

Electrical Installations in Locations Containing a Bath or Shower

This pocket guide provides an overview of Section 701 of BS 7671:2018+A2:2022 (IET Wiring Regulations 18th Edition).

This guide does not cover all of the requirements of Section 701; therefore BS 7671 should always be consulted where doubts exist.

Descriptions of the zones and the electrical equipment permitted in each are given below and on the back page. Illustrations of the zones are provided in the centre pages.

Zone 0 is limited to the interior of the bath tub or shower basin. For showers without a basin, the height of zone 0 is 0.10 m and has the same horizontal extent as zone 1 (see below).

In zone 0, only electrical equipment meeting **all** of the following requirements is permitted:

- The equipment is fixed, permanently connected and has a degree of protection of at least IPX7 (against temporary immersion) **and**
- The equipment complies with the relevant standard and is suitable for use in zone 0 according to the manufacturer's instructions for use and mounting **and**
- The equipment is protected by a SELV source not exceeding 12 V AC or 30 V DC, the safety source being installed outside zones 0, 1 and 2. Note: a source as described in Regulation 414.3 (iv) shall not be used.

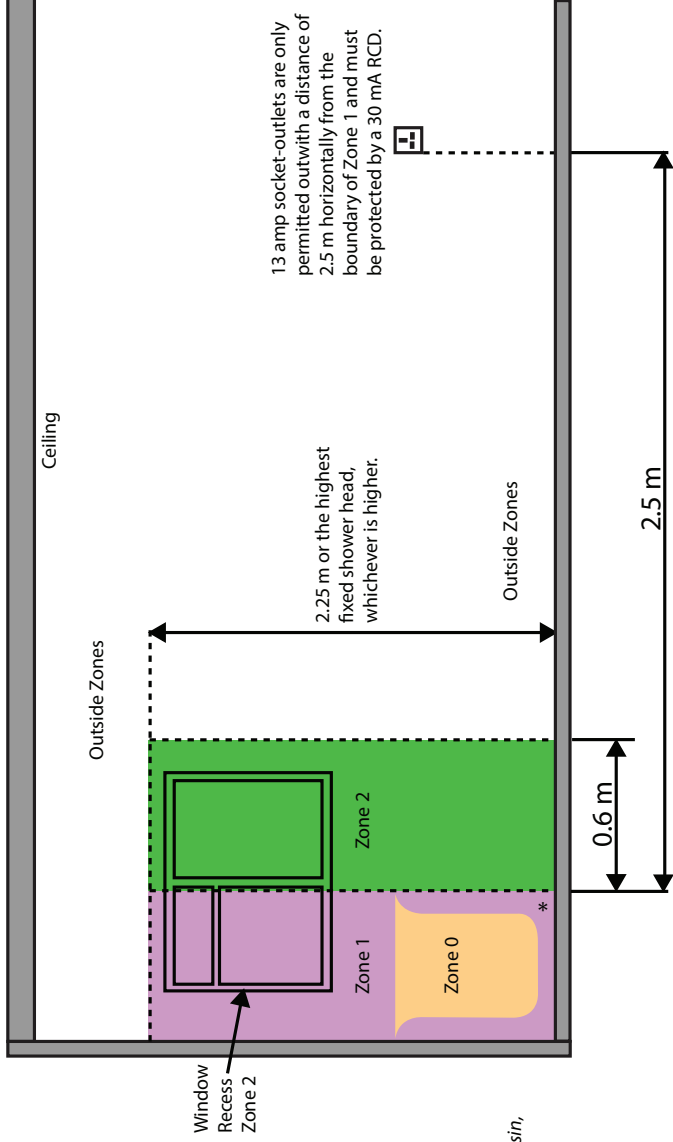
Zone 1 is the area above the bath tub or shower basin to a height of 2.25 m from the floor or the highest fixed shower head, whichever is higher. The space under the bath tub or shower basin is included if accessible without the use of a tool.

For showers without a basin, zone 1 extends 1.20 m horizontally from the centre point of the fixed water outlet on the wall or ceiling.

