# SPECIFICATION
# for ELECTRICAL SERVICES to
# 5 CUMBERLAND TERRACE

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# PARTICULAR ELECTRICAL SERVICES SPECIFICATION

# 5 CUMBERLAND TERRACE

## SPECIFICATION FOR ELECTRICAL SERVICES.

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# 5 CUMBERLAND TERRACE

## 1.0 Introduction

### 1.1 Background

5 Cumberland terrace is a first floor apartment situated in South block of the Terrace located in Regents Park, London. A full refurbishment of the apartment is to take place.

### 1.2 Construction Works

All works to be carried out in this contract will be sequenced and programmed to ensure that there are no delays to the building contract and other specialist contracts. To this end the mechanical services domestic sub-contractor (the Contractor) will be expected to supply, prior to appointment, a fully detailed programme of works and method statement demonstrating how his work will interact with that of the building and other specialist contracts.

### 1.3 General

The contract will be placed on a lump sum basis, and any work not clearly marked as provisional will not be re-measured and no adjustment will be made for omission or exclusion from this or any other section of the document raised after the tender has been accepted.

The items in the pricing schedule are intended to provide a breakdown of the tender total and do not necessarily give a complete list of all work required to complete the contract works. The Contractor must add any item to this schedule that he considers not adequately covered, or for costs which he has not included elsewhere. Where there is insufficient space the Contractor must attach pages as necessary for additional descriptions and include their cost in this schedule.

The Contractor may by prior arrangement visit the house during the tender period in order to acquaint himself with the site etc. and in order to adequately allow for all works necessary to carry out the complete contract to the satisfaction of the Engineer. Failure to carry out a site inspection prior to award shall not relieve the contractor of his responsibilities in this respect.

1.3 General (Cont...

The drawings accompanying this specification are indicative only and shall not be deemed to be working drawings. The Contractor shall note the limited accuracy of the tender drawings when taking off and assessing material and labour quantities and make due allowance in his tender for any discrepancies that could arise.

The tender drawings listed in the schedule are intended to be representative of the work and when read in conjunction with this specification provide information for tendering purposes. The Contractor shall be responsible for the provision of the installation drawings and shall include in his price the cost or preparing these drawings and supplying two copies for approval and two copies for general issue. The Contractor may use any of the tender drawings that meet these requirements provided that they are clearly marked as installation drawings and he accepts full responsibility for their use as such. In addition to drawings necessary for construction purposes the Contractor shall be responsible for the provision of wiring diagrams and drawings of work done by other trades, required for the purposes of installation of the works under this contract. Installation drawings shall be provided in adequate time to accommodate the agreed programme of works. The Contractor shall be responsible for any discrepancies, errors or omissions on drawings and any other particulars supplied by him provided they are not due to inaccurate information or particulars furnished to him in writing.

Equipment drawings shall be submitted to the engineer detailing principle dimensions, fixings, connections and all other relevant details of an item of equipment. Two copies of the initial drawings followed by two copies for general issue shall be provided.

The Contractor shall provide builder's work drawings detailing chasing, cutting away, foundation bolts, metal inserts, concrete bases, holes equal or greater to 1OOmm diameter, holes through steelwork, making good etc. The builder's work drawings shall be prepared and issued for comment/approval to suit the Main Contractor's programme. Two copies of each drawing shall be provided for approval and two copies for general issue

Prices submitted shall include for all clearing away from site all surplus material, packing, rubbish, debris and the like. Prices shall include for all necessary protective measures to ensure that dirt, disturbance and other inconveniences are kept to a minimum. Prices shall include allowance for protecting the works as required

A copy of the main contract preliminaries is attached to this document. All relevant clause shall also apply to the Contractor.

On award of contract the successful tenderer will be required to submit a comprehensive schedule of rates demonstrating the build-up of his lump sum price.

1.3 General (Cont. ..

The Contractor shall install the electrical services in strict accordance with all statutory regulations, supply authority requirements, relevant British Standards or harmonised British/European Specifications or Codes of Practice, the Electricity at Work regulations 1989, and the Electrical Services Specification herein.

Prior to practical completion of the works, the Contractor shall prepare and hand over to the Client three copies of the record drawings and O & M manual. The Contractor shall demonstrate all systems to the maintenance staff and provide one day's training.

## 2.0 Scope of Work

The supply and installation of electrical services comprising lighting, small power, **H&**V control cables, and specialist services including fire detection, intruder alarm, blind control, door entry, TV, telephone and data/communications systems, and structured cabling for an audio/hifi system.

