
TOWER HOUSE SYSTEMS LTD

Electrical Performance Specification – Particular Specification

Residential Development, Cringle Road, Levenshulme

March 2022

Watt Energy & Consulting Engineers Ltd
40 King Street, Manchester, M2 6BA

t. 0161 43 43 103
w. www.wece.co.uk
e. office@wece.co.uk

watt 
Energy & Consulting Engineers

Issue Control

Director

Daniel Watt



Electrical Engineer

Obaid Iqbal

First Issue Date	Revision Issue Date	Issue Revision	Issued By
March 2022	-	-	OI

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1 Introduction

1.1 General

This document is the Electrical Services Performance Specification Design Brief based on the Client's requirement at this time.

It is intended to set out the basic principles for the electrical services design and allow a design and build EleC to tender for the proposed works.

The project consists of the new residential development at Cringle Road, Levenshulme. The development consists of the erection of 59no. new detached and semi-detached residential dwellings. A new building services installation shall be provided as part of the works.

This Specification of Electrical Requirements generally relates to the design, supply and installation of all new Electrical services and associated controls required for the proposed development.

Works shall include, but not be restricted to, the design, supply, installation, commissioning and setting to work of the following:

- The co-ordination of the relocated electric supply to the property.
- The design, supply and installation of the complete small power systems to the property.
- The design, supply and installation of the complete lighting requirements to the property.
- The design, supply and installation of the complete external lighting requirements to the property including all associated lighting controls.
- The design, supply and installation of all switching systems.
- The design, supply and installation of fire alarm and detection systems to the property.
- The design, supply and installation of Security systems to the property.
- The design, supply and installation of an AV system to the property.
- The design, supply and installation of electric vehicle charging units to the property.
- The Wiring of supplies for all Mechanical plant.
- The design, supply and installation of a television and satellite installation to the property.
- The design, supply, installation and wiring of the telephone system from the main incoming BT positions to each agreed position(s). All telephone cables must be tested prior to second fix.
- The inspection, testing, commissioning and certification, of all the various elements of the electrical installation.
- The supply of all operating and maintenance instructions and manufacturer's literature.
- The supply and distribution of all design, construction and as-fitted drawings.

The EleC shall be responsible to carry out their own chasings and builders work for all apertures with a dimension of less than 50mm. All other builders work over and above the 50mm, shall be the responsibility of the Main Contractor. However the EleC shall be responsible for identifying, in good time, all holes, protrusions, chasings, etc required for the passage of pipes, cables, etc.



Any and all such builders work shall be identified to the Main Contractor at the earliest possible time and positions agreed. The EleC shall also identify areas where additional reinforcement may be required, particularly with regard to roof and floor structures prior to installation of equipment.

All Works conducted under this contract shall be in full compliance with all current Statutory Regulations, Health & Safety at Works Act, British Standards, IET 18th Edition Regulations and NICEIC Standards.

The IET Regulations, 18th Edition Standards shall be deemed the Industry Standard for the purpose of these works. Where there is doubt, the EleC shall consult with the Engineer in the first instance.

The EleC shall be responsible for the design, supply, installation, commissioning and setting to work of the complete electrical installation for the whole of the building. There are certain exceptions which are set out within this document, therefore it is imperative that this document is read in its entirety to ensure all items required of the EleC are met and included within the tender costs. The Employer will take no liability for the cost of items not included.

The entire Electrical services installation shall be designed and installed to comply with all current Regulations and Standards including, but not limited to, the following:

- CIBSE Technical Memorandums
- CIBSE Manuals
- CIBSE Guides
- BSRIA Guides and Publications
- Approved Codes of Practices
- British and European Standards
- Building Regulations
- IET Wiring Regulations 18th Edition (BS7671)

The works will be completed as one phase.

Any discrepancies between the tender design specification drawings etc. should be brought to attention at the tender stage and quantified within the tender bid.

The specification is to be read in conjunction with all Architectural and Structural information issued at the tender stage.



1.2 EleC's Design Responsibilities

The EleC shall be responsible for the full design of the complete Electrical installation. This shall also involve the production and distribution (to all relevant parties), of Electrical design and builder's works drawings and information required by other members of the project team and other interested parties. The EleC shall also provide to all interested parties, all requested information, prior to, during and after the construction phase and in due time.

