

ELECTRICAL INSTALLATION CERTIFICATE

Issued in accordance with British Standard BS 7671 - Requirements for Electrical Installations

Certificate Reference: Grenfell Tower / 145002

1. DETAILS OF THE CLIENT

Client Address: The Royal Borough of Kensington & Chelsea , TMO, Network Hub, 292a Kensal Road, London, W10 5BE

2. DETAILS OF THE INSTALLATION

Installation Address: Grenfell Tower, Grenfell Road, London, W11 1TQ

Extent of the installation covered by this certificate: New CC1H120mm MICC supply cable from domestic riser sub-mains service head 2.to riser enclosure in walkway riser cupboard.

The installation is: New N/A An addition N/A An alteration **3. DESIGN**

I/We being the person(s) responsible for the design of the electrical installation (as indicated by my/our signatures below), particulars of which are described above, having exercised reasonable skill and care when carrying out the design, hereby CERTIFY that the design work for which I/we have been responsible is to the best of my/our knowledge and belief in accordance with BS 7671:2008, amended to 2011 except for the departures, if any, detailed as follows.

Details of departures from BS 7671 (Regulations 120.3, 133.5):

The extent of liability of the signatory/signatories is limited to the work described above as the subject of this certificate.

For the DESIGN of the installation:Name: Position: Signature: Date: **Where there is divided responsibility for the design:**Name: Position: Signature: Date: **4. CONSTRUCTION**

I/We being the person(s) responsible for the construction of the electrical installation (as indicated by my/our signatures below), particulars of which are described above, having exercised reasonable skill and care when carrying out the construction, hereby CERTIFY that the construction work for which I/we have been responsible is to the best of my/our knowledge and belief in accordance with BS 7671:2008, amended to 2011 except for the departures, if any, detailed as follows.

Details of departures from BS 7671 (Regulations 120.3, 133.5):

The extent of liability of the signatory/signatories is limited to the work described above as the subject of this certificate.

For the CONSTRUCTION of the installation:Name: Position: Signature: Date: **5. INSPECTION AND TESTING**

I/We being the person(s) responsible for the inspection and testing of the electrical installation (as indicated by my/our signatures below), particulars of which are described above, having exercised reasonable skill and care when carrying out the inspection and testing, hereby CERTIFY that the inspection and testing work for which I/we have been responsible is to the best of my/our knowledge and belief in accordance with BS 7671:2008, amended to 2011 except for the departures, if any, detailed as follows.

Details of departures from BS 7671 (Regulations 120.3, 133.5):

The extent of liability of the signatory/signatories is limited to the work described above as the subject of this certificate.

For the INSPECTION AND TESTING of the installation:Name: Position: Signature: Date: **Report reviewed and confirmed by:**Name: Position: Signature: Date: **6. DESIGN, CONSTRUCTION, INSPECTION AND TESTING**

I/We being the person(s) responsible for the design, construction, inspection and testing of the electrical installation (as indicated by my/our signatures below), particulars of which are described above, having exercised reasonable skill and care when carrying out the design, construction, inspection and testing, hereby CERTIFY that the design work for which I/we have been responsible is to the best of my/our knowledge and belief in accordance with BS 7671:2008, amended to 2011 except for the departures, if any, detailed as follows.

Details of departures from BS 7671 (Regulations 120.3, 133.5):

The extent of liability of the signatory/signatories is limited to the work described above as the subject of this certificate.

For the DESIGN, the CONSTRUCTION, and the INSPECTION AND TESTING of the installation:Name: Position: Signature: Date: **Report reviewed and confirmed by:**Name: Position: Signature: Date: **7. NEXT INSPECTION**

I/We the designer(s), RECOMMEND that this installation is further inspected and tested after an interval of not more than:

8. DETAILS OF THE ELECTRICAL CONTRACTOR

Design (1)	Trading Title: RGE Services Ltd	Registration Number (if applicable):	
Address:	19-21 Roebuck Road	Telephone Number:	
	Hainault Business Park Essex Postcode: IG6 3TU		
Design (2)	Trading Title:	Registration Number (if applicable):	
Address:		Telephone Number:	
	Postcode:		
Construction	Trading Title:	Registration Number (if applicable):	
Address:		Telephone Number:	
	Postcode:		
Inspection and Testing	Trading Title:	Registration Number (if applicable):	
Address:		Telephone Number:	
	Postcode:		