# 5 CUMBERLAND TERRACE

## 3.0 Electrical Installation Details

### 3.1 System of Supply

The existing single phase 100A 50Hz SP&N electrical supply and meter located in the basement shall be retained.

### 3.2 Earthing

Supply and install a robust earthing system throughout the apartment.

Thus each section of the installation is to be earthed; such earthing is to be in strict accordance with the Wiring Regulations and any specialist requirements of the REC

The Consumer's earthing terminal, required by the Wiring regulations, shall be bonded to all exposed and extraneous conductive parts throughout the installation in accordance with the wiring regulations. In all case bonding conductors shall not be less than 10 mm2conductor size or as required by the REC.

The Contractor should note that a 16 mm2 c.p.c, shall be installed between the incoming supply point and the sub distribution boards and the consumer units on each floor level.

### 3.3 Installation Type

All cables shall be installed within the floor and wall structure. All cable runs are to be agreed with the Engineer prior to installation. Facilities have been included in the form of a basement ceiling void and rising service ducts in the apartment, as indicated on the associated drawings. Cable tray and cable positions in services ducts and ceiling voids shall be agreed with the mechanical services installer and the Engineer prior to installation.

Wiring accessories shall be mounted on to flush metal boxes. Except in ceiling spaces, and plant rooms, surface wiring will not be permitted.

## 3.4 Testing

The Contractor shall undertake the tests prescribed in the Wiring Regulations at the appropriate stages of the installation and the results recorded for subsequent handover on completion of work.

Upon satisfactory completion of the tests the Contractor shall make all necessary arrangements with the REC for the connection of the permanent supply to the installation.

Furthermore, upon satisfactory completion of the tests a signed Completion Certificate, in accordance with the wiring regulations, is to be submitted to the Engineer

## 3.5 Consumer Switchgear

### 3.5.1 Primary distribution point

The primary distribution board to the apartment located in the Utility are shall incorporate a 100 A switch disconnector to isolate the incoming supply and shall be equipped with outgoing MCBs and RCBOs of the required rating. The distribution board shall be surface mounted metalclad Crabtree Polestar or equal approved type.

### 3.5.3 Fire and intruder alarms

Dedicated RCBOs shall be provided within the distribution board to serve the fire and intruder alarm detection systems and other specialist systems.

3.6 Circuit identification.

The contractor shall ensure that primary and secondary distribution boards are fully identified and that all circuit identification labels are accurately included.

3.7 Cables

All cables for fixed wiring shall be 300/500 grade, BASEC approved, PVC insulated, PVC sheathed, to BS 6004 and incorporating an earth protective conductor. All conductors shall be of copper.

Cables for the fire protection circuits shall be of approved type to BS 7629 and rated at 300/500 V. They shall have stranded annealed copper conductors, mica/glass tape, XLPE insulation and zero halogen, low smoke and fume outer sheath coloured red. The cable shall be used and terminated using the appropriate accessories for this type of cable.

3.8 Cable sizes

Minimum cable sizes to be adopted for principal circuits are indicated on the single line diagrams. Cables should be fixed in positions where they will be covered by thermal insulation.

The following minimum conductor sizes are permissible commensurate with other circuit characteristics:

| | |
|---|---|
| Lighting circuits | 1.5 mm2 |
| Ring main circuits | 2.5 mm2 |
| Ovens | 10.0 mm2 |
| Smoke detectors etc. | 1.0 mm2 |

All low voltage cables are to be insulated for the highest voltage present.

3.9 Cable runs

All cable runs must be agreed with the Engineer before installation.

Wooden joists - Cables should be fixed to the side of wooden floor joists with suitable size plastic clips. The contractor shall obtain prior approval from the Engineer before the notching or drilling of any floor joists. A procedure for the notching and drilling of floor joists will be supplied by the Structural Engineer.

Under plaster - Cables under plaster shall be run vertically or horizontally (but never diagonally) and be suitably protected against mechanical damage preferably by conduit or metal/PVC capping where conduit is not practical. Please note that due to the DPC all cables to the lower ground floor will have to be run from above.

On wall services - Cables run on wall surfaces shall be protected against mechanical damage by high density PVC or steel conduit, or mini trunking.

In solid floors - Cables run in solid floors shall be in heavy gauge galvanised steel or rigid PVC conduit and suitably sealed against the ingress of moisture. Conduit must be continuous between outlets with no more than two bends (elbows may not be used). The minimum cover of screed shall be 25mm. Single core PVC insulated non-sheathed cables to BS 6004 may be used.

