



BS EN 62305-1:2011 Part 1: General principles

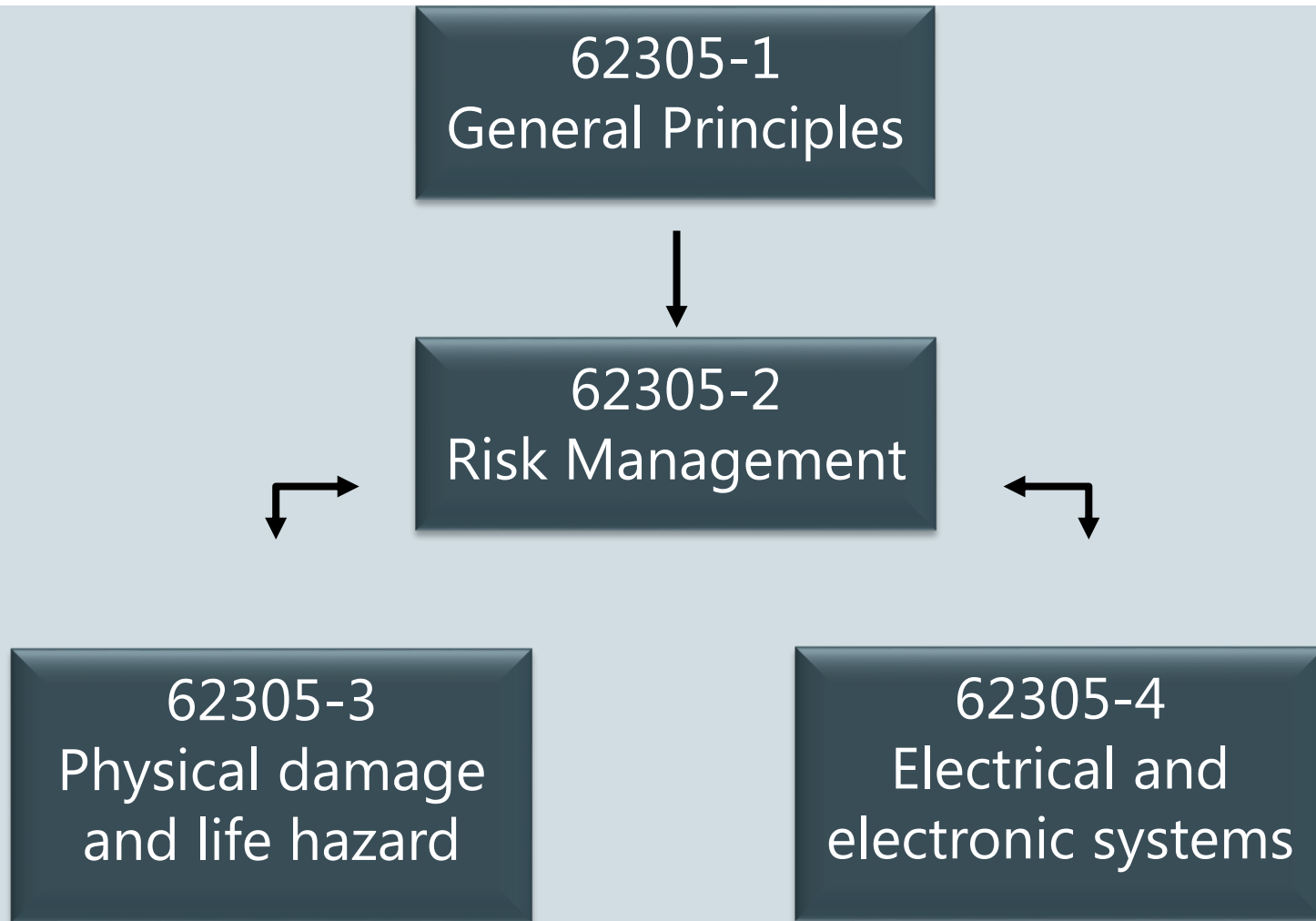




Introduction to BS EN 62305



- **CP326** – 1965 introduced the theory of an angle of protection
- **BS 6651** - 1985 British Standard for Lightning Protection for years
- **BS EN 62305:2006**
 - new European Lightning Protection standard came into use in the UK in August 2006.
 - ran in parallel with BS6651 until 31st August 2008 when the old standard was completely withdrawn
- **BS EN 62305:2011**
 - Parts 1,3 & 4 updated in 2011, part 2 updated in 2012



