guide to the Building Regs	Swimming pool zones	93	87
Electrician's Guide to the Building Regs	10.1.1 Notches and holes in joists (Part A)	166	168
Electrician's Guide to the Building Regs	10.1.2 Chases in walls (Part A)	167	–
Electrician's Guide to the Building Regs	Part B fire safety, smoke and heat alarms (Section 10)	168+	–

BOOK	WHAT	NEW	OLD
Electrician's Guide to the Building Regs	Part M switch and socket heights figure ★	186	189
BS 7671	Contents: Part 7 special locations	3	–
BS 7671	Part 2 Definitions	33–50	–
BS 7671	Definition: skilled person ("adequate")	44	–
BS 7671	Definition: voltage (low voltage, ELV)	50	–
On-Site Guide	Table 7.2.7 circuit-breaker types B/C/D ★	102	90
On-Site Guide	Joist and chase drawings, cable depth in walls	–	91–92
HSE HSR25 (free PDF)	Electricity at Work Regulations 1989, Regs 1–16 and 29	–	–

★ = the tutor specifically said to highlight or tab it. Page numbers are as given in the session. Check them against your own copy, because printings can differ slightly. BS 7671 amendments are organised by chapter and regulation number rather than page.

17 Self-test

Test yourself. Answers are under each question.

▼ Is BS 7671 statutory? Is the Electricity at Work Regulations 1989?

BS 7671: no, it's non-statutory guidance. EAWR 1989: yes, a statutory instrument, so you can be prosecuted.

▼ Name the three types of notifiable work.

A new circuit · replacing a consumer unit · any addition or alteration to circuits in a special location

▼ You add a socket to an existing ring in a bedroom. Notifiable? Certificate?

Not notifiable (minor work, not a special location). You still inspect, test and issue a Minor Works certificate (MEIWC).

▼ A shop and the flat above share one meter. Does Part P apply to the shop?

Yes. With a shared meter, Part P applies to both. With separate meters, it applies to the flat only.

▼ What are the three ways to get notifiable work signed off?

Competent person scheme (e.g. NICEIC/NAPIT) · registered third-party certifier · notify Building Control before starting

▼ Maximum Z_e for TN-C-S, TN-S and TT?

TN-C-S 0.35 Ω · TN-S 0.8 Ω · TT 21–200 Ω

▼ Write the formula for Z_s and say what R_1 and R_2 are.

$Z_s = Z_e + (R_1 + R_2)$. R_1 = line conductor resistance, R_2 = CPC resistance.

▼ Which device protects against all of overload, short circuit and earth fault?

RCBO

▼ How much current will make a B16 trip within 0.4 s? When does its bimetal start tripping?

$5 \times 16 = 80 \text{ A}$ · $1.45 \times 16 = 23.2 \text{ A}$

▼ What height band does Approved Document M give for switches and sockets?

450 mm to 1200 mm above finished floor level (mainly new builds)

▼ Max depth of a vertical chase? A horizontal chase?

Vertical $\leq \frac{1}{3}$ of wall thickness · horizontal $\leq \frac{1}{6}$ of wall thickness

▼ What does an SPD protect against, and what does an AFDD detect?

SPD: transient overvoltages (lightning, re-energising after a power cut) · AFDD: small arc faults (loose or poor contacts)

