

1 DESCRIPTION OF BUILDING AND FACILITIES

1.1 General

This particular specification details the requirements for the electrical aspects of the mechanical plant replacement works at Chelsea Farm and Jean Darling House.

The building are supplied by three electrical service heads. One supply in the ground floor of Jean Darling House and supplies the associated flats and some landlords equipment. One supply is in the ground floor of Chelsea farm house and supplies the associated flats. The final supply is in the LV intake room on the ground floor of Chelsea Farm House and supplies all landlords plant and lighting. These works will focus on the Landlord installation service only.

The Landlord installation service is supplied via a TPN 200Amp TNS supply located within the LV intake room. The service head supplies a 200A TPN switch when then feeds a busbar chamber. The busbar chamber supplies all the electrical switchgear within the room which includes isolators for;

- 63A TPN Lift Supply
- 63A SPN Lift Motor room distribution board
- 63A TPN Common Room
- 63A SPN Boiler supply
- 63A SPN New water supply pump room
- An unidentified 63A fused switch

The busbar also feeds a number of SPN distribution boards;

- DB1 – 100A SPN Board to serve Jean Darling House Landlord areas.
- DB2 – 100A SPN Board to serve Chelsea Farm Landlord areas.

Additional equipment is installed within the switchroom such as timeclocks and contactors for external lighting control.

This specification shall be read in conjunction with the accompanying schedules, all of which detail the extent of the Contractors duties and responsibilities.

Notwithstanding that British Standards have been quoted in this document, full compliance with the latest BS and EN standards, where such exist, including those issued in respect of metric or harmonised standards is required for all specified materials.

All equipment and controls that become redundant as a result of the refurbishment shall be removed from site. No claims for removals will be accepted for failure to comply with this clause.

All equipment shall be manufactured in the EU unless otherwise authorised. All equipment that uses electricity shall be CE marked.

The electrical systems installer shall be NICEIC registered as an Approved Contractor and shall provide evidence to confirm. All electrical work shall be carried out by JIB/ECS registered and approved electricians.

The Contractor shall be responsible for the development of the particular requirements associated with the works in accordance with the particular and standard requirements of this specification.

All works shall be carried out in accordance with the following documents and requirements: -

BS7671 – 18th Edition and associated Guidance Notes, latest amendments

ISO 9001 accredited company.

Construction Line Approved or EXOR accredited.

Supplier of CE marked and approved equipment.

EMC tested equipment.

WEEE Compliant registered manufacturer.

This specification shall be read in conjunction with the accompanying schedules, all of which detail the extent of the Contractors duties and responsibilities.

1.2 Fire Stopping

Where apertures are required for cables/pipes and their containment to pass through fire barriers, the holes shall be fire stopped and such works shall be certified accordingly and product installed by an UKAS accredited fire stopping specialist contractors (see BS476 Part 20 and EN1366-3). Please refer to RBKC's fire policies for fire stopping requirements.

Where containment or pipes penetrate walls, fire pillows are to be installed where required, a notice shall be installed to the outside of the containment to indicate the installation of fire pillows.

1.3 Asbestos

The Contractor shall be provided with a historical asbestos report by the Client prior to any works commencing on site.

The Contractor is required to carry out their own R&D survey and satisfy themselves that the area is safe to work in.

The contractor shall make allowance within their programme to carry out asbestos removal works with a specialist contractor to ensure asbestos is removed prior to work starting works on site.

All operatives must have completed asbestos awareness training, and copies of all certification is to be provided prior to works starting on site.

1.4 CDM Regulations

The project is classified as notifiable contract under CDM Regulations 2015 and in this regard the contractor will be required to undertake the role of Principal Contractor. calfordseaden (Health & Safety) Limited are to act as the Principal Designer.

1.5 Resident's Liaison Officer (RLO)

The Contractor shall ensure that a dedicated Resident Liaison Officer is appointed for this project and duties shall comply with those set out by the Client.

The Contractor will nominate an operative of suitable standing to act as RLO. That operative will be available on site between the hours of 8.00 – 16.00 for contact by any tenants; name and CV to be provided at pre contract meeting for review and approval.

The Contractor will distribute a letter to each tenant or person that may be affected by the works detailing:

- The works to be undertaken.
- A program of works.
- The working hours of the Contractor.
- The contact name and telephone number of the RLO.
- Which properties may be affected by the noise of the operations?

Reassurance that no loss of supply will be encountered and if required, advise as to when programmed stages of loss of supply are.

The contents of the letters are not restricted to, but must contain the above items. The Client, before distribution, must also agree the contents.

The Contractor will provide and erect a signboard, with the Client's logo. Location and size to be agreed by Contract Administrator and Client representative.

The Contractor will provide an out of hours emergency telephone contact, for use by the Client emergency service, the contact number will be provided at the pre contract meeting. (The Client will test call the number prior to the start and during the term of the contract).

Where any shutdowns are required, the Contractor will hand deliver letters of interruptions of services to each resident no later than (14) days prior to the shutdown.. The Client will require 7 days to approve the letters, this will mean a 21 day turn around for planned shutdown and letters issued. It should include:

- The day dates and time of any shutdown.
- The time the services will be restored.
- The duration of the shutdown.
- The time the services will be restored.

The name and telephone number (including emergency number) of the RLO.

The Contract Administrator must agree to the contents before distribution. The contractor will produce a copy of the letter at the pre-contract meeting.

2 SCOPE OF WORK

2.1 General

The electrical works shall include the supervision; co-ordination; supply and delivery; off-loading; storing; erection; installation; testing and commissioning, of the services associated with the project, all as contained within this specification.

