warranty
LABC

TECHNICAL MANUAL

VERSION 11

17: ELECTRICAL SERVICES

17. Electrical Services

Contents

Limitations of Functional Requirements

1. These Functional Requirements do not and will not apply to create any policy liability for any remedial works carried out by the contractor or otherwise, nor to any materials used in those remedial works).
2. The guidance provided in this Section, is guidance that provides a suggested solution to meeting the Functional Requirements. If an alternative solution is selected, then this must still meet the Functional Requirements.
3. Means of escape, passive and active systems are not covered by the Warranty.

Workmanship

1. A commissioning certificate is required for any work completed by an approved installer
2. All work is to be carried out by a technically competent person in a workmanlike manner.

Materials

1. All materials should be stored, installed and protected correctly in a manner that will not cause damage or deterioration of the product.
2. All materials, products and building systems shall be appropriately tested and approved for their intended purpose.

Design

1. Electrical services - shall be designed, constructed and installed so that they:
    a. Provide evidence to demonstrate the installation meets Building Regulations;
    b. Do not adversely affect the structural stability of the building;
    c. Prevent the entry of hazardous ground substances, external moisture or vermin;
    d. Are constructed using non-hazardous materials;
    e. Are durable and robust;
    f. Are safe and convenient in use.

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Mains

Provision of information

Design
A full set of design drawings and specifications shall be made available to the Warranty Provider and all other interested parties prior to the associated works starting on site. This may include:

1. Schematic layout drawing identifying locations of all elements relating to the electrical system e.g. outlets, switches, distribution boards, and any associated equipment.
2. The location and type of ancillary components that are connected to the electrical system e.g. those used for fire safety, power points to ventilation systems and associated controls.

The Warranty Surveyor, at their discretion, may also request supporting information that demonstrates suitability for use of any materials or systems contained within the above.

Installation
The installing contractor will be required to demonstrate, in a clearly understandable format, that the installation provides an adequate level of performance. As a means to demonstrate this, the installing contractor must:

1. Be registered with a Competent Person Scheme to prove and demonstrate that their work complies with the relevant Building Regulations.
2. Issue testing and commissioning certification for each installation at completion.

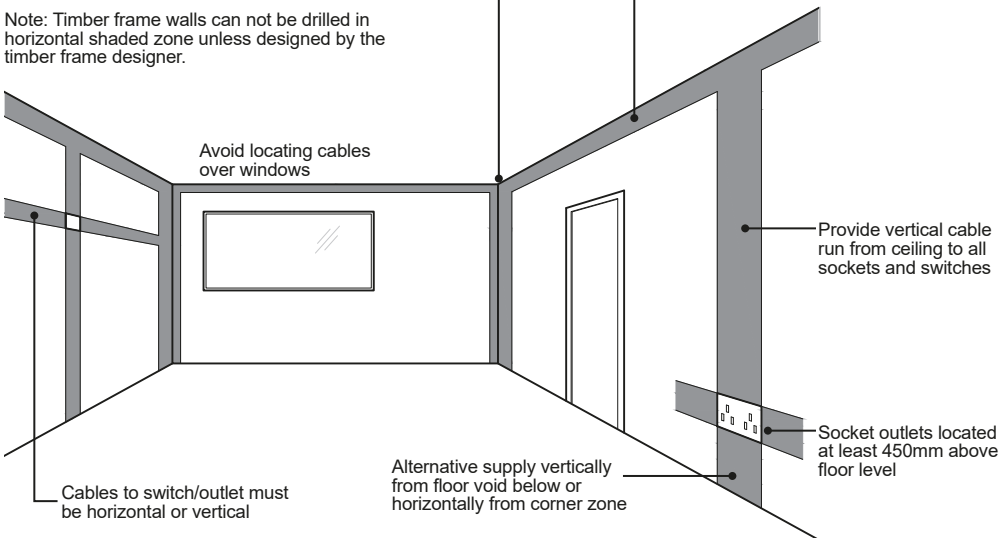
General provisions for installation

- All electrical installations should be in accordance with the relevant Building Regulations and BS 7671.
- A suitable electrical service of the appropriate size for normal domestic use shall be provided.
- PVC-covered cables should not be in contact with polystyrene insulation.
- Electrical cables should not be diagonal, and their locations should be in accordance with the image below and current relevant Building Regulations.
- Cables routed within the shaded zones must be in accordance with BS 7671 (see detail below).