All Electrical drawings shall be produced in at least AutoCAD 2018 format. At project completion "as fitted" drawings shall be issued for inclusion in the Health & Safety File, together with all relevant manufacturers literature and manuals. A further copy of the "as fitted" drawings and specifications shall be issued by the EleC to the Employer, for his records. This shall be issued on CDROM.

If the EleC has reason to believe that anything described in this Specification or shown on the indicative tender drawings is inconsistent and if the EleC has reason to believe that there are inconsistencies in respect of any specified item and its performance, he shall at the time of tender bring this to the attention of the Main Contractor, EA and the Engineer, who will notify all tenderers of his decision. Thereafter, the EleC shall not be entitled to any alteration in tender price, or the waving of any guarantee in respect of materials or workmanship.

1.3 Tenants' Instruction/Handbooks

Notwithstanding any information, the EleC is to prepare a set of operating instructions for the dwelling. These instructions should be suitable for inclusion in a tenant's manual and shall give adequate instructions and explanations for the tenant to understand the operation of all plant and equipment within his/her dwelling. The instructions should be provided in a format that can be expected to be understood by the tenant.

2 Incoming Electric Supply

The EleC shall include for co-ordination only of the new electric supplies to the properties. The main consumer units shall be located as shown on the tender drawings with the electric meters located externally..

3 Incoming Telecoms Service (BT & Virgin Media)

The EleC shall include for new BT Fibre & Virgin Media connections to the property.

The EleC shall liaise with Openreach and Virgin Media to ensure there is a BT line to the property.

4 Main Distribution Board

The Main Consumer Units shall be located as shown on the tender drawings.

The Main Consumer Units shall be fitted with suitably rated MCB/RCBO'S for the required protection of the final circuit wiring. The Main Consumer Units shall be provided with an additional 25% spare ways for future use.



In general lighting circuits shall have 10A RCBO's and small power circuits shall have 20A RCBO's (radial circuits) or 32A RCBO's (ring circuits).

The Consumer Units shall supply all of the electrical services within the properties including small power, lighting and supplies to mechanical services.

The Electrical Contractor shall make allowance to carry out full load design calculation to all installed final circuit cables, all calculations shall be submitted for review 3 weeks prior to the installation date.

The Electrical Contractor shall also be responsible for coordinating with the Mechanical Contractor, the services routes through the ceiling, to ensure there is no conflict with the pipework and mechanical services.

5 Earthing and Bonding

General

A new earthing installation shall be provided to current wiring regulations BS 7671 throughout the new dwelling.

Equipotential Bonding

All supplementary bonding cables to pipes, sinks, extraneous metal work and the like shall be bonded to earth with all wiring being in green / yellow cable of the appropriate size in accordance with the IET wiring regulations.

The EleC shall include for earth tails for connection to the pool steelwork.

6 Small Power Installation

The EleC shall be responsible for the design, supply and installation of all small power requirements to the properties as detailed within this specification and on the indicative tender drawings, all issued as part of this tender package.

The EleC shall ensure that small power outlets are provided to the areas detailed below. Small power outlets shall include the following;

- All mechanical Plant
- TV & Satellite Systems
- Fire Alarm Systems
- Telephone Systems
- Small Power to all rooms within the property.

All small power outlets and accessories throughout the properties shall be in a white finish.

All small power outlet back boxes shall be metal clad, fixed to noggins supplied by the main contractor and detailed clearly on a marked up drawing by the EleC.

All putty pads shall be supplied and installed by the dry lining contractor; however the coordination shall remain the responsibility of the EleC.

All switch controls for appliances and equipment should be etched with the name of the specific appliance.

The EleC shall be responsible for the supply and installation of the small power requirements for all of



the dwellings.

Numbers of socket outlets for each room shall be detailed on the tender drawings. The EleC shall be responsible for confirming positions and heights of sockets (to comply with Part M), particularly within the kitchen (in conjunction with the Designer).