In floor ducts and in ceiling voids cables shall be installed on metal cable trays in order to maintain segregation between electrical and mechanical services. Additionally the Contractor shall install a dedicated 150mm metal cable tray for the cabling associated with the TV, Telephone and the Fire/Security systems.

In service ducts the Contractor shall install sufficient metal cable trays for the purposes of routing all cables. Additionally the Contractor shall install a dedicated 150mm metal cable tray for the cabling associated with the TV, Telephone and the Fire/Security systems.

Terminations - All cables shall be terminated within enclosures. Entries into steel boxes shall be fitted with rubber or PVC grommets. Screwed steel conduit shall be terminated with a suitable brass bush and steel coupling to the metal box. An earth lead, suitably sleeved, shall connect each accessory to the earth terminal in the box. With insulated wall switches the bonding conductor shall terminate within the box.

3. 10 Lighting circuits.

Lighting and switch points shall be wired to the position indicated and connected to an appropriate 6 A way in the consumer unit associated with the floor level concerned.

All proposed lighting and switch positions must marked room by room, and then agreed by the Architect prior to installation.

3. 10. 1 Lighting switches.

At every lighting position the earth continuity conductor of the final circuit shall, in accordance with Wiring Regulations, be connected to an earthing terminal.

Switches in plant rooms shall be 5 A rocker operated metalclad type, with surface mounting boxes unless otherwise indicated.

3.10.2 Lighting control

The primary lighting control system to the apartment will be a Vantage Equinox Legrand /Corston package. The Contractor will supply and install all electrical cabling in accordance with the general arrangement drawings and those from the specialist contractor. The Contractor shall fit free issue Vantage and Eqinox / Legrand /Corston back boxes.

(Specialist contractor)

3. 10.3 Wall lighting points

Cables to wall lighting points shall terminate in a suitable flush mounted metal box at a height of 1850 mm above fixed floor level. Cables shall not, under any circumstances be left exposed, but shall terminate in a purpose designed luminaire connector (MK 995WHI).

The contractor shall fit free issue internal and external wall lights as and when supplied.

3.10 Lighting circuits._(Cont. ..

3.10.4 5A ring mains

The contractor should note that the electrical layout drawings indicate requirements for *SA* socket outlets to serve as supply sources for standard lamps, table lamps etc. The contractor shall supply and install these socket outlets to a similar method as the 13A socket outlets. That is they shall be flush mounted on metal boxes to a similar height as other low level socket outlets in the particular room. The circuits are to be arranged for overall switching control as indicated on the electrical layout drawings: each circuit wired on a radial basis in 1.5 mm2 cable.

3.10.5 Light fittings

Light fittings of the type shown on the drawings shall be free issue and be installed in the positions indicated.

The contractor shall supply and install fire protection to all recessed luminaires in floor/ceiling areas. Supply and fit all LCD lamps and drivers/low voltage transformers as appropriate. Supply and fit low energy fluorescent lamps to bulkheads where appropriate.

3.10.6 External lighting points

The heights and positions of external lighting fittings shall be agreed with the Engineer on site. All lighting fittings, junction boxes and cable glands shall be weatherproof to IP66. The sections of cable route that require cables to be directly buried shall be installed in a similar method as described elsewhere in this specification.

## 3.11 Power Circuits

### 3.11.1 Socket outlet circuits

Socket outlets to BS 1363 shall be fed by ring circuits each covering an area not greater than 100 m2, with both ends of each ring main being connected to an appropriate 32A way in the consumer unit associated with the relevant floor level. Spurs from the ring circuit may be used where appropriate provided that they comply with the Wiring Regulations.

Switched socket outlets shall be rocker operated flush 13A pattern, mounted on 32 mm deep flush metal boxes at a height of approximately 150mm above skirting level or, in kitchens etc approximately 300mm above a working surface (measurements to the centre of socket plate).

Socket outlets shall be Forbes and Lomax / Legrand /Corston
plate type.

All proposed socket outlet positions must be marked room by room, and then agreed by the Architect/Interior Designer prior to installation.

Socket outlets designed for supply of dishwashers, fridges etc and mounted at low level behind the appliance shall be unswitched and fed from switched fused spur units mounted together in a high level cupboard.

For plant rooms, switched socket outlets shall be metal enclosed surface type. They shall be mounted 1350mm above ground level.

### 3.11.2 Cooker control circuits

Cooker control points shall be wired on a separate circuit and connected to a 45A way in the relevant consumer unit.