Safety zones for electrical cables in walls

Locate cables preferably in ceiling void wherever possible or in shaded zone:
- Horizontally 150mm below ceiling level or coving (if fitted).
- Within 150mm of a junction between two walls.

Note: Timber frame walls can not be drilled in horizontal shaded zone unless designed by the timber frame designer.



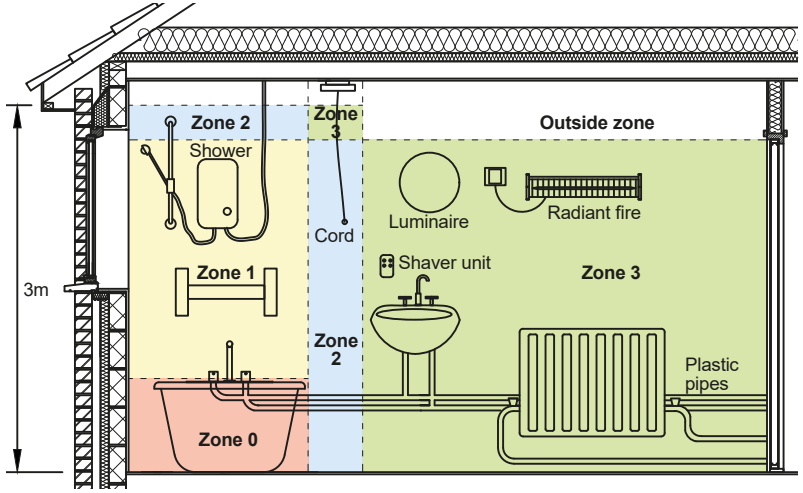
Supplementary earth bonding

For domestic situations, supplementary bonding is required in areas of increased risk, which are rooms containing a bath or shower. It is not required within kitchens, utility rooms or washrooms.

Supplementary bonding is not required to the pipes or metal fittings attached where plastic pipes are used within a bathroom or shower room. This also applies where short lengths of metal pipes connected to bathroom fittings are attached to plastic pipes.

Supplementary bonding is still required to electrical equipment such as electric showers or electric heaters. This type of bonding must also be connected to the protective conductor of all circuits supplying electrical equipment in the bathroom.

Supplementary bonding in a bathroom - plastic water supply pipe installation

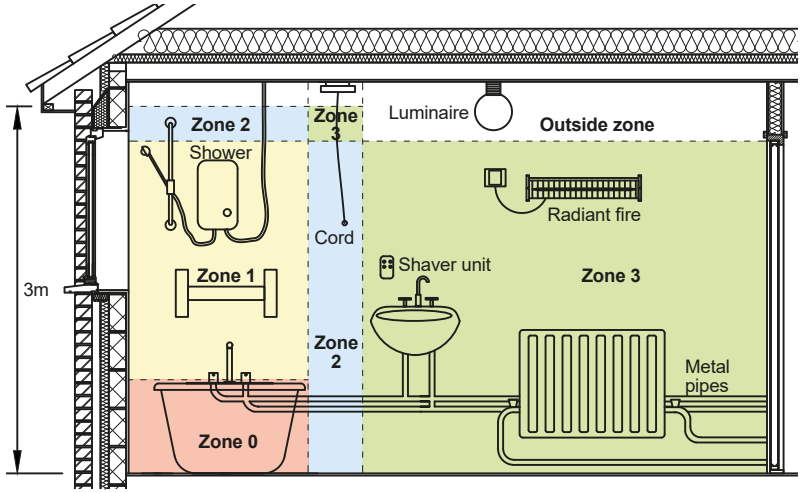


The protective conductors of all power and lighting points within the zones must be supplementary bonded. The bonding connection may be to an earth terminal of a switch or accessory supplying equipment.

Circuit protective conductors may be used as supplementary bonding conductors.

Supplementary bonding of short lengths of copper pipe installed where the pipes are visible is not necessary.

