

IP Requirements

For installations of fans in bathrooms and showers

As a result of European standardisation, Amendment 1 of the 17th addition of the IEE Wiring Regulations (BS7671) came into effect in July 2011. This outlined the new zoning and ingress protection criteria for bathroom fans, having effect on product safety and installation location. To achieve IP ratings, fans are rigorously tested using a series of graded water tests. Location advice (i.e. zone 0, 1 or 2) ensures installers and users are not at risk of installing and operating products in unsuitable areas.



International



Protection Ratings



First Number

Protection of equipment
Ingress of Solid Objects

- 0 Non-protected
- 1 > 50mm diameter
- 2 > 12.5mm diameter
- 3 > 2.5mm diameter
- 4 > 1.0mm diameter
- 5 > Dust protected
- 6 > Dust tight



Second Number

Protection of persons
Electrical Safety

- 0 Non-protected
- 1 Vertically dripping
- 2 Dripping 15° tilted
- 3 Spraying
- 4 Splashing
- 5 Jetted
- 6 Power jetting
- 7 Temporary immersion
- 8 Continuous immersion

IP Ratings: IPX4

To achieve the electrical protection level equivalent to level 4, a fan is continuously sprayed with fine water jets for 10 minutes while constantly running. The fan is then left running for a further 10 minutes after which it is checked for water ingress.

If siting IPX4 rated products in zone 1 additional protection maybe required, therefore guidance within BS7671 should be followed.

Bathroom Zones

In addition to product safety, the standards will have an effect on where products are located within the bath/shower room area. The standards will clarify the current confusion regarding the siting of electrical appliances and will reduce the risk to end users operating within these zones.

The new regulations will divide the location containing the bath or shower into three areas – zones 0, 1 and 2.

The following descriptions are extracted from amendment 1 of the 17th addition of the IEE Wiring Regulations.

Regulation 701.32.2

Description of zone 0

Zone 0 is the interior of the bath tub or shower basin (see Fig. 701.1 and 701.2).

For showers without a basin, the height of zone 0 is 0.10m and its surface extent has the same horizontal extent as zone 1 (see Fig. 701.2).

Regulation 701.32.3

Description of zone 1

Zone 1 is limited by:

- i The finished floor level and the horizontal plane corresponding to the highest fixed shower head or water outlet or the horizontal plane lying 2.25m above the finished floor level, whichever is higher.
- ii The vertical surface:
 - a) Circumscribing the bath tub or shower basin (see Fig. 701.1)
 - b) At a distance 1.20m from the centre point of the fixed water outlet on the wall or ceiling for showers without a basin (see Fig. 701.1 and (f)).

Zone 1 does not include zone 0.

The space under the bath tub or shower basin is considered to be zone 1. However, if the space under the bath tub or shower basin is only accessible with a tool it is considered to be outside the zones.

Regulation 701.32.4

Description of zone 2

Zone 2 is limited by:

- i The finished floor level and the horizontal plane corresponding to the highest fixed shower head or water outlet or the horizontal plane lying 2.25m above the finished floor level, whichever is higher.
- ii The vertical surface at the boundary of zone 1 and the parallel vertical surface at a distance of 0.60m from the zone 1 border (see Fig. 701.1).

For showers without a basin, there is no zone 2 but an increased zone 1 is provided by the horizontal dimensions of 1.20m mentioned in Regulation 701.32.3(ii)b) (see Fig. 701.1(e) and (f)).

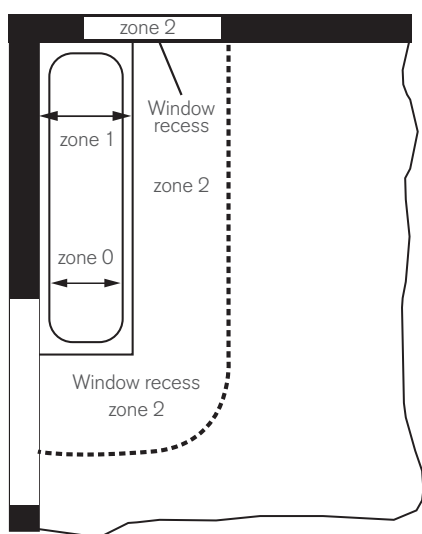
For anything outside zones 0, 1 and 2 this is treated as 'outside of zones', therefore no IP requirement.

Illustrations are not to scale (see regulation 701.32 for definition of zones).

