



**BUILDING SERVICES LIMITED.
CONSULTING ENGINEERS**

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EPA WEXFORD

ALTERATIONS

PARTICULAR ELECTRICAL SERVICES SPECIFICATION

AND

SUMMARY OF TENDER

DEFINITIONS

CLIENT:	EPA WEXFORD
ARCHITECTS AND PROJECT MANAGERS:	Vincent Hannon Architects 2 nd Floor Hanson Building Doorley Park Road, Sligo
QUANTITY SURVEYORS:	TBC
STRUCTURAL ENGINEERS:	TBC
MECHANICAL & ELECTRICAL SERVICES ENGINEERS:	MED Building Services Limited Unit 6, Clondalkin Business Centre, Crag Crescent, Clondalkin, Dublin 22.

Note

Please contact MED if you have any questions 01-4572025.

1.0 INTRODUCTION

The objective of the project is to complete a safe and workable electrical services installation for an extended and refurbished residential development.

MAIN ELECTRICAL CONTRACTORS RESPONSIBILITIES RELATING TO SUB-CONTRACTORS

The main electrical contractor shall be responsible for the sub-contractors under the main electrical contract. The main electrical contractor shall ensure that all sub-contractors adhere to the program and that a successful co-ordination effort is completed on site.

SCOPE

The scope of the document is to outline the minimum electrical installation requirements for the project. All of the electrical installations shall be installed in compliance with the standards and regulations outlined below:

- IS: 10101:2020 Electrical installation regulation – New Installation.
- Riai form of contract
- Health and Safety Authority.
- The Fire Officer.
- The ESB Requirements.
- The Building Regulations.
- B.S. Codes of Good Practice.

The contractor shall be responsible for a completely safe and workable installation in accordance with the requirements of this specification and the accompanying drawings and documents, all to the entire satisfaction of the engineers.

The contractor shall be responsible for checking and co-ordination of the entire electrical installations with all other services on site. This shall be done with all other disciplines on site and shall be completed with each section of work prior to commencement of installation work.

Claims for additional costs incurred by the contractor due to abortive work arising from inadequate co-ordination effort, will not be entertained.

Refer to the schedule of manufacturers for a list of electrical equipment to be used. No alternative equipment shall be permitted without the prior approval from the engineers in writing. Any infringement on these requirements may necessitate the strip out of the non-approved equipment and re-installment with equipment that was originally specified. It is strongly advised that the contractor visit the site to survey the extent of works required. No extra costs shall be entertained due to the contractor's failure to undertake a sufficient site survey prior to cost submission.

MAINS ELECTRICAL SUPPLY

The existing ESB power supply to the building is a Three Phase, 400V, 50Hz. fed from underground lines rising into the indoor Cubicle /whole current meter and feeding the distribution board within the MDB Cupboard at Ground floor level.

SUB DISTRIBUTION BOARDS

The existing sub distribution boards shall be modified to facilitate the additional lighting or sockets / power circuits and protected by RCBO's. Refer to the drawings for further details.

Note

The Fridge / Freezer / Microwaves sockets shall be protected by RCBO , the others above/below counter wall sockets to be protected by RCBO / isolator and the wall mounted isolator for water boiler to be protected by RCBO, all other wall mounted power supplies must be protected by RCBO devices as per RECI / ETCI requirements.

GENERAL SERVICES AND SMALL POWER INSTALLATION

Additional switched twin sockets to be installed in Reception Desk area served by RCBO in local distribution board.

General services supplies consisting of recessed wall mounted switched socket outlets and shall be wired in 3cx2.5sqmm PVC/PVC T&E.

All switched sockets / spur outlet plates installed on the ground floor shall be Click Devinity type face plates. 3mm / 4 mm face plate, screw less face plate.

All switched sockets in Ground & First floor area shall be Click Devinity.

All sockets and spur outlets are served via a RCBO's. The electrical contractor shall liaise with the kitchen installer to co-ordinate socket positions with cabinets and equipment etc.

Remotely Switched socket outlets where the sockets are not accessible from front.

Small power installation shall consist of a 32A mcb supply to a cooker wired in 3c 10sqmm PVC/PVC to local 32A isolator. The final connection to the cooker shall be heat resistant cable.

A 6A mcb supply shall serve the smoke/heat/fire detectors wired in 3c 1.5sqmm LSF.

Note:

For Click Litehouse Definity sockets and switches etc. all back boxes PVC/ galvanised steel shall be of 30mm depth to accept cable terminations.

Note

The sockets serving appliances where access is not possible, shall be provided with

remote switch /isolator within 1.0 meter of socket in adjoin press side panel or above the counter if Client agrees to location.

LIGHTING INSTALLATION

The existing lighting in the Ground floor Reception Area, are to be retained and new lighting installed to facilitate the new Reception Desk enclosure layout. See proposed drawings / Architect Drawings / Sections.