The kitchens are to be installed by a specialist kitchen contractor and the EleC shall liaise with him also to ensure the exact electrical requirements of the kitchen are met. Generally within each kitchen and apartment the EleC shall allow for the following:

- Cooker & Hob supply c/w 13A single socket and low level connection plate
- Dishwasher supply and low level connection plate
- Fridge/Freezer supply and low level connection plate.
- Washer/dryer machine supply and low level connection plate

An additional 2 switched fused spurs per dwelling for Employer supplied appliances

All low level, connection plates for the above shall be switched via switched fused connections units clearly labelled, at a position to be agreed with the Client. In addition the EleC shall supply and install the following:

- Cooker extractor hood supply

The EleC shall be responsible for the final connection of all appliances.

In addition, the EleC shall be responsible for the supply, installation and setting to work, within each apartment bathroom/En Suite, of a flush mounted dual voltage shaver point.

Landlords Small Power

The EleC shall include for a landlord's feeder pillar to the site. The feeder pillar shall supply the external lighting and Electric Vehicle Charging Units to the development.

The feeder pillar shall include suitably sized switchgear and a timeclock to set the external lighting.

7 Telecom, Data and Broadband Systems

The EleC shall be responsible for the design, supply, installation and setting to work of the complete telephone, data and broadband installation to the property.

The EleC shall provide and install all wiring, containment and face plates etc for the installation of Telecommunications/Data Systems. Cabling to be terminated at both ends and tested accordingly.

This shall comprise telephone and data outlets to all area as identified on the tender drawings.

The design and supply of the Cat 6 cabling shall be by the EleC.

The EleC shall be responsible for the supply of all back boxes, flush face plates and the final connection of the telephone/Data points.



8 Lighting Installation

A lighting installation shall be installed throughout the dwellings comprising a mixture of recessed LED downlights, pendants, and external decorative wall lights. Lighting shall be wired unless otherwise stated in 6242B LSF multicore cables fed from the main consumer unit.

Switching of each room shall be via manual switching.

For tender purposes the EleC shall allow for the wiring, supply, management and setting to work of all light fittings detailed in the below luminaire schedule.

Luminaire Schedule

Luminaire Reference	Description	Manufacturer
A1	Recessed LED Downlight	Aurora Lighting - Enlite – Fire Rated Downlight (EN-FD101W) + EN-GU005/30
A2	Recessed LED Downlight IP65 Rated	Aurora Lighting - Enlite – Fire Rated IP65 Downlight E6 PRO (EN-BZE8MW)
B	Low Energy Pendant	MK Electric – 6” Pendant Set
C / D	External Up/Down Light	National Lighting – Atlantis Twin Wall Light IP65

Please note all lighting to be complete with 3000K lamps.

External Lighting

The EleC shall be responsible for the design, supply and installation of the external lighting and associated controls as detailed on the tender drawings.

The external lighting shall be controlled via a timeclock and photocell.

For tender purposes the EleC shall allow for the wiring, supply, management and setting to work of all light fittings detailed in the below luminaire schedule.

Luminaire Schedule – External

Luminaire Reference	Description	Manufacturer
EX1	LED Column Luminaire	Luma Gen2 Micro BGP702 4000K DW50 20 LED 4.0klm



9 Wiring Systems

The final Electrical circuits within the property are to be wired in LSF insulated and sheathed twin and earth cables, or three core and earth for two way lighting circuits. All cables in ceilings and the roof to run parallel to walls and vertically down walls.

Generally it should be assumed that all runs of cable are to run within the depth of the ceiling (50mm).

All cables shall be run on the loop in principle with all joints being made at accessory or outlet point locations. Other joints in cables will not be allowed.

Cables shall be sized in accordance with the I.E.T. Wiring Regulations with voltage drops being less than 2.5% at all points and due account taken of deratings for grouping, ambient temperature and the presence of insulation etc. The size of cables shall in no instances be less than 1.5mm² for lighting circuits and 2.5mm² for power circuits, with 10mm² for cookers.

10 Television/Satellite Systems including aerial installation

The EleC shall be responsible for the design, supply and installation of the TV system to all rooms as detailed on the drawings.

