

BS EN 62305-2 Risk Assessment Questionnaire.
R. C. Cutting Co. Ltd.



Case details

Client name:	_____	
Project Name:	_____	
Project address:	_____	
Project ref:	_____	
Questionnaire completed by:	Of:	Date:

BSEN62305 requires a Risk Assessment calculation to be carried out to determine which of the 4 levels of Lightning Protection is required (Levels I to IV)

Important Notes - please read

The questions herein are part of BSEN62305, and the resultant Risk Assessment has to be carried out for all buildings. Please note that this assessment cannot take place until the information is received, and a design and quotation cannot commence, so it is important that we receive answers to the questions below.

Now an essential part of Lightning Protection is the fitting of surge protection equipment to protect the sensitive electronic equipment within the building. To fully develop the design, we will need detailed information on all plant and equipment at roof level and whether each item is connected back to a distribution board to decide whether separate surge protection at roof level is required.

We accept that certain information may not be available, and our Risk Assessment software is programmed to enter default data (on a 'worst case' basis) which is likely to increase the level of Lightning Protection required, and subsequently increase the costs.

There are now four risks of lightning damage that can be considered, with the primary risk being that of 'Loss of Human Life' - R1. Unless specified to the contrary this will be the sole loss that is considered. All four, or a selection may be preferred.

Risks being considered:

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

- R1 : Risk of loss of human life (This is the most important risk)
- R2 : Risk of loss of service to the public
- R3 : Risk of loss of cultural heritage
- R4 : Risk of loss of economic value

Notes

Tick the relevant options shown to the left. Unless indicated to the contrary - the sole risk R1 will be considered.

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1 Environmental influences

- 1.1 Lightning activity N_g Flashes to ground per km² per annum
 T_d Thunderstorm days/year:
- 1.2 Soil resistivity (Ωm): ρ
- 1.3 Location relative to surroundings: C_d Object surrounded by higher objects or trees
 Object surrounded by objects or trees of the same height or smaller
 Isolated object: no other objects in the vicinity
 Isolated object on a hilltop or knoll
- 1.4 Service line density: C_e Rural
 Suburban - Height of buildings less than 10m
 Urban - Height of buildings ranging between 10m and 20m
 Urban with tall buildings - Height of buildings greater than 20m

Notes

Enter a value in one of the boxes. We can insert this data if you do not know it.

If not known 500 Ωm will be assumed

Tick one of the options shown to the left. (Ref BS EN 62305-2 Table A.2)

Tick one of the options shown to the left. (Ref BS EN 62305-2 Table A.5)

2 Structure definition

- 2.1 Shield at structure boundary: K_{s1} Non conducting - timber, masonry structure and cladding
 Non conducting with LPS level IV, III or II
 Non conducting with LPS level I
 Conductive frame with non conducting cladding
 Conductive frame with conducting cladding - typical door openings
 Conductive frame with conducting cladding - 100mm max opening
 Conductive frame with conducting cladding - 10mm max opening
 Structure fully clad with metal - no openings
 K_{s1} User specified
- 2.2 Structure length (m) L_b
- 2.3 Structure width (m) W_b
- 2.4 Structure height (m) H_b

Notes

Tick one of the options shown to the left, or enter a user specified value (of K_{s1}) at the bottom of the list.
 If in doubt the option 'Non conducting - timber, masonry structure and cladding' will yield a more conservative result

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3 Line definition

3.1 Line identification: P = Power T = Telecoms O = Other (please specify) _____

P T O

- 3.1 Incoming line type:
- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Unshielded cable |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Shielded cable with no bonding |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Shielded and bonded cable $5 < R_s \leq 20$ Ohms/km |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Shielded and bonded cable $1 < R_s \leq 5$ Ohms/km |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Shielded and bonded cable $R_s \leq 1$ Ohms/km |

- 3.2 Internal wiring type:
- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Unshielded cable - no routing precautions in order to avoid loops |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Unshielded cable - routing precautions in order to avoid large loops |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Unshielded cable - routing precautions in order to avoid loops |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Shielded cable $5 < R_s \leq 20$ Ohms/km |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Shielded cable $1 < R_s \leq 5$ Ohms/km |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Shielded cable $R_s \leq 1$ Ohms/km |

- 3.3 Presence of HV/LV transformer:
- Ct** Service only
 Service with 2 windings transformer

- 3.4 Connected equipment withstand:
- Uw** 1.5 kV - Socket outlets (electronic equipment)
 2.5 kV - Sub-distribution board (electrical equipment)
 4 kV - Main distribution board
 6 kV - Electricity meter

- 3.5 Type of service:
- | | | | |
|--------------------------|--------------------------|--------------------------|--------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Aerial |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Buried |

- 3.6 Height of line (m): **Hc** For Aerial cables - please specify height above ground

- 3.7 Length of line (m): **Lc**

- 3.8 Location relative to surroundings: **Cd** Object surrounded by higher objects or trees
 Object surrounded by objects or trees of the same height or smaller
 Isolated object: no other objects in the vicinity
 Isolated object on a hilltop or knoll

Notes

Tick one of the options shown to the left for each service. Please ensure that at least the Power column is completed.
 If in doubt the option 'Unshielded cable' will yield a more conservative result

Tick one of the options shown to the left.
 If in doubt the option 'Unshielded cable - no routing precautions in order to avoid loops' will yield a more conservative result

Tick one of the options shown to the left.
 (Ref BS EN 62305-2 T able A.4)

Tick one of the options shown to the left.