The new lighting installation shall comprise, of pendants, retained recessed down lights, new recessed linear LED light fittings, shall be installed in the Reception area. Plus new 3-Watt Emergency LED down lights c/w 3-hour battery pack.

Light switches and 5Amp switched sockets shall be Click Litehouse Definity Ground Floor.

A Provisional Sum is to be included for lights for expenditure by Architect / clients, description of light fittings is in the lighting schedule listed below are proposals.

All light fittings specified shall be agreed with the client / architect and engineer prior to purchase.

All light fitting shall be supplied and installed by the electrical contractor. The electrical contractor shall include for the supply, handling and installation of all the light fittings indicated on the drawing and listed in the lighting schedule.

Note

Possible existing Dali Lighting controls in place within the building, subject to confirmation during inspection / opening up of the ceiling void.

MECHANICAL/HVAC SYSTEM WIRING

The boiler / controls wiring to be provided by electrician based on wiring diagram provided by Mechanical Contractor. A 7 day, 24hr. digital programmable time clock shall be installed to control the heating.

New 2 No Dimplex Radiant panels 600 Watt per panel complete with DTB 2R controller. And new power supply to the local distribution board, approx. 50 m run to be confirmed. Fit new 16 Amp Single phase RCBO in local Distribution Board.

FIRE ALARM INSTALLATION

The existing Honeywell Morley Fire alarm panel / Sounder / Smoke and Heat detectors are to be RETAINED. Installation as per the current recommendations in IS: 3217: 2013 / Building Regulations Part B.

Some minor modifications to the existing smoke detectors where the ceiling is to be replaced with plasterboard ceiling in Storage area.

The 3 No additional Smoke detectors and associated wiring alterations to be installed, as part of the refurbishment works.

The fire alarm cabling shall be PH120 to all smoke detectors / sounders shall be wired from existing Siemens fire alarm panel, c/w 6A mcb wired in 3c1.5sqmm Red fire alarm cable to panel.

CARBON MONOXIDE DETECTORS

No part of the scope of works.

TV/TELEPHONE / DATA PROVIDER PROVISIONS

Incoming telephone and TV services provided in the property, the electrical contractor shall extend the services to the new extension and shall be responsible for liaising with the TV and telephone companies to provide adequate supply.

From the main connection box, television cable type CT100 shall terminate in all TV outlets on a Click Litehouse Definity white faceplate identical to the socket plates etc.

From the main utility connection box, telephone cable type 4 pr. Cat6 UTP with LSF sheath and shall terminate in all RJ45 outlets on a brushed stainless-steel plate identical to the socket plates etc

All cables shall be run from server room Comms Rack to each individual TV or Phone point, not looped from point to point, as this is not acceptable for current systems. Cables shall be suitable for Sky or UPC for digital television use / HD televisions.

The contractor shall liaise with the Eircom / Virgin / builder to establish exact cable duct routes.

SECURITY SYSTEM /INTRUDER ALARM / ACCESS CONTROL

It is recommended that the existing security system should be retained throughout the building.

The entire intruder alarm system shall be installed in accordance with IS: EN: 50131 / IS:199.

Coverage shall be via keypad access at entrance doors, vibration sensors and contacts shall be installed on all external windows and doors, panic alarm points shall be installed at strategic locations, one in master bedroom and one on the ground floor front door.

External security alarms and strobe should also be installed.

BONDING/EARTHING

The entire installation shall be bonded in accordance with the IS :10101 / ETCI regulations. Proprietary cable clamps with 10sqmm LSF earth shall bond all extraneous metal work i.e., water pipes, central heating, sinks, etc.

CABLE SUPPORTS

Utilise cable hangers, tray etc. where large numbers of cables are being supported.
Provide white PVC oval conduit for mechanical protection of cables in chased walls.
Main's power and low voltage power shall be always segregated and installed in separate drilled holes of timber joists.
PVC conduit / straight vertical lines to switches / sockets etc. from ceiling void down.

STRIP OUT WORKS

The electrical contractor shall include for strip out of indicated existing electrical services. The electrical contractor shall co-ordinate the strip out works with the main contractor. It is recommended that the contractor visit the site prior to tender bid submission to ascertain the extent of the strip out required.

TESTING & CERTIFICATION

The entire electrical installation shall be tested in accordance with the ETCI regulations. All tests shall be recorded and submitted as part of the “As built” documentation. All sockets etc. shall be tested for continuity, impedance, polarity and visual inspection of the socket and cable to ensure a safe and workable installation. An ETCI completion cert. shall also be required following completion of the entire installation. A minor list of tests required on each cable is as follows:

- Continuity of protective conductors and bonding conductors.
- Visual inspection of cables and terminations at both ends.
- Resistance of the earth electrode.
- Resistance of the protective conductor.
- Resistance of cables.
- Insulation resistance of cables
- Polarity.
- Fault loop impedance.
- Continuity test of the conductor.
- Plus, any other tests that you may find necessary.