9. SUPPLY CHARACTERISTICS AND EARTHING ARRANGEMENTS

System Type(s)	Number and Type of Live Conductors	Nature of Supply Parameters	Characteristics of Primary Supply Overcurrent Protective Device(s)
TN-S <input checked="" type="checkbox"/>	ac: <input checked="" type="checkbox"/> 1-phase (2 wire): N/A 1-phase (3 wire): N/A dc: N/A	Nominal voltage(s): U: 400 V Uo: 230 V	BS(EN): 88-2 Fuse HRC Type: gG Rated current: 400 A Short-circuit capacity: 80 kA
TN-C-S <input type="checkbox"/>	2-phase (3 wire): N/A 3-phase (3 wire): N/A 3 pole: N/A	Nominal frequency, f: 50 Hz	
TNC <input type="checkbox"/>	3-phase (4 wire): <input checked="" type="checkbox"/> Other: N/A	Prospective fault current, Ipf: 1.21 kA	
TT <input type="checkbox"/>	Other: N/A	External earth fault loop impedance, Ze: 0.19 Ω	
IT <input type="checkbox"/>	Confirmation of supply polarity: <input checked="" type="checkbox"/>	Number of supplies: 2	

10. PARTICULARS OF INSTALLATION AT THE ORIGIN

Means of Earthing	Details of Installation Earth Electrode (where applicable)		
Distributor's facility: <input checked="" type="checkbox"/>	Type: N/A	Location: N/A	
Installation earth electrode: N/A	Electrode resistance, RA: N/A Ω	Method of measurement: N/A	
Maximum Demand (Load): Refer to	Protective measure(s) against electric shock: ADS		
Main Switch or Circuit-Breaker		Earthing and Protective Bonding Conductors	
Type BS(EN): N/A	Voltage rating: N/A V	Earthing conductor	Continuity & connection verified: N/A
Number of poles: N/A	Rated current, In: N/A A	Conductor material: N/A	Conductor csa: N/A mm ²
Supply conductors material: N/A	RCD operating current: N/A mA	Main protective bonding conductors	Continuity & connection verified: N/A
Supply conductors csa: N/A mm ²	RCD operating time: N/A ms	Conductor material: N/A	Conductor csa: N/A mm ²
		Bonding of extraneous-conductive parts	Lightning protection: N/A
		Water service: N/A	Gas service: N/A
		Oil service: N/A	Other incoming service(s): N/A
		Structural Steel: N/A	

11. COMMENTS ON EXISTING INSTALLATION

Would suggest monitoring all rising main connections whilst surrounding building works ongoing. Vibration present. Existing

12. SCHEDULE OF ITEMS INSPECTED**Methods of protection against electric shock****Both basic and fault protection:**

N/A (i) SELV

N/A (ii) PELV

LIM (iii) Double or Reinforced Insulation

Basic protection:

✓ (i) Insulation of live parts

LIM (ii) Barriers or enclosures

N/A (iii) Obstacles **

N/A (iv) Placing out of reach **

Fault protection:**(i) Automatic disconnection of supply**

✓ Presence of earthing conductor

N/A Presence of circuit protective conductors

N/A Presence of main protective bonding conductors

N/A Presence of earthing arrangements for combined protective and functional purposes

N/A Presence of adequate arrangements for alternative source(s), where applicable

N/A FELV

✓ Choice and setting of protective and monitoring devices (for fault protection and/or overcurrent protection)

(ii) Non-conducting location **

N/A Absence of protective conductors

(iii) Earth-free local equipotential bonding **

N/A Presence of earth-free local equipotential bonding

(iv) Electrical Separation

N/A Provided for 'one item' of current-using equipment

N/A Provided for 'more than one item' of current-using equipment **

Additional protection:

N/A Presence of residual current device(s)

N/A Presence of supplementary bonding conductors

**** For use in controlled supervised/conditions only****Prevention of mutual detrimental influence**

✓ (a) Proximity of non-electrical services and other influences

N/A (b) Segregation of Band I and Band II circuits or use of Band II insulation

N/A (c) Segregation of safety circuits

Identification

N/A Presence of diagrams, instructions, circuit charts and similar information

N/A Presence of danger notices and other warning notices

N/A Labelling of protective devices, switches and terminals

N/A Identification of conductors

Cables and Conductors

N/A Selection of conductors for current carrying capacity and voltage drop

N/A Erection methods

N/A Routing of cables in prescribed zones or within mechanical protection

LIM Cables incorporating earthed armour or sheath, or run within an earthed wiring system, or otherwise adequately protected against nails, screws and the like

N/A Additional protection provided by 30mA RCD for cables in concealed walls (where required in premises not under the supervision of skilled or instructed persons)

✓ Connection of conductors

✗ Presence of fire barriers, suitable seals and protection against thermal effects

General

✗ Presence and correct location of appropriate devices for isolation and switching

✗ Adequacy of access to switchgear and other equipment

N/A Particular protective measures for special installations and locations

N/A Connection of single-pole devices for protection or switching in line conductors only

✓ Correct connection of accessories and equipment

✓ Presence of undervoltage protective devices

N/A Selection of equipment and protective measures appropriate to external influences

N/A Selection of appropriate functional switching devices

13. SCHEDULE OF ITEMS TESTED

✓ External earth fault loop impedance, Ze

N/A Installation earth electrode resistance, RA

✓ Continuity of protective conductors

N/A Continuity of ring final circuit conductors

✓ Insulation resistance between live conductors

✓ Insulation resistance between live conductors and earth

N/A Protection by separation of circuits

N/A Protection against direct contact by barrier or enclosure provided during erection

N/A Insulation of non-conducting floors or walls

✓ Polarity

✓ Earth fault loop impedance, Zs

✓ Verification of phase sequence

N/A Operation of residual current device(s)

✓ Functional testing of assemblies

✓ Verification of voltage drop

All boxes must be completed. 'tick' indicates that an inspection or test was carried out and that the result was satisfactory. 'X' indicates that an inspection or test was carried out and the result is not satisfactory. 'N/A' indicates that an inspection or test was not applicable to the particular installation. 'LIM' indicates that, exceptionally, a limitation agreed with the person ordering the work prevented the inspection or test being carried out.

14. CIRCUIT DETAILS

Distribution board designation: **Service Head 1** Location: **Main Intake room**

Circuit number and phase	Circuit designation	Type of wiring	Reference Method	Number of points served	Circuit conductors: csa			Overcurrent protective devices					RCD	
					Live mm ²	cpc mm ²	Max disconnect time permitted by BS7671 s	BS(EN)	Type No	Rating A	Short-circuit Capacity kA	Operating current mA	Maximum Zs permitted by BS7671 Ω	
1 L1	Ground to tenth floor Flat Ryfields	H	F	1	120	37	5	88-2	gG	400	80	N/A	N/A	
1 L2	Ground to tenth floor Flat Ryfields	H	F	1	120	37	5	88-2	gG	400	80	N/A	N/A	
1 L3	Ground to tenth floor Flat Ryfields	H	F	1	120	37	5	88-2	gG	400	80	N/A	N/A	

Type of Wiring O-Other:

15. BOARD CHARACTERISTICS

APPLIES WHEN THE BOARD IS NOT CONNECTED TO THE ORIGIN OF THE INSTALLATION

Supply to this distribution board is from:	<input type="text" value="Origin"/>	No of phases:	<input type="text" value="3"/>
Overcurrent protective device for the distribution circuit:	BS(EN): <input type="text" value="N/A"/>	Rating:	<input type="text" value="400 A"/>
RCD	BS(EN): <input type="text" value="N/A"/>	No of poles:	<input type="text" value="4"/>
Confirmation of supply polarity	<input type="text" value="N/A"/>	Zs: <input type="text" value="N/A Ω"/> Ipf: <input type="text" value="N/A kA"/>	RCD operating times
		At In:	<input type="text" value="N/A ms"/>
		At 5In:	<input type="text" value="N/A ms"/>

This form is based on the model shown in Appendix 6 of BS 7671:2008 amended 2011. Ref: Grenfell Tower / 145002 Page: 4 of 8

16. TEST RESULTS

Distribution board designation: **Service Head 1** Location: **Main Intake room**

Circuit number and phase	Circuit impedances (Ohms)					Insulation resistance (record lower or lowest value)				Polarity ✓	Maximum measured earth fault loop impedance Zs Ω	RCD Operating times		
	Ring final circuits only (measured end to end)			All circuits (one column to be completed)		Line/Line	Line/Neutral	Line/Earth	Neutral/Earth			At In	At 5 In	Test button operation ✓
	r1 (Line)	rn (Neutral)	r2 (cpc)	R1+R2	R2	MΩ	MΩ	MΩ	MΩ			ms	ms	ms
1 L1	N/A	N/A	N/A	0.03	N/A	0.03	500>	500>	500>	✓	0.20	N/A	N/A	N/A
1 L2	N/A	N/A	N/A	0.04	N/A	0.04	500>	500>	500>	✓	0.21	N/A	N/A	N/A
1 L3	N/A	N/A	N/A	0.05	N/A	0.05	500>	500>	500>	✓	0.22	N/A	N/A	N/A