In zone 1, only the following fixed and permanently connected electrical equipment having a degree of protection of at least IPX4 (against splashing from any direction) is permitted, provided it is suitable according to the manufacturer's instructions:

- Electric showers, shower pumps and whirlpool units;
- Ventilation equipment, towel rails, water heaters and luminaires;
- Equipment protected by a SELV or PELV source not exceeding 25 V AC or 60 V DC (and SELV switches not exceeding 12 V AC or 30 V DC), the safety source being installed outside zones 0, 1 and 2 in each case. Note: a source as described in Regulation 414.3 (iv) shall not be used.

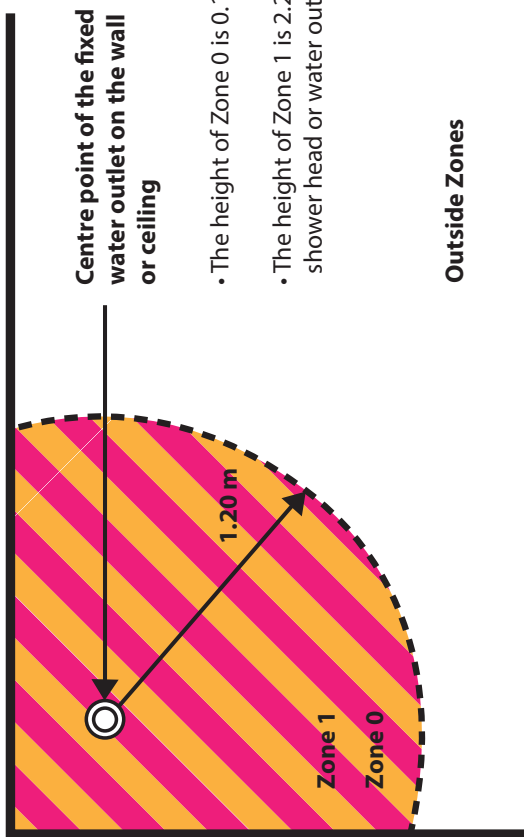
Bathroom Zones Elevation



* Space under the bath tub or shower basin is Zone 1 if accessible without the use of a tool.

Space under the bath tub or shower basin, accessible only with the use of a tool, is outside the Zones.

Shower Without a Basin - Zones Plan



• The height of Zone 0 is 0.10 m

• The height of Zone 1 is 2.25 m from the floor or the highest fixed shower head or water outlet, whichever is higher

Outside Zones

Figures 701.1 and 701.2 of BS 7671:2018+A2:2022 provides further examples of zone dimensions for various configurations of bath tubs and showers, with or without permanent fixed partitions.

Zone 2 is the area external to zone 1 for a distance of 0.6 m horizontally and a height of 2.25 m from the floor or the highest fixed shower head, whichever is higher. For showers without a basin, there is no zone 2 but an increased zone 1, as described previously.

In zone 2, only the following electrical equipment is permitted:

- Shaver supply units complying with BS EN 61558-2-5, located where direct spray from showers is unlikely;
- Other electrical equipment having a degree of protection of at least IPX4 (against splashing from any direction);
- Switches and socket-outlets of SELV circuits only, the safety source being installed outside zones 0, 1 and 2.

Outside the Zones

Socket-outlets (other than those of SELV circuits noted above) are prohibited within a distance of 2.5 m horizontally from the boundary of zone 1.

Other equipment, switchgear and accessories in accordance with the general requirements of BS 7671 are permitted outside the zones (but within the bath/shower room) provided the circuits supplying them are protected by one or more 30 mA RCDs (see below).

RCD Protection

Additional protection by use of one or more 30 mA RCDs must be provided for all low voltage circuits:

- Serving the location (i.e. the room containing the fixed bath or shower);
- Passing through zone 1 and/or zone 2 not serving the location.

Local Supplementary Protective Equipotential Bonding

Where the location containing a bath or shower is in a building with a suitable protective equipotential bonding system, supplementary protective equipotential bonding may be omitted where **all** of the following conditions are met:

- All final circuits of the location comply with the requirements for automatic disconnection **and**
- All final circuits of the location have additional protection by means of one or more 30 mA RCDs **and**
- All extraneous-conductive-parts of the location are effectively connected to the protective equipotential bonding.

Note: Any addition or alteration carried out on an existing bath/shower room must meet the requirements of Section 701 of BS 7671:2018+A2:2022. In such circumstances unless all three conditions noted above are met, local supplementary protective equipotential bonding will require to be established.