The Works shall include the following:

- a. Detailed programming of the works to minimise disruption to residents (no residents will be decanted during these works and power supply disruption to be kept to a minimum).
- b. Installation of new electrical supplies and switchgear to serve new mechanical heating plant equipment and BMS panel. Final connections to all electrical equipment shall be carried out using flexible conduits from local isolators.
- c. Installation of new electrical supplies and switchgear to serve new BCWS/Sprinkler pumpsets, the supply to the system must be in fire rated cable.
- d. Installation of new Photovoltaic System on the roof of Chelsea Farm House and associated cabling and containment, connected back to landlords supply within Chelsea Farm House for reuse within site.
- e. Installation of new Photovoltaic System on the roof of Jean Darling House and associated cabling and containment, connected back to landlords supply within Chelsea Farm House for reuse within site.
- f. Installation of all electrical services within the apartments to accommodate the new mechanical works. This is to include installation of new cabling and containment. Installation of new equipment such as fused spurs for the new HIU's, and provision of fire rated fixings and putty pads where required.
- g. Allowance for main/supplementary bonding of new incoming water and district heating supplies.
- h. Contractor to provide calculations confirming trunking size chosen is suitable and has adequate spare capacity.
- i. Contractor to provide calculations confirming cable size chosen is suitably rated.
- j. Holes to be suitably fire stopped through wall penetrations following trunking installation. Trunking to be fire stopped internally following cable installation.
- k. Contractor to liaise with the fire consultant to ensure all relevant protective measures are undertaken to ensure the fire safety/integrity of the new photovoltaic system.
- l. Temporary fire stopping to be provided for any core drilled holes during installation prior to trunking install.
- m. Making good / patching / replacing of all trunking / containment within intake room to ensure compliance with all relevant regulations.

- n. Complete removal of relevant redundant cabling, containment and switchgear once new installation is in place.
- o. Buildersworks, making good and fire stopping of any holes through walls, floors, and fire compartments.
- p. Provision of scaffolding/scaffold tower/cherry picker as required.
- q. Other ancillary works subject to survey.
- r. Testing, commissioning, and certification of the electrical systems relating to the lateral/rising mains and distribution boards.
- s. Provision of O&M Manuals.
- t. Provision of 10% spare ways within distribution boards.
- u. Provision of Spares.
- v. Instruction/training of Client's staff.
- w. Rubber mats need to be provided in front of distribution equipment.

It shall be noted that whilst it is the intention to undertake the works specified to all units indicated financial constraints dictate that some of the units may have to be omitted. The contractor shall therefore include for all overheads and profits within each item so that the omission of a or a number of units will be straight forward reduction to the overall total.

2.2 Wiring and Containment System

The Contractor shall provide all necessary containment systems. All containment shall be of proprietary manufacture.

The Contractor shall provide all necessary internal/external bends, tees, couplers, running couplers, sets, end caps etc. to form a complete electrically and mechanically continuous steel containment installations. All bends, tees and intersections shall be, unless detailed to the contrary, of the "gusset" type to allow for easy radii on cables.

All containment shall be provided in full accordance with the manufacturers recommendations to ensure that they are able to correctly install all cabling and satisfactorily commission the installation on completion in accordance with the defined standards for the cabling system.

Containment shall have, throughout the length of its run, as a minimum a degree of protection to IP4X; the contractor shall also assess the requirement for the prevention of water ingress.

The lids of trunking at the point of passing through walls or partitions shall be separate and not extend more than 300mm from what wall or partition.

Inverted trunking shall be provided with cables retaining straps.

Vertical trunking shall be fitted with supports at not more than 2m centres to relieve the strain of hanging cables.

All galvanised trunking lids shall be fitted with tamper proof screws.

Galvanised trunking run from riser distribution boards shall be routed generally as per indicative routes shown on drawings provided, with suitably sized conduit/trunking run from main trunking to equipment as required.

Containment to be fully coordinated with down stand beams, rainwater pipework, existing service, and boiler flues etc. Trunking to be sized to provide minimum 40% spare capacity.

Fire stopping shall be fitted at the level of the floor slab on each floor and where trunking passes through the fire separation walls, including inside the trunking.

2.3 Switchgear

The Contractor shall provide all necessary switchgear.

All Switchgear shall be provided in full accordance with the manufacturers recommendations to ensure that they are able to correctly install all cabling and satisfactorily commission the installation on completion in accordance with the defined standards for the cabling system.

2.4 Switchgear Tails

All tails connecting the incoming head, busbar, meters and all associated switchgear should be suitably rated and double insulated.

2.5 Electrical Cables

The Contractor shall provide all necessary cables for new installation and replacement of dilapidated cabling within the basement.

Cables shall be LSOH cables (Live, Neutral and Earth), sized accordingly and run on galvanised cable containment from the switchroom.

All cable installations to be compliant with the latest edition BS 7671

Cables to be supported using proprietary fire rated cable ties and/or containment.

2.6 Earthing and Bonding

The installation shall be earthed and bonded to meet the requirements of BS 7671:2018 Wiring Regulations, including bonding of all extraneous metal work.

Care shall be taken to ensure effective earthing and bonding throughout the containment system, all accessories and equipment shall be bonded to their respective enclosures.

2.7 Testing, Commissioning and Record Documentation

General

The Contractor shall fully inspect, test and commission all electrical systems in accordance with all relevant British Standards and approved codes of practice.

Electrical Installations

The Contractor shall fully inspect and test the completed installations in accordance with the requirements and recommendations of BS 7671:2018, and associated Guidance Notes, and shall supply an Installation Certificate as prescribed in the IET Regulations for Electrical installations, (BS 7671:2018) together with fully tabulated NICEIC test result sheets.

Typed copies of the NICEIC test sheets shall be included within the operation and maintenance manuals.