The Safety, performance, and system design shall be in accordance with BS EN 50083 Part 1 – 10, Radio/TV system in accordance with BS 6330, BS 6513 and BS EN 50083 (as Sky Homes Registered Sky Homes Installer).

The system shall comprise of the following:-

- Analogue Terrestrial channels BBC 1 - BBC2 – ITV – CH4 – CH5
- Digital Terrestrial Channel multiplexes
- Digital Satellite Channels (Sky Q)
- FM Stereo Channels (Local and National to area)
- DAB Channels (Local to Area if available)

The EleC shall be responsible for employing a specialist to complete the detailed design, supply, installation, connection, testing, commissioning and setting to work of a complete and operational IRS to the above requirements. The works shall include for the supply and installation of all aerials, fixings, brackets, cabling, amplifiers, final outlet plates etc within the practice. The specialist should be a member of the CAI group of registered installers following the codes of practice issued by the CAI. Amplifier covering frequencies 40-860 MHZ necessary to amplify the incoming TV signals.

The EleC shall be responsible for the supply and installation of all electrical small power requirements to ensure the correct operation of the television and satellite system.

11 Electric Vehicle Charging Unit

The EleC shall be responsible for the design, supply, installation and commissioning of the electric vehicle charging points to this development.

The EleC shall include for the design, supply and installation of the following unit;

- **1No Wallpod Homesmart EV Type 2 Mode 3 Charging Socket (One per house)**

The EleC shall include for all cabling and containment associated with the installation of the Electric Vehicle Charging Points.

The EleC shall contact Rolec for a quotation, details below;

Rolec Services Ltd,
Ralph Lane,
Frampton West,
Boston,
Lincolnshire,
PE20 1QU
Tel: 01205 724754
www.rolecserv.com

The EleC shall also include for the 3-year subscription costs for the communal EVC.

14 PV Installation

The EleC shall be responsible for the design, supply, installation and setting to work of a PV system to the roof to include 3kWp of photovoltaic panels to each property. The panels shall be located on the flat roof as indicated on the PV layouts and shall be flush with the roof tiles.

The EleC shall employ a specialist contractor to install the PV panels. The specialist contractor shall be certified under the Microgeneration Certification Scheme (MCS) so that the installation shall remain eligible for feed in tariff payments.

The complete installation shall consist of the following;

1. Roof mounted solar array collector.
2. Solar Array DC to AC inverter.
3. Total on site generation meter.
4. Electrical supplies and connections to roof and main consumer unit.
5. A display unit to be located in the basement comms room to indicate the energy being generated.

The EleC shall be responsible for co-ordinating with the specialist contractor to ensure all power supplies are installed to provide a fully working installation.



15 Fire Alarm & Security Installation

Fire Alarm Installation

The EleC shall be responsible for the design, supply and installation of mains operated self-contained smoke and heat alarms to BS 5466: Part 1, to comply with the requirements of Part B1 of the Building Regulations.

The EleC shall include for a Category LD2 Grade D1 system to the properties, designed and installed in accordance with BS 5839-6. This category of system incorporates detection in all circulation spaces that form part of the escape routes from the dwelling and in all specified rooms and areas that present a high fire risk to occupants. A system of one or more mains powered smoke alarms, each with an integral standby supply. The system may, in addition, incorporate one or more mains powered heat alarms/carbon monoxide alarm each with an integral standby supply.

Detectors to be manufactured by Aico or equal and approved.

Intruder Alarm Installation

The EleC shall include for the first fix installation of the Intruder alarm installation.

The EleC shall refer to the design drawings for the intruder alarm installation.



16 Testing, Commissioning, Manuals and Drawings

The EleC shall carry out the testing and commissioning of the plant installed, all in accordance with the various manufacturer's instructions. All test results shall be recorded and tabulated and documentation in the form of commissioning certificates shall be issued to the Engineer for checking.

The EleC shall liaise with the Client and demonstrate to him that the system operates and is controlled in accordance with the design intent. Operation of all plant controls shall be further demonstrated to the Employer at a time to be arranged, following handover.

The EleC shall be responsible for the programming of all plant control systems and time clocks. Time clocks shall be set to the operating times required by the client. Under no circumstances are time clocks or programmers to be left on constant.