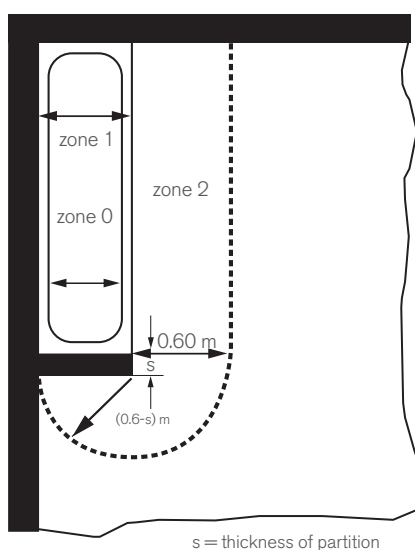
Figure 701.1

Examples of zone dimensions (plan)

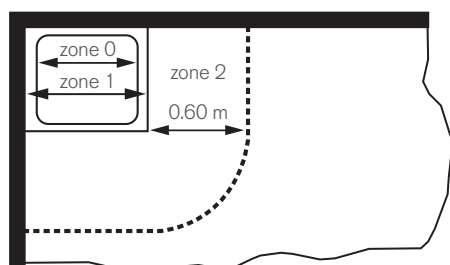
a Bath tub



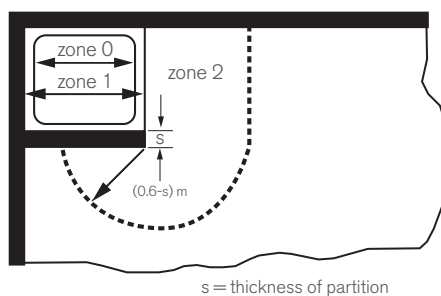
d Shower basin with permanent fixed partition



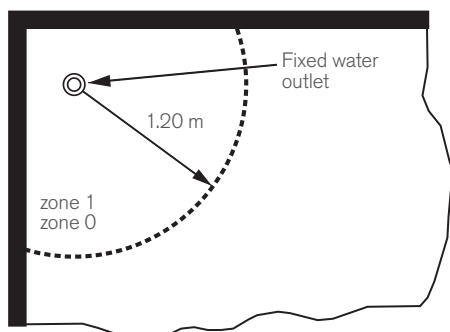
b Bath tub, with permanent fixed partition



e Shower, without basin



c Shower basin



f Shower, without basin, but with permanent fixed partition

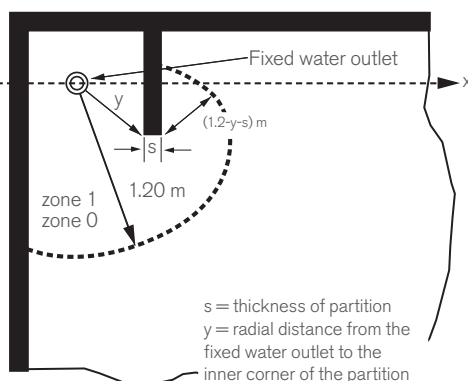
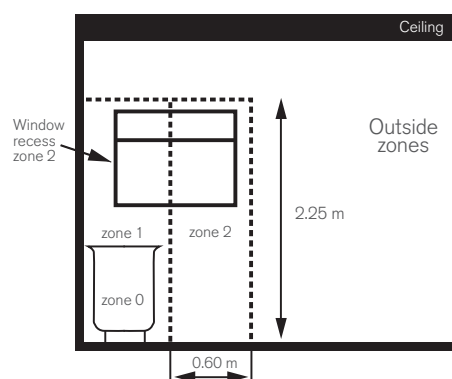


Figure 701.2

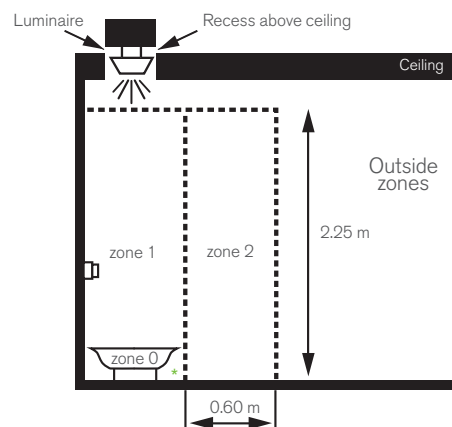
Examples of zone dimensions (elevation)

g Bath tub



h Shower basin

* Zone 1 if the space is accessible without the use of a tool.



i Shower without basin, but with permanent fixed partition

