



Brooke Edgley Specialist Technical Services Ltd

Lightning protection risk management calculations
To BS EN 62305-2:2012 (Edition 2)

Project summary

Project name:	40-46 Princess Street
Project ref:	35252
Client:	ICD Project Services Ltd
Prepared by:	Gary Self
Issue date:	06/11/2019

Project details

Project name: 40-46 Princess Street
Client: ICD Project Services Ltd
Standard: BS EN 62305-2:2012 (Edition 2)
Project address: Manchester
Project ref: 35252
Calculation ref: 35252
Calculation notes:
Project author: Gary Self
Created: 06/11/2019
Modified:

Case details

Case name: 40-46 Princess Street Manchester
Case title: 35252
Case notes: Traditional building with a tiled roof

The following primary risks and their relevant tolerable risks have been taken into consideration as part of this risk management calculation

R_1 8.4217E-06 Risk of loss of human life in the structure.
The tolerable risk of 1E-05 is not exceeded based on the application of the protection measures listed below.

Protection system design parameters

Structural LPS Requirement for a structural lightning protection system (LPS) and where necessary the chosen Lightning protection level (LPL)

Lightning protection level (LPL) IV

I_{max} Maximum peak current

100 kA

$ProbI_{max}$ Probability that lightning current parameters are smaller than the maximum value defined above

97 %

I_{min} Minimum peak current

16 kA

Problmin Probability that lightning current parameters are greater than the minimum value defined above

84 %

r Radius of rolling sphere

60 m

/SPD Maximum peak current of SPDs for each of the 2 lines considered (based on the simple current division concept).

NOTE: The worst case surge that could be expected on a two-wire telephone or data line is 2.5kA (10/350 μ s) per line (Category D test to IEC/EN 61643-21) to earth or 5 kA (10/350 μ s) per pair.

25 kA

Line 1

Power Line

Service entrance SPD Requirement to protect Line 1 at its entrance to the structure with an equipotential bonding SPD (rated to ISPD above) in accordance with BS EN 62305-2:2012 (Edition 2)

NOTE: Where SPDs are required but an LPS is not (ISPD = 0), protect overhead lines with Type 1 SPDs (mains 12.5kA 10/350 μ s, data/telecom 2.5kA 10/350 μ s), protect underground lines with overvoltage or Type 2 SPDs (tested with an 8/20 μ s waveform)

Lightning protection level (LPL) IV

Coordinated SPD set Requirement to protect all internal systems connected to Line 1 with a coordinated set of SPDs in accordance with BS EN 62305-2:2012 (Edition 2)

None

Line 2

Telecom Line

Service entrance SPD Requirement to protect Line 2 at its entrance to the structure with an equipotential bonding SPD (rated to ISPD above) in accordance with BS EN 62305-2:2012 (Edition 2)

NOTE: Where SPDs are required but an LPS is not (ISPD = 0), protect overhead lines with Type 1 SPDs (mains 12.5kA 10/350 μ s, data/telecom 2.5kA 10/350 μ s), protect underground lines with overvoltage or Type 2 SPDs (tested with an 8/20 μ s waveform)

Lightning protection level (LPL) IV

Coordinated SPD set Requirement to protect all internal systems connected to Line 2 with a coordinated set of SPDs in accordance with BS EN 62305-2:2012 (Edition 2)

None

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best

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Zone 1

Fire protection system

Automatic extinguishing or alarm installations