Tick one of the options shown to the left.

If not known - 6m will be assumed

If not known 1000m will be assumed

Tick one of the options shown to the left.
 If in doubt use the same option chosen at 1.3
 (Ref BS EN 62305-2 T able A.2)

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4 Zone definition

4.1 Zone identification: Inside the structure

4.2 Zone location: Inside the structure

4.3 Type of soil or floor: *r a/r u*

<input type="checkbox"/>	Agricultural	<input type="checkbox"/>	Ceramic	<input type="checkbox"/>	Asphalt
<input type="checkbox"/>	Concrete	<input type="checkbox"/>	Gravel	<input type="checkbox"/>	Linoleum
<input type="checkbox"/>	Marble	<input type="checkbox"/>	Carpet	<input type="checkbox"/>	Wood

4.4 Risk of fire or physical damage: *r f*

<input type="checkbox"/>	None	<input type="checkbox"/>	Ordinary	<input type="checkbox"/>	Explosion
<input type="checkbox"/>	Low	<input type="checkbox"/>	High		

4.5 Fire protection system: *r p*

<input type="checkbox"/>	None (or known risk of explosion)
<input type="checkbox"/>	Manual extinguishers or alarms
<input type="checkbox"/>	Automatic extinguishers or alarms

4.6 Shield at zone boundary: *K s2*

<input type="checkbox"/>	Non conducting - timber, masonry structure and cladding
<input type="checkbox"/>	Conductive frame with non conducting cladding
<input type="checkbox"/>	Conductive frame with conducting cladding - typical door openings
<input type="checkbox"/>	Conductive frame with conducting cladding - 100mm max opening
<input type="checkbox"/>	Conductive frame with conducting cladding - 10mm max opening
<input type="checkbox"/>	Zone fully clad with metal - no openings

K s2 User specified

Notes

It is possible to separate a building into zones. If this is necessary we will approach you later for more information.

Tick one of the options shown to the left.

Where specific information is not known or available - tick Ordinary

If the Automatic system is not fitted with Surge Protection Devices (SPD's) tick the Manual option

If not known the option 'Non conducting - timber, masonry structure and cladding' will yield a more conservative result. Or enter a user specified value (of KS2) at the bottom of the list.

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4.7 Loss of human life

This is the primary and sole loss that will be considered (R1) unless indicated to the contrary on Page 1.

4.7.1 Due to special hazard: **h z1**

<input type="checkbox"/>	No special hazard
<input type="checkbox"/>	Low level of panic (e.g. limited to two floors, occupants <100)
<input type="checkbox"/>	Average level of panic (e.g. cultural or sport events, occupants <1000)
<input type="checkbox"/>	Difficulty of evacuation (e.g. immobilized persons, hospitals)
<input type="checkbox"/>	High level of panic (e.g. cultural or sport events, occupants >1000)
<input type="checkbox"/>	Hazard for surroundings or environment
<input type="checkbox"/>	Contamination for surroundings or environment

4.7.2 Due to step & touch voltage: **L t1**

<input type="checkbox"/>	Uninhabited
<input type="checkbox"/>	Inhabited internal zone
<input type="checkbox"/>	Inhabited external zone
<input type="checkbox"/>	User specified - Please indicate the following

<input type="checkbox"/>	Number of hours per day the building will be occupied.
<input type="checkbox"/>	Number of people that are likely to be in the building.

4.7.3 Due to fire or physical damage: **L t1**
Please indicate the use of the building.

<input type="checkbox"/>	None	<input type="checkbox"/>	Factory	<input type="checkbox"/>	Medical centre	<input type="checkbox"/>	Shops/shopping centre
<input type="checkbox"/>	Airport building	<input type="checkbox"/>	Farm building	<input type="checkbox"/>	Museum	<input type="checkbox"/>	Sports stadium
<input type="checkbox"/>	Base station	<input type="checkbox"/>	Fuel/service station	<input type="checkbox"/>	Petro chem plant	<input type="checkbox"/>	Substation
<input type="checkbox"/>	Block of flats	<input type="checkbox"/>	Gas compound	<input type="checkbox"/>	Care home	<input type="checkbox"/>	Telephone exchange
<input type="checkbox"/>	Cathedral	<input type="checkbox"/>	Halls of residence	<input type="checkbox"/>	Emergency service	<input type="checkbox"/>	Theatre
<input type="checkbox"/>	Church	<input type="checkbox"/>	Hospital	<input type="checkbox"/>	Power station	<input type="checkbox"/>	University
<input type="checkbox"/>	Civic building	<input type="checkbox"/>	Hotel	<input type="checkbox"/>	Prison	<input type="checkbox"/>	Water treatment works
<input type="checkbox"/>	Commercial/office block	<input type="checkbox"/>	Industrial warehouse	<input type="checkbox"/>	Railway station	<input type="checkbox"/>	Wind farm
<input type="checkbox"/>	Community centre	<input type="checkbox"/>	Large house	<input type="checkbox"/>	Ruin		
<input type="checkbox"/>	Departmental store	<input type="checkbox"/>	Leisure centre	<input type="checkbox"/>	School		
<input type="checkbox"/>	User specified - Please indicate the following	<input type="checkbox"/>	Number of hours per day the building will be occupied.	<input type="checkbox"/>	Number of people that are likely to be in the building.		

