

# 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): N/A

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: N/A Position: N/A Signature: N/A Date: N/A

### Where there is divided responsibility for the design:

Name: N/A Position: N/A Signature: N/A Date: N/A


## 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): N/A

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


## 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): N/A

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

### Report reviewed and confirmed by:

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

## 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): N/A

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: N/A Position: N/A Signature: N/A Date: N/A


### Report reviewed and confirmed by:

Name: N/A Position: N/A Signature: N/A Date: N/A

## 7. NEXT INSPECTION

I/We the designer(s), RECOMMEND that this installation is further inspected and tested after an interval of not more than: 2 Months

**8. DETAILS OF THE ELECTRICAL CONTRACTOR**

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

**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): <input type="checkbox"/>	1-phase (3 wire): <input type="checkbox"/>	dc: <input type="checkbox"/>	Nominal voltage(s): U: 400 V U <sub>0</sub> : 230 V			
TN-C-S <input type="checkbox"/>		2-phase (3 wire): <input type="checkbox"/>	3-phase (4 wire): <input type="checkbox"/>	2 pole: <input type="checkbox"/>	Nominal frequency, f: 50 Hz	Prospective fault current, I <sub>pf</sub> : 1.21 kA	BS(EN): 88-2 Fuse HRC	Type: gG
TNC <input type="checkbox"/>		3-phase (3 wire): <input type="checkbox"/>	Other: <input type="checkbox"/>	3 pole: <input type="checkbox"/>	External earth fault loop impedance, Z <sub>e</sub> : 0.19 Ω	Number of supplies: 2	Rated current: 400 A	Short-circuit capacity: 80 kA
TT <input type="checkbox"/>	Other: <input type="checkbox"/>							
IT <input type="checkbox"/>	Confirmation of supply polarity: <input checked="" type="checkbox"/>							

**10. PARTICULARS OF INSTALLATION AT THE ORIGIN**

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

**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

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

**General**

- X Presence and correct location of appropriate devices for isolation and switching
- X 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		Max disconnection time permitted by BS7671 s	Overcurrent protective devices				RCD	
					Live mm <sup>2</sup>	cpc mm <sup>2</sup>		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"/>	lpf: <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"/>

Tel:  Fax:

<b>16. TEST RESULTS</b>														
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	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)	r2 (cpc)	r3 (Neutral)	R1+R2	R3	MΩ	MΩ	MΩ	MΩ					
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

<b>17. DETAILS OF TEST INSTRUMENTS</b>			
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

<b>18. TESTED BY</b>			
Name:	Bob Greene	Position:	Qualified Supervisor
Signature:		Date:	09/07/2013

This form is based on the model shown in Appendix 6 of BS 7671:2008 amended 2011. Ref: Grenfell Tower / 145002 Page: 5 of 7

**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	Live conductors: mm <sup>2</sup>	Circuit conductors: mm <sup>2</sup>	Max disconnect times permitted by BS7671	BS(EN)	Type No	A Rating	Short-circuit Capacity KA	Operating current MA	RCD	Overcurrent protective devices	
														Maximum Zs permitted by BS7671	Operating current MA

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		

**BOARD CHARACTERISTICS**

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

Supply to this distribution board is from:

Overcurrent protective device for the distribution circuit: BS(EN):

RCD Confirmation of supply polarity: BS(EN):

Rating:

No of poles:

At In:

At Sin:

Rating:

Normal Voltage:

No of phases:

Origin:

Rating:

No of poles:

At In:

At Sin:

<b>TEST RESULTS</b>														
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 Zs	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)	r (Neutral)	r2 (cpc)	R1+R2	R2	MΩ	MΩ	MΩ	MΩ	✓	Ω	ms	ms	
1	N/A	N/A	N/A	0.07	N/A	N/A	500>	500>	500>	✓	0.24	N/A	N/A	N/A
2	N/A	N/A	N/A	0.05	N/A	N/A	500>	500>	500>	✓	0.22	N/A	N/A	N/A
3	N/A	N/A	N/A	0.05	N/A	N/A	500>	500>	500>	✓	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:  Position:  Signature:  Date:

