+Electrical Installation and Rewiring General Works Description

All installations must conform to the current IEE Wiring Regulations (17th Edition) and BS 7671 ‘Requirements for Electrical Installations’. Installations must also comply with the requirements of the Electricity Supply Company, and the Building Regulations (Part P).

Installation work is to be carried out by qualified electricians full conversant with BS 7671. The Contractor is required to ensure that only competent and fully trained persons will carry out the works, with adequate and appropriate supervision.

All installations must be fully complete within one working day.

Contractors shall ensure that where required, they are in receipt of Tenant Choice Forms, identifying the Residents specific requirements and choices.

1. Definitions

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| --- | --- |
| ‘Client’ | The Social Housing Provider. |
| ‘Contractor’ | The company and/or individual carrying out the installation works. |
| ‘Resident’ | The occupier of the property where the works are to be carried out |
| ‘Structure’ | Organised combination of connected parts designed to provide some measure of rigidity, or a construction works having such an arrangement. |
| ‘Manufacturer’ | The original source of the components used during electrical works. |

1. Checking the Products Delivered

The Contractor shall ensure that all relevant documentation, i.e. drawings survey sheets and special instructions, is available and understood. Care should be taken to ensure that the correct products have been received to the property.

The Contractor is responsible for the following:

* Check that all required cables, trunking, wires, accessories and any additional requirements have been received in sufficient quantities for the property to be rewired;
* Check that all fixings have been supplied in adequate quantities;
* Check that all materials supplied are clean, undamaged and in new condition.
1. Identifying the correct option

The Contractor will be responsible for assessing the property to determine if a full re-wire or upgrade is required. Generally, if the existing wiring is to IEE Regulations 15th Edition, or more recent, the property will be partially re-wired, subject to the Periodic Inspection Report. If the wiring is older than this, then generally the property should be fully re-wired. When re-wiring, Residents are to have a choice of socket and switch location, in accordance with this specification.

Properties highlighted for re-wiring are, for the purposes of completion of the pricing matrix, to be deemed to require fully re-wiring.

The Contractor is to undertake a full Periodic Inspection Report to the latest NICEIC format, and to schedule out the works items separately for issue to and confirmation by the Project Manager prior to commencement of any works.

1. Prior to Installation

The Contractor must ensure that the following works have been carried out within the individual properties prior to installation:

* The 100 amp isolator;
* A suitable earthing terminal.

The Contractor must arrange for this work to be carried out prior to the rewiring works.

The Contractor should also contact the Electricity Supply Company (“ESC”) to confirm and determine the following:

* The maximum demand of the installation;
* The nature of the supply, its suitability for the installation, and the type of earthing arrangement;
* The location of the incoming supply;
* Space requirements for the ESC switches, fuses and meters.
1. Re-wiring

Design of the re-wiring and accessories:

The Client will specify how the ring main should be wired and how many circuits there should be. There are to be two separate lighting circuits for the ground floor and the first floor.

The minimum amount of socket outlets / accessories which should be installed in each room is as follows:

|  |  |  |
| --- | --- | --- |
| Room/Area | Requirement | Additional Notes |
| Living Room | 4 of Twin Sockets |  |
| Dining Room | 2 of Twin Sockets |  |
| Kitchen | 3 of Twin Sockets2 of Single Sockets | Single sockets to be installed below bench controlled via engraved indicating switch fused connection unit for a ‘washing machine’ and ‘fridge freezer’ installed above bench |
| Passage/Stairhead Master Bedroom | 1 of Twin Socket3 of Twin Sockets | To be installed at the top or bottom of stairsPer Bedroom |
| Other Bedrooms | 2 of Twin Sockets | Per bedroom  |
| Light Switches | 1 per room | Should be available in all rooms at the point of entrance. |
| Kitchen | 1 new light fitting | Batten light fitting required |
| Bathroom | 1 new light fitting | Fully enclosed fitting which must conform to IP44 |

Socket outlets in areas other than the kitchen shall be installed 450mm above finished floor level. Where existing conduit systems are being used, all outlets will be installed at the same height throughout the property.

Electric cooker, smoke alarms and Central Heating circuits are to be installed in all properties. Immersion heater circuits will be installed only where marked on drawings.

The Consumer Service Unit (“CSU”) shall be positioned over the existing flush mounted adaptable box located within the store cupboard or passage of each flat (unless otherwise specified), allowing cable access to the existing conduit system.

1. Removal and Disposal of Existing Wiring and Accessories

Any Resident’s own fittings found to be unsafe shall be disconnected.

Redundant wiring, switchgear and accessories shall be removed from the property and site with the minimum of damage to the fabric of the building and minimum inconvenience to the Resident of these and adjacent properties.

Where removal of any parts of the redundant installation would be detrimental to the fabric or structure of the properties, such material will be left in position, suitably concealed.

Cables and accessories associated with wired telephone, rental, radio and TV Systems shall be left undisturbed, except where specifically mentioned.

Existing trunking used to contain cables feeding night store heating systems and other circuits shall be removed and replaced with trunking capable of handling new cables. This must be carried out to comply with the spacing factors required with the Wiring Regulations.

1. Installation of New Wiring and Associated Products

Wiring System (General Requirements):

The Contractor must make allowance for any variations in room sizes, for each property type, from that shown on drawings, and must confirm door swings, kitchen layout etc., before locating the accessories.

The Contractor must allow for the removal and refitting of any wall units required to install accessories within the Kitchen area. Where possible, the Contractor should time installation of wiring to coincide with the installation of a new Kitchen wherever possible, by liaising with the Project Manager.

Accessories are to be installed at the following heights above finished floor level, and must comply with the requirements of the Building Regulations Document M, Section 8:

|  |  |  |  |
| --- | --- | --- | --- |
| Accessory | Minimum Height | Maximum Height | Preferred Height |
| Light Switches | 450mm | 1200mm | 1200mm |
| Kitchen Socket Outlets | 225mm above / below worktop height |  |  |
| DP Switch (focal fire point) | 450mm | 1200mm | 450mm |
| DP Switch (Immersion Heater) | 450mm | 1200mm | 1200mm |
| DP Switch (Kitchen) | 225mm above worktop height |  |  |
| Heating Thermostat | 1450mm |  |  |
| Heating Time Clock | 450mm | 1200mm |  |
| Cooker Unit | 225mm above worktop height |  |  |

The CSU’s shall have the following information attached:

* A self adhesive label to alert any Electrical Contractor that the property contains double pole socket outlets and safety lampholders, for maintenance purposes;
* A smoke detector warning label with the date of installation and testing clearly marked
* A suitably typed circuit schedule stating;
	+ Circuit number,
	+ Size of cable used and ECC,

All wiring to surface mounted Units shall be chased into walls, except where it is not possible to do so, in which case wiring shall be run in suitably sized plastic trunking (unless stated otherwise), which will also incorporate mains tails to meter positions.

Final connection of supply cables will terminate into a 100 amp isolation switch. In some instances due to the vulnerability of communal meter cupboard, isolation switches will not be provided. In those instances, the final connection shall be made directly at the service meter. Over sleeving shall be fitted to all live conductors within the meter cupboard.

NB: The CSUs must be mounted at an accessible height to the Residents, so that they do not require step ladders to reset circuit breakers and RCD trips.

Earthing shall be strictly in accordance with current IEE Regulations. Separate insulated earth bonding conductors are to be installed to the point of entry to the property of the incoming water and gas supplies, from the CSU, together with other fixed metalwork.

Where there is structural steelwork to the roof space or first floor, an earth loop is to be provided from the main cable earth point to a single point within each floor room (and roof space). The cables are to be securely fixed to the steelwork with earth straps or bolts.

Special attention is to be made to comply with Section 601, part 6 of the IEE Regulations, inclusive of supplementary bonding connecting to Class I and Class II equipment and extraneous conductive parts.

Where an earth terminal has not been installed prior to the rewiring of the property, the Contractor shall arrange to have the equipment installed on the day of commencement of the rewiring works. If the earth terminal has not been installed by the time the rewiring works have been completed, the Contractor shall allow for installing an earth rod and the lighting circuits shall be transferred on to the RCD protected section of the CSU as a temporary measure until the earth terminal has been installed.

The Contractor shall allow for ensuring that all service isolators and earth terminals have been installed, with all temporary connections to earth rods transferred to the new earth terminals and lighting transferred back into the correct position in the CSU before handover.

Where any work is undertaken on an appliance, certain test procedures are required. Additionally, under Gas Safe requirements, spillage tests need to be carried out under worst case conditions, and if any work is carried out to a property which could affect the gas appliance, the test procedure must be repeated.

Wiring System (Concealed Installations):

The electrical installation will be concealed within the building fabric with some surface wiring installed in plastic mini trunking. Where an existing conduit system exists, it shall be adapted where possible, to reduce the amount of chasing within the property. The existing conduits shall be tested to confirm their integrity before they can be used.

The Contractor must include for making good all holes in walls, wall chases and any other damage caused during the rewiring of the property.

Care must be taken when chasing the walls so as not to cause excessive damage to the building fabric. Wallpaper around chased areas must be neatly cut with a sharp knife around the area to be plastered, to enable the patching up of decoration. Under no circumstances must the wallpaper be torn.

All wiring within any roof space or void shall follow a common route and must be kept clear of all thermal insulating materials.

Damaged wall tiles within Kitchen and Bathroom areas are to be made good.

The Contractor must include for lifting of carpeting, floorboards and traps where necessary. Cables shall run on the neutral axis of the joists. Notching of joists is not permitted. Floorboards and floor traps shall be secured back into position with the use of suitably sized wood screws. Removal and refit of laminate flooring shall remain the responsibility of the Client and the Resident.

The Contractors attention is drawn to Regulation 523-06-05 which requires mechanical protection for cables under floorboards and above ceiling boards in two-story properties.

Smoke Detectors, Heat Alarms and Carbon Monoxide Alarms:

Smoke detectors and heat alarms shall be installed by the Contractor in accordance with BS 5839 Part 6, and the Manufacturer’s instructions.

A smoke detector shall be mounted on a flat ceiling in the circulation space of the property i.e. hallway or landing, and a heat alarm shall be sited in the kitchen. There should be a minimum distance of 300mm between the alarm and any walls, light pendants or any other object which might impede the flow of any smoke, or obstruct the heat travelling to the alarm sensor.

No point in the protected hallways and landing area may be more than 7.5m away from a smoke alarm. In flats or bungalows, smoke alarms must be sited as near as possible to the living accommodation, and not more than 3m from bedroom doors. In houses, the alarms on upper floors should not be more than 3m from bedroom doors. In all cases, a smoke alarm must not be sited in a position where it will be nullified by the flow of air from an Envirovent (or similar) unit.

The smoke detectors shall be wired in 1.5mm2 PVC/PVC/ECC with red over sheath to a delegated circuit in the associated CSU.

Heat alarms must be sited within a maximum of 5.3m from any potential source of fire in the kitchen. They should preferably be sited in the centre of the ceiling, or to one side of the luminaire close to the likely source of fire.

The Carbon Monoxide (“CO”) alarms shall be installed in accordance with the requirements of BS EN 50291 and the Manufacturer’s instructions. Where the CO alarm is located in the same room as the relevant appliance, it should be mounted on the ceiling, at least 300mm from any wall. In any case, the alarm should be between 1000mm and 3000mm (measured horizontally) from the potential source of CO.

The CO alarm should not be installed:

* In an enclosed space (i.e. a cupboard);
* Where it can be obstructed;
* Directly above a sink;
* Next to a door, window, extract fan, Envirovent (or similar) unit, air vent or similar ventilation openings;
* Where the temperature may drop below – 5oC or exceed 40oC.

After installation, the alarms / detectors are to be tested for correct operation on both mains and stand-by power supplies. A record of the test must be made using BS 5839 Part 6, which should then be provided to the Client.

Resident Options:

Residents existing electrical equipment and options shall be discussed with the Client before proceeding with any work.

Residents are to be provided with the option of a concealed installation, or in special circumstances, surface run plastic mini trunking installation.

Due allowance must be made for the disconnection and refitting of Residents light fittings, in place of pendant ceiling roses. The fittings must be inspected and tested before refitting. If they are found to be faulty, or do not comply with current standards, a ceiling rose and pendant shall be fitted as a temporary measure, and the Client must be informed to agree the next course of action.

The Contractor shall draw to the attention of the Client any equipment which, in their opinion, is unsafe or unsuitable for connection to the new installation.

1. Upgrades to Existing Wiring

The Contractor shall be responsible for the upgrades listed below, ensuring that standards meet those identified for a full re-wire, as detailed in Part 7 of this Specification.

Electrical Upgrade:

* Fit 2 new smoke alarms
* Fit new Kitchen ring main (including cooker circuit)
* Renew CSU
* Carry out Supplementary Bonding as required
* New light fitting in Kitchen
* New light fitting in Bathroom
* New light fitting in loft / roof void

Trunking

Trunking, where used, shall be surface run and securely fixed, harmonising with the architectural features of the property. Final arrangements of trunking routes shall be agreed in site with the Project Manager.

Generally, trunking shall be run at a high level, confined to a minimum number of routes, and drop vertically in the corner of a room or a door position, and run above the skirting boards to the relevant accessories. Where room architraves extend to full ceiling height, the Contractor shall install wooden battens of the same width as the trunking to be used and the same thickness as the architrave, onto which the trunking shall be fixed. Battens to be pre-painted prior to fixing – colour to be white gloss.

Mini trunking shall always be surface run, and shall be completed with Manufacturers accessories, terminating in the Manufacturers box complete with trunking adaptor. Except where trunking lengths exceed the manufactured length, no joints will be permitted in the trunking. Mitred joints will be accepted only in cases where the correct Manufacturers accessory is not suitable.

The Contractor shall ensure that any trunking does not intersect heating and gas pipes.

Smoke Detectors:

Where more than one smoke detector is situated in a property, they shall be interconnected in accordance with the Manufacturer’s instructions. It should be noted that an additional conductor is required for this method of connection.

Extract Fans:

The Contractor shall install extract fans in the kitchen and bathroom of properties where required. A core cutter must be used to cut out holes for all extract fan ducts. The fans shall be wired using PVC insulated and sheathed cable, wired into own individual circuit.

The Contractor is to include for interconnections to ensure correct operation from a switch fused connection unit or a 3 pole isolation switch (for fans with overrun timers) situated in a position as marked on the drawings.

The Contractor is to include for all works required to install the extract fans including:

* The removal and refitting / repositioning of wall units that cause any obstructions during the installation of extract fans or cause any obstruction to control switches;
* The installation of all PVC ducting and boxing required to link the extract fan to the external extract terminal grilles;
* The installation of indicator switch fused connection units and associated wiring;
* The Contractor shall be responsible for the provision of all necessary scaffolding, ladders etc., and all other equipment that may be specially required for the works and shall be responsible for compliance with all statutory regulations;
* The Contractor shall ensure that the operation of the extract fan produces no adverse effect on flues serving existing heating / water heating appliances in the same property and provide a report to the Project Manager or representative on discovery of any fault. The Contractor must allow for ‘Spillage Tests’ to properties having a conventional flued appliance.

Extract fans must not be installed through existing wall vents unless specifically agreed with the Client.

External Lights:

Outside lights are to be wired from the local lighting circuit via a Double Pole indicator switch fused. Connection unit situated next to external entrance door engraved ‘Outside Light’. Wiring is to be installed within building fabric wherever possible. Final termination to light fitting should to be via waterproof adaptable box and flexible cable.

CO2 Alarms:

An assessment of each property needs to be carried out prior to any installation work to determine the number and position of any CO2 alarms. If there is more than one appliance, you should risk assess the priority areas when decided where best to put the detectors. However, they should always be in rooms containing a flue-less or open flued appliance. Where a gas appliance i.e. a boiler, is room sealed, no alarm will be required.

1. Final Inspection and Testing

After installation, full inspection and testing shall be carried out to ensure that the installation is fully in accordance with requirements.

Suitable fittings which are safe may be refitted at the discretion of the Client.

The following documentation is to be provided on completion:

* Full or partial rewire, or additional circuits: Domestic Electrical Installation Certificate
* Minor addition or alteration to a single circuit that does not extend to the provision of a new circuit: Minor Electrical Works Certificate
* All works: To be notified as Part P compliant via either Building Control or an approved installer scheme, and arrangements must be made for delivery of the Part P certificate to the Client.

Payment will not be effected until all required certification has been received and assessed by the Client.

Void Properties:

Prior to the property being handed over for rewiring, an inspection of the property shall be carried out by the Client and the Contractor. Should any damage to the incoming supply be recorded, it will be the responsibility of the Client to remedy this prior to any rewiring works. Any subsequent damage to the service shall become the responsibility of the Contractor. Should any temporary diversions or removal of the supply be required, the Contractor must inform the Client prior to any work being carried out.

1. Variations

Wall Lights:

Wall lights are to be wired from the local lighting circuit via a 1 way switch situated beside the entrance to the room. A flush mounted architrave switch box to be fitted behind all wall lights.

Showers:

Electric showers are to be wired from an existing 40 amp MCB situated in the new CSU, via a 45 amp Double Pole switch.

Store / Outhouse:

Contractor shall install one twin socket and one batten lampholder fitting, controlled by a switch adjacent to the entrance door.

Ground Floor WC:

One batten lampholder fitting controlled by a switch adjacent to the entrance door to be installed.

CSU’s:

In some cases, a dual tariff CSU is to be installed where electrical night storage heating is to be installed.

New Switched Socket:

Provide for any new twin switched socket including for wall chases, make good finish and test on completion.

Light fittings:

Provide for fitting of new pendant, including chases, making good and testing. Provide for fitting of single tube fluorescent light fitting and diffuser, including chases, making good and testing.

Periodic Inspection:

Contractor to provide pricing information for a Periodic Inspection and associated report on a per property basis.

Loft / Roof Void Light Fitting:

Where required, the Contractor shall install 1 batten light fitting and light switch within the roof void area.

Additional Telephone Line:

Contractor shall be responsible for installation of an additional telephone point within the master bedroom where requested.

Television Aerial:

Contractor shall be responsible for the installation of an additional television aerial point in the master bedroom where requested.