Document sizes BS 6651 / BS EN 62305: 2011



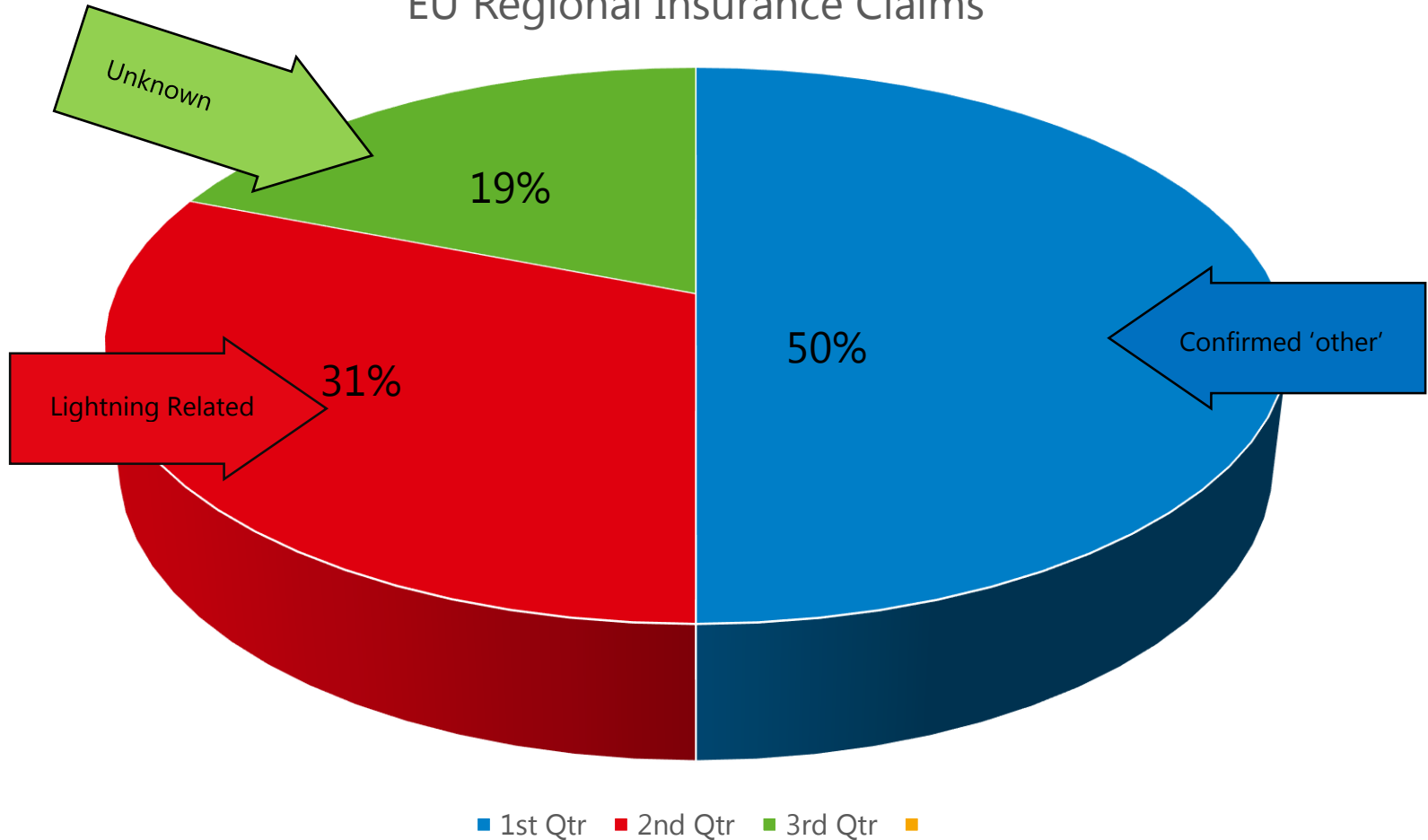
BS6651	Code of Practice for protection of structures against lightning	140 Pages
BSEN 62305-1	General Principles	70 Pages
BSEN 62305-2	Risk Management	144 Pages
BSEN 62305-3	Physical Damage to Structures and Life Hazard	160 Pages
BSEN 62305-4	Electrical and Electronic Systems	89 Pages
(BS6651 – annex C – Surge Protection		36 Pages)

Differences between IEC 62305, EN 62305 and BS EN 62305



- Both sets of documents derived from the base standard IEC 62305
- When IEC 62305 was voted on by the European committees it was accepted and became a European norm EN 62305
- All countries working to the EN abide by the majority of the content of the IEC documents but are allowed local variations that reflect any major differences within the specific country
- BS EN reflects differences experienced within the UK and has country specific risk levels

EU Regional Insurance Claims





BS EN 62305-1

General Principles



- Introduction to the BS EN 62305 set of documents.

- Describes each document and its relationship to the other documents in the series.

- Introduces fundamental principles:-
 - Source of Damage and Loss in a structure
 - Lightning Protection Levels and Parameters
 - Lightning Protection Zones (LPZ)
 - Parameters of lightning current



- Complex document embracing many more factors than the BS6651 risk assessment.
- By working through a series of formulae the process assists the user in deciding what protection is required. The actual risk (RA) must be below the tolerable level (RT).
- Depending upon the calculated risk values the protective requirements may be the installation of a LPS system and /or Direct lightning current arresters against LEMP and Surge arresters against SEMP.

