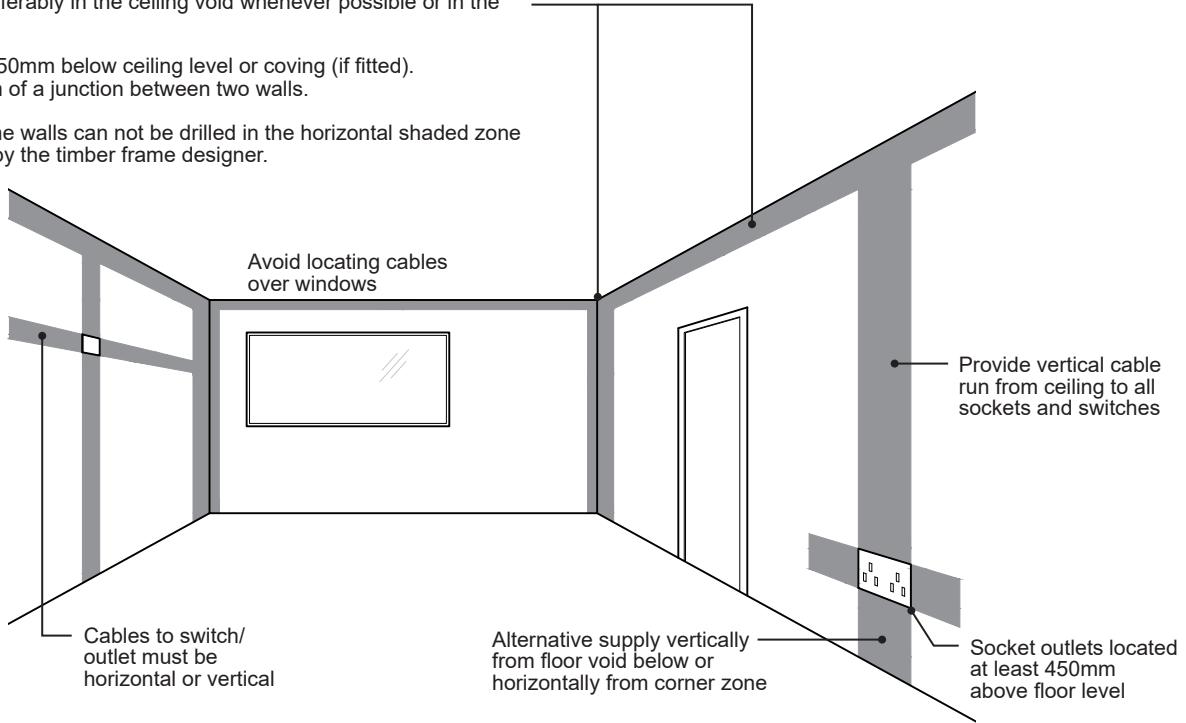


## Safety zones for electrical cables in walls

Locate cables preferably in the ceiling void whenever possible or in the 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 the 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

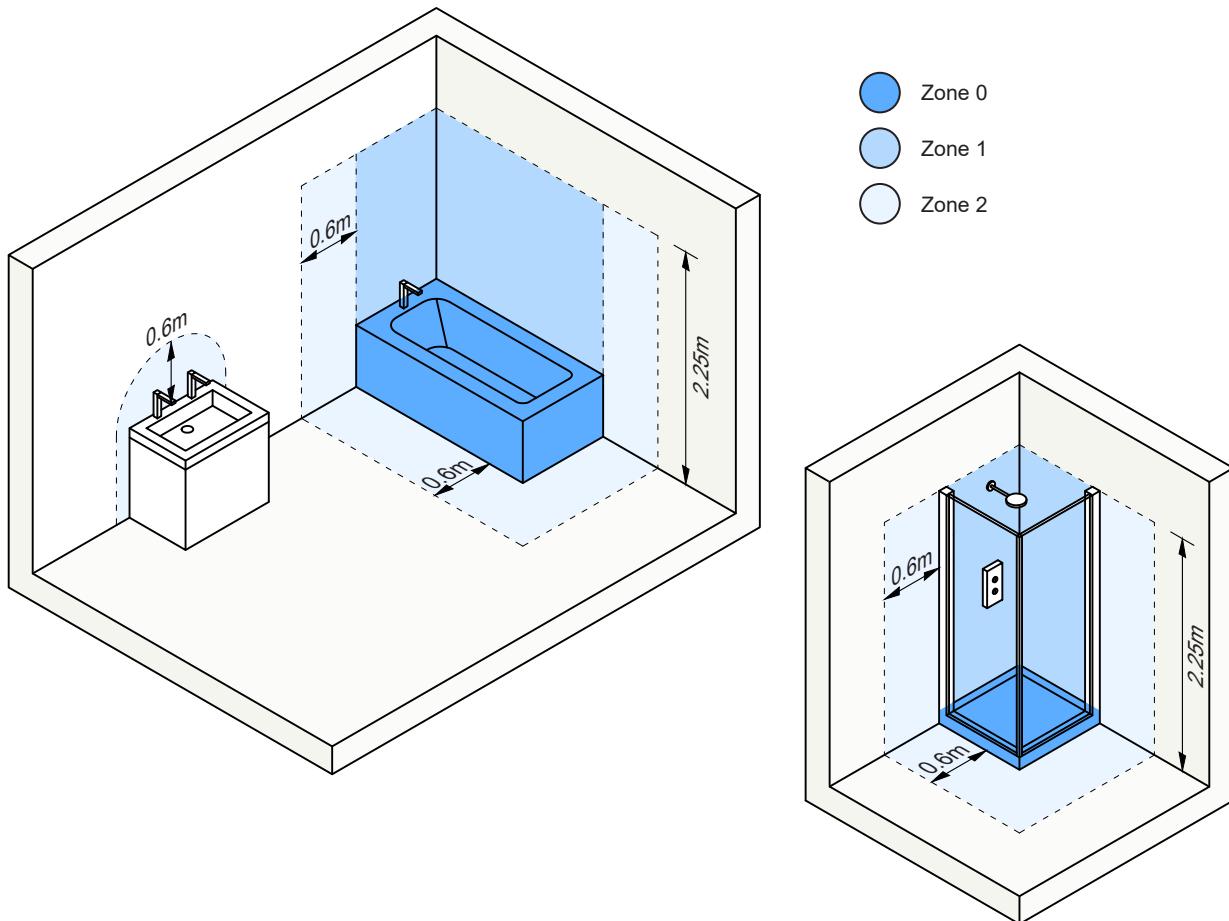
The protective conductors of all power and metal lighting points within the zones must be supplementary bonded to all conductive parts in the zones including metal waste, water and central heating pipes, metal baths, and shower basins.

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).

### Bathroom zones



#### Description of zone 0

Zone 0 is the interior of the bath tub or shower basin.

#### Description of zone 1

Zone 1 is the area directly above zone 0, up to a height of 2.25m above a bath or to the height of the maximum reach of the shower head.

#### Description of zone 2

Zone 2 is the area beyond zone 0 and zone 1, extending 0.6m horizontally and up to 2.25m vertically.

Note: This is general guidance only. Refer to 'BS 7671 Requirements for Electrical Installations' for specific requirements.

### 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.