

BS EN 62305 – key points

The following table gives a broad outline as to the key variances between the outgoing standard, BS 6651, and the new standard BS EN 62305.

BS 6651 standard

BS EN 62305 standard

Document structure

118 page document, including 9 pages devoted to risk assessment

475 page document, separated into 4 parts, including 153 pages devoted to risk assessment (BS EN 62305-2)

Focus on Protection of Structures against Lightning

Broader focus on Protection against Lightning including the structure and services connected to the structure

Specific tables relating to choice and dimension of Lightning Protection System components and conductors

Specific tables relating to sizes and types of conductor and earth electrodes.
Lightning Protection System components – specifically related to BS EN 50164 testing regimes

Annex B – guidance on application of BS 6651

BS EN 62305-3 Annex E – extensive guidance given on application of installation techniques complete with illustrations

Annex C – general advice (recommendation) for protection of electronic equipment with separate risk assessment

BS EN 62305-4 is devoted entirely to protection of electrical and electronic systems within the structure (integral part of standard) and is implemented through single separate risk assessment (BS EN 62305-2)

Definition of risk

Risk (of death/injury) level set at 1 in 100,000 (1×10^{-5}) based on comparable exposures (smoking, traffic accidents, drowning etc)

3 primary risk levels defined:
 R_1 loss of human life 1 in 100,000 (1×10^{-5})
 R_2 loss of service to the public 1 in 10,000 (1×10^{-4})
 R_3 loss of cultural heritage 1 in 10,000 (1×10^{-4})

Protection measures

Mesh arrangement is promoted as the commonly used means of air termination network

Mesh arrangement, protective angle method, catenary system, extensive use of air finials, all form part of or all of air termination network

2 levels of Lightning Protection mesh design: (20m x 10m; 10m x 5m)

4 sizes of mesh defined according to structural class of Lightning Protection System:
Class I 5m x 5m Class II 10m x 10m
Class III 15m x 15m Class IV 20m x 20m

2 levels of down conductor spacing: 20m & 10m

4 levels of down conductor spacing dependent on structural class of Lightning Protection System:
Class I 10m Class II 10m
Class III 15m Class IV 20m

Use of bonds promoted to minimise side flashing

Extensive sections/explanations provided on equipotential bonding

10 ohm overall earthing requirement, achieved by 10 x number of down conductors

10 ohms overall earthing requirement achieved either by Type A arrangement (rods) or Type B arrangement (ring conductor)

Requirement to bond all metallic services, (gas, water, electricity etc) to main earth terminal along with external down conductor

Requirement to bond all metallic services to main equipotential bonding bar. 'Live' electrical conductors (e.g. power, data, telecoms) bonded via Surge Protection Devices (SPDs)

Rolling sphere concept on structures over 20m tall: 20m sphere used on highly flammable contents/ electronic equipment within building
60m sphere all other buildings

4 sizes of rolling sphere concept defined according to structural class of Lightning Protection System:
Class I 20m Class II 30m
Class III 45m Class IV 60m