17. DETAILS OF TEST INSTRUMENTS

Details of Test Instruments used (state serial and/or asset numbers):

Multi-functional: **RGE112** Earth electrode resistance: **N/A**

Insulation resistance: **RGE112** Earth fault loop impedance: **RGE112**

Continuity: **RGE112** RCD: **RGE112**

18. TESTED BY

Name: **JAMIE JONES** Position: **ENGINEER** Signature:  Date: **09/07/2013**

CIRCUIT DETAILS

Distribution board designation: **Service Head 2** Location: **Main Intake room**

Circuit number and phase	Circuit designation	Type of wiring	Reference Method	Number of points served	Circuit conductors: csa			Overcurrent protective devices				RCD	
					Live mm ²	cpc mm ²	Max disconnect time permitted by BS7671 s	BS(EN)	Type No	Rating A	Short-circuit Capacity kA	Operating current mA	Maximum Zs permitted by BS7671 Ω
1	11th to 20th Flat Ryfields	H	F	1	120	37	5	88-2	gG	400	80	N/A	N/A
2	11th to 20th Flat Ryfields	H	F	1	120	37	5	88-2	gG	400	80	N/A	N/A
3	11th to 20th Flat Ryfields	H	F	1	120	37	5	88-2	gG	400	80	N/A	N/A

Type of Wiring O-Other: **N/A**

BOARD CHARACTERISTICS

APPLIES WHEN THE BOARD IS NOT CONNECTED TO THE ORIGIN OF THE INSTALLATION

Supply to this distribution board is from: **Origin** No of phases: **1**

Overcurrent protective device for the distribution circuit: BS(EN): **N/A** Rating: **N/A** A Nominal Voltage: **230** V

RCD BS(EN): **N/A** No of poles: **N/A** Rating: **N/A** mA

Confirmation of supply polarity: **N/A** Zs: **N/A** Ω lpf: **N/A** kA RCD operating times At In: **N/A** ms At 5In: **N/A** ms

This form is based on the model shown in Appendix 6 of BS 7671:2008 amended 2011. Ref: Grenfell Tower / 145002 Page: 6 of 8

TEST RESULTS

Distribution board designation: **Service Head 2** Location: **Main Intake room**

Circuit number and phase	Circuit impedances (Ohms)					Insulation resistance (record lower or lowest value)				Polarity	Maximum measured earth fault loop impedance Z_s	RCD Operating times		
	Ring final circuits only (measured end to end)			All circuits (one column to be completed)		Line/Line	Line/Neutral	Line/Earth	Neutral/Earth			At In	At 5 In	Test button operation
	r1 (Line)	rn (Neutral)	r2 (cpc)	R1+R2	R2	$M\Omega$	$M\Omega$	$M\Omega$	$M\Omega$			ms	ms	<input checked="" type="checkbox"/>
1	N/A	N/A	N/A	0.07	N/A	N/A	500>	500>	500>	<input checked="" type="checkbox"/>	0.24	N/A	N/A	N/A
2	N/A	N/A	N/A	0.05	N/A	N/A	500>	500>	500>	<input checked="" type="checkbox"/>	0.22	N/A	N/A	N/A
3	N/A	N/A	N/A	0.05	N/A	N/A	500>	500>	500>	<input checked="" type="checkbox"/>	0.22	N/A	N/A	N/A

DETAILS OF TEST INSTRUMENTS

Details of Test Instruments used (state serial and/or asset numbers):

Multi-functional: **RGE112** Earth electrode resistance: **N/A**

Insulation resistance: **RGE112** Earth fault loop impedance: **RGE112**

Continuity: **RGE112** RCD: **RGE112**

TESTED BY

Name: **Bob Greene** Position: **Qualified Supervisor** Signature:  Date: **09/07/2013**

CONTINUATION FOR GENERAL COMMENTS

GENERAL COMMENTS

General Comments for the Installation or Inspection of the report:

Recordings taken after 2 months of install.

Service Head 1.

L1=36.45a
L2=38.21a
L3=36.46a

Service Head 2.

L1=33.32a
L2=36.60a
L3=34.39a

All recordings taken on 4th September 2013 between 08:30 to 09:30.