Installation of Cables Concealed in Structures

This pocket guide provides an overview of the requirements for the installation of cables concealed in structures in accordance with regulation group 522.6 of BS 7671:2018+A2:2022 (IET Wiring Regulations 18th Edition).

Regulation group 522.6 provides specific requirements for the selection and erection of wiring systems so as to minimise the damage arising from mechanical stress, e.g. by impact, abrasion, penetration, tension or compression during installation, use or maintenance.

This guide summarises the requirements regarding the installation of cables concealed under a floor or above a ceiling; and within a wall or partition.

Note: This guide does not cover all of the requirements of regulation group 522.6; therefore BS 7671 should always be consulted where doubts exist.

Cables installed under a floor or above a ceiling

These must be run in such a position that they are not liable to be damaged by contact with the floor or ceiling or their fixings.

Where a cable passes through a joist within the floor or ceiling construction, or through a ceiling support (e.g. under floorboards) it should be:

- installed at least 50 mm below the top of the floor joist or at least 50 mm above the bottom of the ceiling joist; **or**
- meet the requirements of Regulation 522.6.204 (see back page).

Cables installed in a wall or partition at a depth of less than 50 mm from the surface

Cables installed in such locations can be damaged due to penetration by nails, screws etc; particularly where it may not be suspected that they may be located in certain areas within walls or partitions.

Cables installed in walls or partitions at a depth of less than 50 mm from the surface are therefore required to be positioned and/or protected against such damage by one of the following methods:

- installed in prescribed 'safe' cable zones (as described below and illustrated overleaf) **and** provided with the additional protection of a 30 mA RCD; **or**
- meet the requirements of Regulation 522.6.204 (see back page).

Cables concealed in a wall or partition containing metallic structural parts

Irrespective of its buried depth, a cable concealed in a wall or partition containing metallic structural parts (e.g. a metal stud wall or partition) is required to:

- be provided with the additional protection of a 30 mA RCD; **or**
- meet the requirements of Regulation 522.6.204 (see back page).

Where the cable is installed at a depth of less than 50 mm from the surface of the wall or partition, the requirements described above for cables installed in walls and partitions in general also apply.

Prescribed 'safe' cable zones

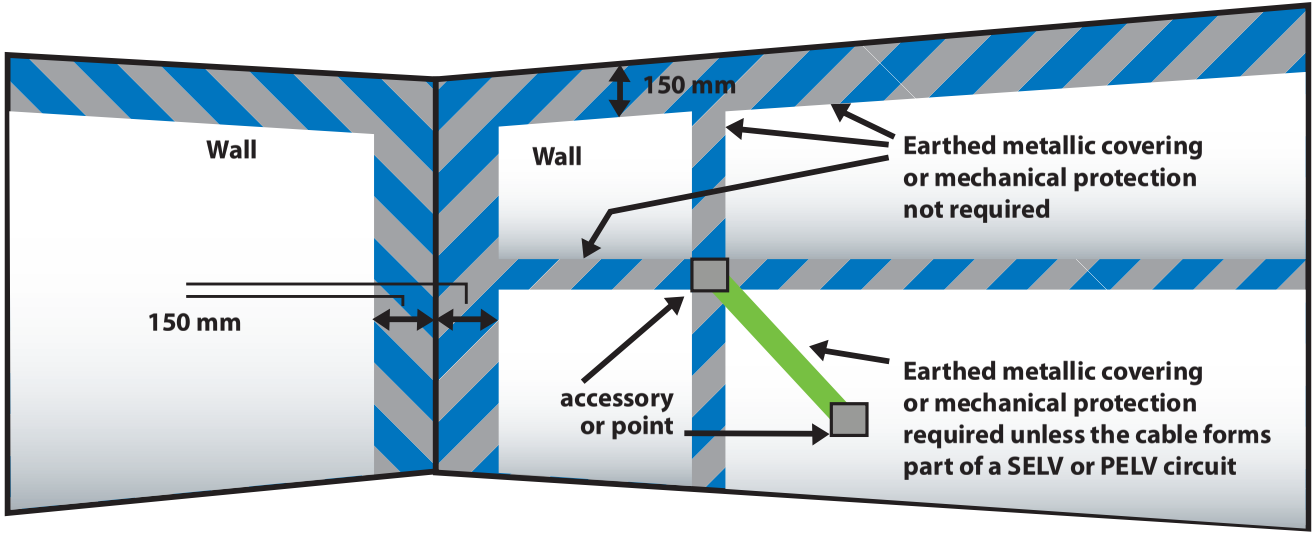
The prescribed 'safe' zones for cables installed in walls or partitions at a depth of less than 50 mm from the surface are described below and illustrated overleaf.

Cables are deemed to be in 'safe' zones when installed:

- Within 150 mm from the top of the wall or partition.
- Within 150 mm of an angle formed by two adjoining walls or partitions.
- Horizontally or vertically from an accessory, point (i.e. a termination of the fixed wiring intended for the connection of current-using equipment) or item of switchgear to which the cable is connected on any surface of the wall or partition. Where the location of the accessory, point or item of switchgear can be determined from the reverse side of a wall or partition of 100 mm thickness or less, the zone extends to the reverse side.

Prescribed 'Safe' Cable Zones

Cables concealed in a wall or partition at a depth of less than 50 mm from the surface



A cable installed within the prescribed cable zones also requires to be provided with the additional protection of a 30 mA RCD

Compliance with Regulation 522.6.204

In order to comply with Regulation 522.6.204 a cable is required to meet at least one of the following requirements.

a) The cable incorporates an earthed metallic covering complying with the requirements of BS 7671 for a protective conductor of the circuit concerned and complies with one of the following product standards:

- BS 5467 thermosetting insulated armoured cable
- BS 6724 LSF thermosetting insulated armoured cable
- BS 7846 LSF thermosetting insulated armoured fire-resistant cable
- BS 8436 LSF foil screened cable
- BS EN 60702-1 mineral insulated (MICC) cable; **or**

b) The cable is installed in earthed conduit complying with BS EN 61386-21 and satisfying the requirements of BS 7671 for a protective conductor; **or**

c) The cable is enclosed in earthed trunking or ducting complying with BS EN 50085-2-1 and satisfying the requirements of BS 7671 for a protective conductor; **or**

d) The cable is provided with mechanical protection against damage sufficient to prevent penetration of the cable by nails, screws etc. (see Notes below); **or**

e) The cable forms part of a SELV or PELV circuit meeting the requirements of Regulation 414.4

Notes regarding option d) above, i.e. the provision of mechanical protection

Note 1: Effective mechanical protection may be difficult to achieve unless purpose-manufactured plates are utilised. As a guide, it is considered that steel having a minimum thickness of 3 mm would meet the requirement. That thickness may need to be increased where shot-fired nails are likely to be used.

Note 2: Where a cable is to be embedded in plaster, capping may be provided to position the cable during the plastering process. The use of one or more layers of such capping, whether earthed or otherwise, will **not** fulfil the requirement for mechanical protection.

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