4.7.4 Due to overvoltage: **L o1** **This section only needs to be completed for buildings with Risk of Explosion or Hospitals or such buildings where the loss of service would immediately endanger life.**

<input type="checkbox"/>	None
<input type="checkbox"/>	Risk of explosion
<input type="checkbox"/>	Safety critical systems ie. Hospitals
<input type="checkbox"/>	User specified - Please indicate the following

<input type="checkbox"/>	Number of hours per day the building will be occupied.
<input type="checkbox"/>	Number of people that are likely to be in the building.

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4.8 Loss of service to the public

**Only to be completed if Loss of Service to the Public is being considered - R2 from Page 1.
Otherwise go to Section 4.9**

4.8.1 Due to fire or physical damage:	L f2	<input type="checkbox"/>	No service provided	<input type="checkbox"/>	Communications	<input type="checkbox"/>	Manufacturing
		<input type="checkbox"/>	Gas	<input type="checkbox"/>	Government	<input type="checkbox"/>	Retail
		<input type="checkbox"/>	Water	<input type="checkbox"/>	Health	<input type="checkbox"/>	Leisure
		<input type="checkbox"/>	Power	<input type="checkbox"/>	Financial	<input type="checkbox"/>	User specified

4.8.2 Due to overvoltage:	L o2	<input type="checkbox"/>	No service provided	<input type="checkbox"/>	Communications	<input type="checkbox"/>	Manufacturing
		<input type="checkbox"/>	Gas	<input type="checkbox"/>	Government	<input type="checkbox"/>	Retail
		<input type="checkbox"/>	Water	<input type="checkbox"/>	Health	<input type="checkbox"/>	Leisure
		<input type="checkbox"/>	Power	<input type="checkbox"/>	Financial		
		<input type="checkbox"/>	User specified - Please indicate the following	<input type="text"/>	Number of hours per day the building will be occupied.		
		<input type="text"/>	Number of people that are likely to be in the building.				

4.9 Loss of Cultural Heritage

**Only to be completed if Loss of Cultural Heritage is being considered - R3 from Page 1.
Otherwise go to Section 4.10**

4.9.1 Due to fire or physical damage:	L f3	<input type="checkbox"/>	None		
		<input type="checkbox"/>	Museum, Stately home etc.		
		<input type="checkbox"/>	User specified - Please indicate the following	<input type="text"/>	Number of hours per day the building will be occupied.
				<input type="text"/>	Number of people that are likely to be in the building.

4.10 Loss of Economic Value

**Only to be completed if Loss of Economic Value is being considered - R4 from Page 1.
Otherwise go to Section 5**

4.10.1 Due to special hazard:	h z4	<input type="checkbox"/>	No special hazard
		<input type="checkbox"/>	Hazard for surroundings or environment
		<input type="checkbox"/>	Contamination for surroundings or environment

4.10.2 Due to step & touch voltage:	L t4	<input type="checkbox"/>	None
		<input type="checkbox"/>	Agricultural properties with animals inside / outside the structure

4.10.3 Due to fire or physical damage:	L f4	<input type="checkbox"/>	No economic loss
		<input type="checkbox"/>	Schools, Commercial, Public entertainment, Prisons, Churches
		<input type="checkbox"/>	Hospitals, Hotels, Industrial, Museum, Agricultural

4.7.4 Due to overvoltage:	L o4	<input type="checkbox"/>	None	<input type="checkbox"/>	Museums, Agricultural, Schools, Churches, Public Buildings
		<input type="checkbox"/>	Risk of explosion	<input type="checkbox"/>	Hospitals, Industrial or commercial complex, Offices, Hotels



4.11 Costs of loss

Information required to calculate costs of loss versus savings derived from fitting Lightning Protection.

CA	<input type="text"/>	Cost of any animals in this zone	CPM	<input type="text"/>	Cost of protection measures
CS	<input type="text"/>	Cost of any systems in this zone	I	<input type="text"/>	Interest rate
CB	<input type="text"/>	Cost of the building	a	<input type="text"/>	Amortization rate
Cc	<input type="text"/>	Cost of the contents of this zone	m	<input type="text"/>	Maintenance rate

5.0 Surge Protection at Service Entry Point

The bonding of all services should always be ensured, including the provision of equipotential bonding of all power and telecomms line conductors at their point of entry to the structure using Surge Protection Devices (SPD's) as this will minimise potential differences and may reduce radiated magnetic fields.

Main Power service

- Single Phase - 240V
- Three Phase - 415V