### 3.11.3 Shaver supply points

A shaver supply point shall be supplied and installed in the positions indicated on the drawings and connected to a lighting final sub circuit.

Shaver supply units located in bathrooms shall conform to BS3535.

3.12 Fire Protection/Alarm and Smoke Detector Circuits

Supply and install a fire detection system to the house to BS 5839 Pt 6 with a LD2 level of coverage, (Banham Security, or equal and approved)

The fire protection system will comprise smoke detection and sounders in all bedrooms, reception rooms, corridors, passageways, circulation areas, and heat detectors in the plant rooms, kitchens, and utility room. The system will be complete with a control panel located in the entrance lobby with a dedicated telephone line to a private BS5979 24hr monitoring station.

The contractor shall supply and install the cabling and equipment associated with the building fire protection and alarm scheme. The equipment locations are indicated on the drawings. A separate 16A circuit way has been allocated within the distribution board. The RCBO shall be fitted with a 'do not operate' handle safety clip in the consumer unit. The 230V supply shall be terminated in an unswitched spur unit equipped with a neon indicator.

All proposed positions of visible equipment must be marked room by room, and then agreed by the Architect/Interior Designer prior to installation.

Install a single smoke detector in the entrance lobby that shall be connected to the building common parts fire detection system.

3.13 Security System.

Supply and install a security system to the house to EN50131-1 PD6662:2004 grade 2, (Banham Security, or equal and approved)

The security system will comprise passive infra red movement detectors and window vibration sensors (inertia devices) on separate circuits. All perimeter doors shall be fitted with alarm contacts. A control keypad will be wall mounted in the entrance lobby hall adjacent to the front door, with a dedicated telephone line to a private 24hr monitoring station, utilising the spare capacity of the line above

3.14. Television

The existing TV network within the building shall be extended to the data room..

Star wire from the data room with two CTl 25 co-axial cables, to all television sockets in the apartment as shown on the attached drawings.

Supply and install a triplex TV/audio socket to each TV point. Socket outlets shall be Forbes and Lomax painted plate type.

Provide a Vision 7x24 Multiswitch, Multi LNB Quattro, and a Sky Plus/HD decoder.

All necessary TV hub equipment shall be provided. All cables are to be numbered in accordance with a cable schedule.

Supply and install two Cat6a cables from the patch panel in the data room to a single gang twin RJ45 telephone socket adjacent to every TV point. Socket outlets shall be Forbes and Lomax / Legrand /Corston plate type.

(Specialist contractor)

3.15 Telephone/Communications

Supply and install a star wired telephone system to the apartment with a Cat5e and a Cat6a cable run to each telephone point as indicated on the associated drawings, from the control unit in the data room.

Supply and install single Cat6a cables to entry unit the TV hub, and security and fire alarm panels.

All cables are to be numbered.

Socket outlets shall be Forbes and Lomax/ Legrand /Corston plate type.

All proposed socket outlet positions must be marked room by room, and then agreed by the Architect/Interior Designer prior to installation.

The Contractor shall provide all necessary RJ45 patch panels in the data room to terminate the cables. The Contractor shall test number and terminate all cables in to the patch panel. The Contractor shall further terminate all Cat6a cables from the TV points.

Supply and install a 20 pair telephone cable from BT DP to the data room.

(Specialist contractor)

3.16 Audio/hi fi(to be confirmed by the client)

Supply and install a music system to the principal rooms of the house as detailed on the general arrangement drawings contained herein. Install all free issue cabling, speaker back boxes in accordance with the general arrangement drawings and those from the specialist contractor.

Supply and install Forbes and Lomax / Legrand /Corston socket

outlets.(Specialist contractor)

3.17 Door Entry System(to be confirmed by the client)

The existing video access system supporting the building will be maintained. Supply and install a new door entry unit in the entrance lobby. Supply and install a new door entry units in the kitchen.

(Specialist contractor)

3.18 Maintenance Contract

Supply a maintenance contract for the two year planned maintenance of the electrical services equipment as recommended by the manufacturers, including six monthly system checks. Include and list recommended spare parts. Submit emergency call out rates.

## 4.0 Mechanical Installation Details

4.1 The electrical contractor shall wire all equipment within the mechanical services contract as indicated on the mechanical services drawings and comprising the pumps and ancillary equipment, motorised valves, under floor heating manifolds, solenoid valves, wiring centres, MYHR controller and timer, trench heaters, thermostats, sensors, immersion heater, etc.