Supplementary bonding in a bathroom - metal water supply pipes



The protective conductors of all power and metal lighting points within the zones must be supplementary bonded to all conductive parts in the zones including metal waste, water and central heating pipes, metal baths, and shower basins.

Circuit protective conductors may be used as supplementary bonding conductors.

Metal baths not connected to a metal building structure do not require supplementary bonding if all metal pipes connected to them have been bonded.

Connection to pipes to be made with BS 951 clamps (complete with "Safety Electrical Connection" label).

Socket outlets

Socket outlets are to be conveniently positioned in close proximity to the TV aerial and telephone outlets, thus allowing for electrical equipment including TVs etc. Rooms should be provided with the following 13a outlets:

Room	Number of 13A Outlets	Comments
Kitchen/Utility	8	▪ Where separate kitchen and utilities are provided, each room should have at least 4 outlets. ▪ Where appliances are provided, three outlets should be available for general use.
Dining room	4	
Living/family room	8	Two outlets should be near the TV aerial outlet.
Main bedroom	6	
Other bedrooms	4	
Landing	2	
Hall	2	

Note: the above refers to individual socket outlets e.g. a double socket would count as 2 outlets.

Where open plan or mixed used spaces are provided, allowances applicable to each space in the above table should be combined and applied across the mixed use area. For example, a mixed use area incorporating living and dining areas would require 12 outlets in total. 4 outlets serving the dining room and 8 serving the living room, with at least 2 outlets being provided near to TV aerial outlets.

Cooking

Cooking appliances provided to the cooker space in a dwelling must be suitably switched and terminated with a minimum 30a electricity supply.

If a cooker panel is provided, it needs to be positioned to the side of the cooker space. A 13a socket outlet should be positioned at the cooker space where a gas supply is provided to the dwelling.

Co-axial cable

A concealed co-axial cable should be provided from the roof void to a terminal outlet within the main living room. Where the co-axial cable is not provided, a conduit and draw wire, or an alternative, should be provided. The provision of an aerial is not required.

Gas appliance

Where a gas appliance requires an electrical supply, a suitably fixed spur or socket outlet should be provided.

Light fittings

At least one fixed lighting outlet should be provided to all rooms. Areas greater than 25m² are to be provided with two fixed lighting outlets.

Halls, landings and staircases are to be provided with lighting outlets and two-way switches.

Down lighters and other flush-fitting attachments should not be installed through a ceiling if the ceiling is providing part of the required acoustic insulation or fire resistance to the property.

If down lighters are provided to ceilings below roof voids (excluding thatched roofs), precautions are to be taken to ensure that no fire risk is caused by the proximity of other materials.

Passive infrared (PIR) sensors are to be used in common and external areas.

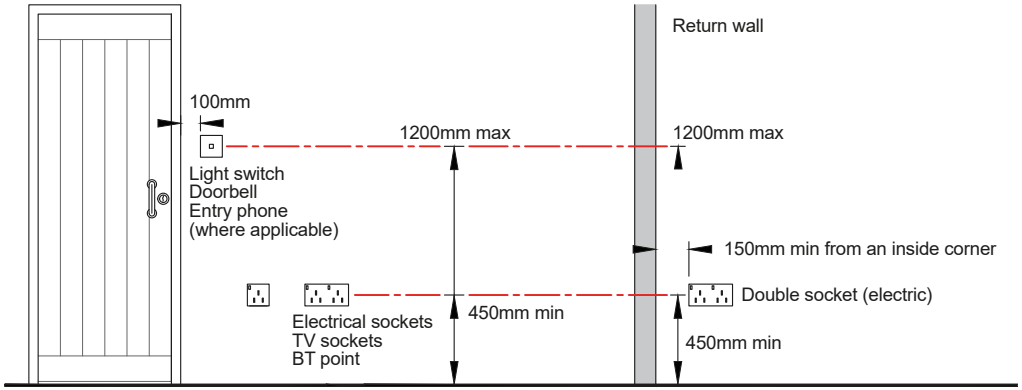
Positioning of sockets and switches

Sockets and switches should be positioned in accordance with the details on this page and the relevant Building Regulations.

For clarity, the maximum and minimum height dimensions illustrated are measured to their centre line from finished floor level. Consumer units should be mounted so that the switches are between 1350mm and 1450mm above finished floor level.

