





















# IP Reference Chart

In the latest standards **SFS - EN 60529 4 1992** concerning the IP degrees of enclosure protection of electrical equipment there are some changes particularly with regard to the testing and identification of protection against liquids. Up to the degree 6 the protection is understood to also cover the lower protection degrees. In degrees higher than 6, each degree is to be tested separately and marked accordingly, e.g. **IP67 / IP66**

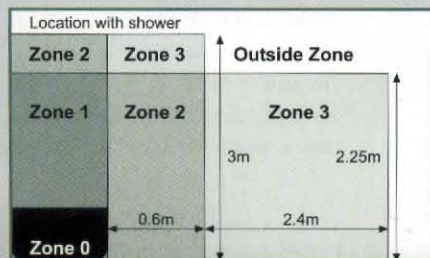
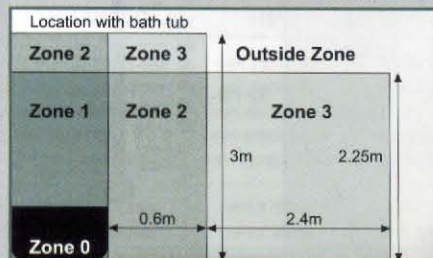
First number Protection against solid objects			Second number Protection against liquids			Third number Protection against mechanical impact		
IP	TEST		IP	TEST		IP	TEST	
0	No Protection		0	No Protection		0	No Protection	
1	 Protected against solid objects up to 50mm e.g. accidental touch by hands.		1	 Protected against vertical drops of water.		1	 150g @ 15cm Impact 0.225 joule	
2	 Protected against solid objects up to 12.5mm e.g. fingers.		2	 Protected against direct sprays of water up to 15° from the vertical.		2	 250g @ 15cm Impact 0.375 joule	
3	 Protected against solid objects over 2.5mm e.g. tools, small wires.		3	 Protected against direct sprays of water up to 60° from the vertical.		3	 250g @ 20cm Impact 0.50 joule	
4	 Protected against solid objects over 1mm e.g. tools, small wires.		4	 Protected against water sprayed from all directions - limited ingress permitted.		5	 500g @ 40cm Impact 2.00 joule	
5	 Protected against dust-limited ingress permitted (no harmful deposit).		5	 Protected against low pressure jets of water from all directions - limited ingress permitted.		7	 1.5kg @ 40cm Impact 6.00 joule	
6	 Totally protected against dust.		6	 Protected against strong jets of water e.g. for use on ship decks - limited ingress permitted.		9	 5kg @ 40cm Impact 20.00 joule	
			7	 Protected against the affects of immersion between 15cm and 1m.				
			8	 Protected against long periods of immersion under pressure.				

## Room containing bath/shower

IEE Wiring regulations, BS 7671: 2001, Section 601 gives requirements for areas containing a bath or shower. This document should be consulted before installation of appliances.

Areas of the bathroom are split into zones. As a guide only, the requirements for luminaires in each zone may be summarised as follows.

Particular care should be taken with wash basins guidance for these are also contained within BS 7671.



Protection	IP Rating
<b>Zone 0</b> SELV < 12V rms a.c. Transformer must be outside zones 0-2	IPX7
<b>Zone 1</b> SELV < 12V rms a.c. Transformer must be outside zones 0-2	IPX4, or if water jets are likely to be used for cleaning purposes in communal baths or showers, IPX5.
<b>Zone 2</b> As Zone 1	As Zone 1
<b>Zone 3</b> No limitation on fixed equipment	IPX5 if likely to be subject to water jets for cleaning.