The temperature of each room in heating mode will be controlled by the Equinox or similar thermostat wall panels. Allow for all necessary cabling

Positions of visible equipment in habitable rooms such as thermostats and controllers shall be agreed with the Architect and Interior Designer prior to installation.

## 5.0 Builder's Work Requirements

5.1 The Contractor should allow for builders work holes up to and including 100 mm diameter.

The attendance by the principal contractor will generally be confined to the provision of scaffolding, specified service ducts, holes through walls, floors and roofs etc., holes over 100 mm in diameter, access panels, lifting and replacing floor boards, trimming of joists and battens, the notching of floor and ceiling joists, and the provision of noggins where required.

The notching of floor and ceiling joists shall be agreed with the Engineer prior to installation.

Trestles, mobile scaffold towers, ladders, and small plant and equipment shall be supplied by the Contractor.

## 6.0 Associated Drawings and Schedules.

6.1 Electrical – Spec Group Drawings

| | |
|---|---|
| Dwg no 150 & 160 | Small power, and lighting |

6.2 Mechanical – Spec Group Drawings

| | |
|---|---|
| Dwg 170 | UFH layout |
| Dwg 190 | Hot and cold water service |

6.2 Architectural, Mechanical and Structural

Full sets of architectural, mechanical and structural drawings are available on request.

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## 7.0 Pricing Schedule

7.1 The following pricing schedule shall be used in carrying out the pricing for the scope of the work and in submission of the final tender sum.

Electrical Services
5 Cumberland Terrace
Pricing schedule

| | | | |
|---|---|---|---|
| | | | SUM |
| 1.0) | Preliminaries | £ | |
| 2.0) | Removal of existing equipment | £ | |
| 3.0) | Incoming supply | £ | |
| 4.0) | Main switch gear and sub distribution | £ | |
| 5.0) | Small power | £ | |
| 6.0) | Earth bonding | £ | |
| 7.0) | Lighting | £ | |
| 8.0) | Lighting control system | £ | |
| 9.0) | Light fittings, switches, and sockets | £ | |
| 10.0) | HVAC equipment and controls | £ | |
| 11.0) | Fire detection | £ | |
| 12.0) | Security | £ | |
| 13.0) | TV | £ | |
| 14.0) | Telephones | £ | |
| 15.0) | Audio/hi fi | £ | |
| 16.0) | Door entry | £ | |
| 17.0) | As-built drawings and O & M manuals | £ | |
| 19.0) | Maintenance contract | £ | |
| Sub Total | | | |
| Provisional sums: | | £ | |
| Contingencies (to be expended with the authority of and at the sole discretion of the Architect): | | £ | 3,000 |
| Sub Total | | £ | |
| **Lump sum for the works** | | £ | |

# APPENDIX I

## 5 Cumberland Terrace

### Specialist Contractor Scope of Works

- The SC will design and install multi-room audio systems. lighting control, TV/satellite distribution, telephone, data, room temperature control, as specified.
- The SC will supply all CAD drawings relative to the project, including all wiring schematics and dimensional drawings necessary to complete the project to specification. The SC will not overlay onto CAD drawings unless a prior arrangement has been made.
- The SC and their associated project manager will liaise with the Site Manager on a regular basis throughout the project to ensure that the works are completed satisfactorily and on time
- The SC will not install any cabling throughout the property, This is to be the responsibility of the on-site electrician.
- The SC will supply, if required, all cabling relative to the project as free issue, excluding mains voltage cabling which should be installed by the on-site electrician.
- The SC will supply specialist back boxes for Vantage products as and where required. All other back boxes associated with TV, speaker, telephone, and data sockets should be supplied by the on-site electrician.
- It is the responsibility of the on-site electrician to provide all face plates in the desired finish for all outlets required by the SC with the exception of custom face plates such as Vantage panels.
- The SC will not cut speakers or keypads into the walls or ceilings of the property. This work will be undertaken by the builder or on-site electrician. The SC will liaise with the Architect and Site Manager to ensure that the dimensions and locations are correct.
- All fused spurs, electrical sockets and all other voltage related outlets specified on the SC's wiring schematics are to be supplied and fitted by the on-site electrician.
- Where a telephone system is to be fitted, SC will not be responsible for the arrangement and fitting of the incoming line. This remains the responsibility of BT or other service providers.
- Where the Vantage P lighting system is to fitted, it is the responsibility of the on-site electrician to connect the lighting circuits to the dimming panels in co-ordination with the general arrangement drawings and the SC's lighting schematic