Risk



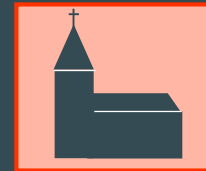
Human life

R₁



Service to the public

R₂



Cultural heritage

R₃



Economic loss

R₄

Each risk consists of several risk components

=

$$R_1 = R_A + R_B + R_C + R_M + R_U + R_V + R_W + R_Z$$

=

$$R_2 = R_B + R_C + R_M + R_V + R_W + R_Z$$

=

$$R_3 = R_B + R_V$$

=

$$R_4 = R_A + R_B + R_C + R_M + R_U + R_V + R_W + R_Z$$

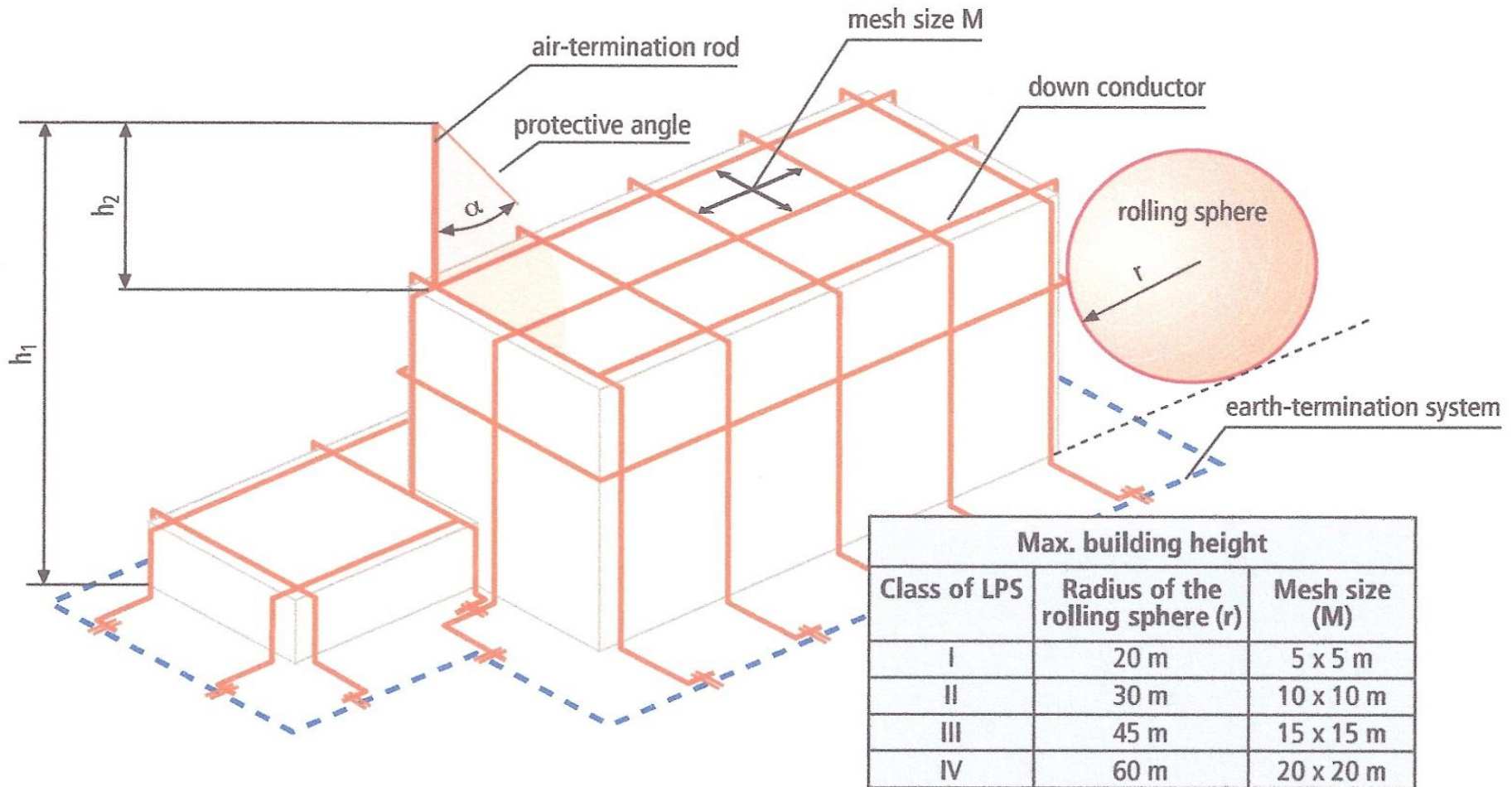


- External Lightning Protection System:-
 - Air-Termination and earth termination systems
 - Down conductor systems – Isolated and non Isolated
 - Components, dimensions and fixings

- Internal Lightning Protection System:-
 - Lightning equipotential bonding
 - Electrical insulation of the LPS using separation distance

- Maintenance of LPS and prevention of touch and step voltages

Design methods for air-termination systems



BS EN 62305-4

Electrical and electronic systems within structures



- Design and installation of SPM (Surge Protection Measures)
- Earthing and bonding
- Magnetic shielding and line routing
- Co-ordinated SPD system

Surge protection for electrical and electronic systems

