CHAPTER 42: THERMAL EFFECTS

WHEN IS AN AFDD REQUIRED?

Chapter 42 is protection against **thermal effects** — fire, burns, harmful heat, thermal radiation, degradation of materials, propagation of flame and smoke.

SECTION	COVERS
421	Protection against fire caused by **electrical equipment**
422	Locations where **particular risks of fire** exist — stored or processed materials

421.1.201 — THE NON-COMBUSTIBLE CONSUMER UNIT

§ In domestic (household) premises, consumer units and similar switchgear assemblies **shall** have their enclosure manufactured from **non-combustible material**, or be enclosed in a cabinet or enclosure constructed of non-combustible material. The note gives the example: **a ferrous metal, such as steel**.

So a plastic consumer unit only qualifies inside a non-combustible cabinet or enclosure. It's a fair bet for a question. Notice too that 421 refers you back to **Section 132** in Part 1 — another reminder that the book constantly cross-references itself.

421.1.7 — ARC FAULT DETECTION DEVICES

AFDDs are no longer merely recommended. The regulation says they **shall** be provided, to BS EN 62606, for **single-phase AC final circuits supplying socket-outlets not exceeding 32 A** in four kinds of premises: **higher-risk residential buildings** (residential buildings over 18 m in height or in excess of six storeys, whichever is met first), **houses in multiple occupation**, **purpose-built student accommodation** and **care homes**. Everywhere else they are **recommended** for the same circuits. Where one is used, it goes at the **origin** of the circuit it protects.

> The Grenfell Tower inquiry findings fed into this regulation. It wasn't the sole reason for it, but the inquiry's conclusions were incorporated — which is why the wording moved from "recommended" to "shall" for those building types.

422 — LOCATIONS WITH A FIRE RISK

Where there's a fire risk due to the nature of processed or stored materials, measures shall be taken to limit equipment surface temperature. The figure to know:

90 °C

Maximum enclosure temperature under **normal** conditions (a heater, for example) in such a location

- **Chapter 42** · protection against thermal effects
- **421.1.201** · non-combustible consumer unit enclosure
- **421.1.7** · p.93 · AFDDs, socket outlet final circuits ≤ 32 A
- **422** · fire risk locations · 90 °C under normal conditions

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