

Consumer units: a brief overview

There are over twenty million domestic dwellings in the UK and each has an electrical installation, usually with electricity meter and consumer unit arrangement supplying the lighting and power in the dwelling. There are numerous fires in domestic dwellings every year, many due to electrical faults, so Amendment No. 3 to BS 7671, published in 2015, introduced Regulation 421.1.201 to increase the safety of consumer units and similar switchgear. Regulation 421.1.201 comes into force in January 2016. Leon Markwell, Senior Engineer at the IET, writes an overview on what this regulation requires.

Generally, meters and consumer units are not attractive and are consequently hidden from view or placed in out-of-the way locations, such as under the stairs in houses, in garages or outbuildings, or are boxed in and covered. BS 7671 already advises that all electrical installations should be regularly inspected and tested – which sadly does not happen in many domestic dwellings. This lack of inspection and maintenance, coupled with changing electrical loads and load patterns, aging consumer units and a possible lack of adequate ventilation can all lead to overheating of the consumer unit, which could possibly start a fire.

Regulation 421.1.201 has been introduced to require that consumer units and similar switchgear, whether in new installations or where consumer units etc. are being replaced, shall comply with BS EN 61439-3 *Low-voltage switchgear and controlgear assemblies. Distribution boards intended to be operated by ordinary persons (DBO)* and have their enclosures made of non-combustible material, or be enclosed in an accessible cabinet or enclosure itself made of non-combustible material. At this time there is no specific British Standard definition of what ‘non-combustible’ means, so the only readily non-combustible material that can be currently identified and used to manufacture consumer units and switchgear is steel. Although steel is currently viewed as the only suitable material, manufacturers may identify and propose other materials if these can be shown to be non-combustible.

It is not a requirement that all non-compliant ‘combustible’ consumer units and switchgear must be replaced – instead, an inspection of a domestic dwelling’s electrical installation should be undertaken by a competent person in accordance with the requirements of Chapter 62 of BS 7671 and a decision made as to whether the consumer unit and any associated switchgear are still safe and suitable for their function. Such a decision might be informed by the age, condition and installation circumstances of the domestic dwelling’s electrical installation.

Generally, consumer units etc. under wooden staircases in houses or boxed in in wooden cupboard arrangements may be seen to have a potential risk of fire due to a probable lack of ventilation and the adjacent combustible materials. However, electrical equipment in these areas could have their ventilation improved and a local self-contained smoke detector installed.

Frequently asked questions

Richard Townsend, Senior Engineer at the IET, responds to two frequently asked questions.

Question

If I install a new circuit and the existing consumer unit is plastic, do I have to upgrade the consumer unit to a metal one after the 1st January 2016?

Answer

No, when installing a new circuit to an existing installation, after 1st January 2016, providing there is a spare way on the existing consumer unit, or if you utilise an existing way, there is no requirement to upgrade the consumer unit from a plastic product to a new metal type.

Question

When I put cables into a new metal consumer unit, do I have to use intumescent glands to enforce the fire protection of the consumer unit?

Answer

No, the metal consumer unit is designed to encase a fire within it and restrict the likelihood that a fire may spread. Manufacturers' have carried out exhaustive tests on this issue and have found that the cable entry does not have to continue the fire rating of the consumer unit, for it to be effective. The only requirement is to keep IPXXD or IP4X on the horizontal surfaces (Reg 416.2.1) and IPXXB or IP2X on all other surfaces (Reg 416.2.2). Intumescent glands and sealants may be used to ensure the IP ratings are maintained, but they are not a requirement and existing methods of ensuring IP are acceptable.

The IET is putting together guidance on consumer units, which is expected to be published early 2016.