Distances from inside corners are shown as a minimum requirement for Warranty. It should be noted that an increased distance may need to be provided to comply with development specific requirements for access and use of the building to comply with relevant Building Regulations.

Heights of wiring accessories and setting out sockets in proximity to internal walls



Notching and drilling

Floor joists should not be excessively notched or drilled. Please refer to the ‘Upper Floors’ section for further guidance.

Concealed services

If the services are hidden in walls or floors, they need to be positioned so that any significant cracking of the surface cannot occur.

Services in framed walls

In addition to general provisions for the installation of services, the following are of particular note for timber frame construction external walls:

- The routing and termination of services should not affect the fire resistance of the structure.
- Electrical services are to be rated for their location with consideration for insulation.
- Service penetrations through the VCL should be tight fitting to reduce air leakage and the passage of moisture vapour.
- Avoid running electrical services in the external wall cavity, except for meter tails.
- Services should be protected with metal plates if they pass within 25mm from face of stud.
- Adequate allowance for differential movement to occur without causing damage should be provided for rigid services rising vertically through a building.
- Services that pass through the external wall cavity and provide an opening (such as meter boxes) should be enclosed with a cavity barrier and protected with a cavity tray.

Please refer to the ‘Internal Walls’ and ‘Upper Floors’ sections for further guidance.

Chasing of masonry cavity walls

If chases in walls are necessary, their depth should not exceed:

- One-sixth the thickness of the single leaf for horizontal chases.
- One-third the thickness for vertical chases.

Hollow blocks should not be chased unless specifically permitted by the manufacturer.

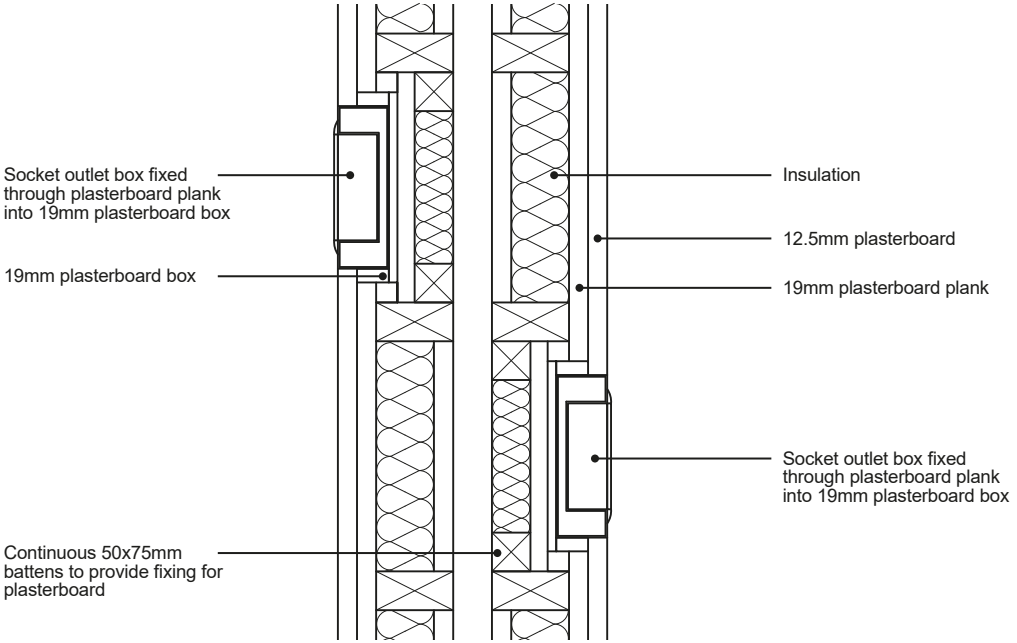
Fire stopping

Fire stopping is required around services that penetrate fire-resisting floors, walls or partitions.

If proprietary systems are used, they should be installed using the manufacturer’s recommendations.

Please refer to the ‘Internal Walls’ and ‘Upper Floors’ sections for further guidance.

Staggered services on party walls (section plan view)



Please note: The installation services within a party wall should not compromise the sound or fire resistance.

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