Switchgear Tests required:

- Visual inspection of panel.
- Earth continuity tests.
- Insulation tests.
- Impulse tests.
- Functionality test of entire board (incl. ELCB operation).

Socket and spur outlet tests:

- Polarity
- Visual inspection of cables for damage etc.
- Functionality test
- Refer to cable section also.

AS-BUILT DOCUMENTS AND DRAWINGS

Three copies of as built drawings and documents shall be submitted following completion of the installation. The as built documents shall be subject to the approval of the engineers prior to hand over to the client. Note that it is the responsibility of the main electrical contractor to keep up-to date record red lined drawings on site to keep track of changes/alterations on site, to be incorporated into the final as built documentation & drawings. Refer to the technical electrical specification Part 1 for requirements.

SCHEDULE OF MANUFACTURERS
ELECTRICAL EQUIPMENT

<u>ITEM</u>	<u>MANUF.</u>	<u>TYPE</u>	<u>COMMENT</u>
Cable rack	Ellickson	Hercule	
Cable Tray	Ellickson	BRE-108	
Cable Trunking	Unitrunk		Galvanized steel
PVC/SWA/PVC Cables	Irish cable and wire		
Instrument cabling	BICC/Annixter	IS, BS etc.	
DATA/Telephone cabling 4Pr. UTP Cat 5e	MK (Novar)	4 pr UTP Cat 5e c/w RJ45.	
Fire Cabling	Anixter Cables	FP200 Gold / PH120	BS 5839 PT1 compliant
Electrical SUB-Distribution Board	Comply with EN60439	IP41 enclosures	Approved list of panel manufacturers:
230V 13A twin socket outlet	Click Litehouse		White PVC
230V 13A single socket outlet	Click Litehouse		White PVC
13A Spur Outlets Switched	Click Litehouse		White PVC
5A Switched socket outlets	Click Litehouse		White PVC
Shaver Unit	Click Litehouse		White PVC
Light Switches/dimmer switches	Click Litehouse		White PVC
TV/Satellite Outlet	Click Litehouse		White PVC
Telephone outlet	Click Litehouse		White PVC
Multi Gang Switch 6/8	Click Litehouse		White PVC
White plastic ceiling roses c/w 150mm flex	Click Litehouse		White PVC
Local Isolators 20A & 40A	Kraus & Naimer		Provide earth continuity link on each
Doorbell & Chime	Legrand	Bell 0412 19 8 V trafo 0420 25	White finish with bell push
Combined sounder / smoke detector	Honeywell Morley	Honeywell Fire Alarm Panel in Reception	Recommission System.

**NOTE: ALL LIGHT FITTING SPECIFICATIONS TO BE AGREED
WITH THE CLIENT AND ARCHITECT**

Note:

1. All light fittings shall be suitable for the use intended, to be compatible for the ceiling system proposed, to be supplied complete with lamps and to be manufactured to appropriate IS, IEC and/or BS standards.

Location	Description	Mounting	Allowance
Reception Area	Provision for Ceiling Road to facilitate Pendants supplied by the Main Contractor	Ceiling mounted	
Reception Area	Design Light - Phone 01-4295545 Paul Tully Nexia Infinity Frame Microprism Recessed Linear LED light fittings 2 No 4000k c/w 47-Watt LED, white finish IP43 1980mm c/w perimeter trim.	Recessed mounted Into the new plasterboard ceiling.	
Storage / Corridor	Design Light - 2 No Nexia 18-Watt LED circular down lights in the corridor to the exit door.	Recessed mounted in suspended ceiling	
Reception Area Storage Area	3-Watt Recessed down light, Emergency lighting c/w 3-Hour battery pack. Ventilux Supplier or equal.	Recessed mounted	

Note:

LED linear lights fitted into the plasterboard ceiling is white preferred finish.

Plasterboard ceiling

See also Architect Plans for information for setting out. May need to rotate 90 degrees.

Electrical Contractor to provide samples of all Lights.

All fittings to be shown to the client and to be agreed with client prior to installation.

Contractor to clearly price and indicate costs allowed for all light fittings.

Summary of Electrical Tender

Item No.	Description	Euro €
1.1	Amount for alterations / RCBO's into Sub Distribution Boards.	
1.2	Amount for new cable supply from Distribution board to Reception Area. Min 2.5 Sq mm for sockets subject to distance / run length.	
1.3	Amount for General Services, small power and wiring installation.	
1.4	Amount for HVAC mechanical power and wiring installation to 2 No Radiant panels – 600 Watt each and DTB 2R controller 16 Amp capacity.	
1.5	Amount for Heat / Smoke detectors Fire Alarm modification to the existing installation 1 No New Smoke Detector in reception desk enclosure. 3No New Smoke detector to cover the storage area Recommissioning of the fire alarm panel by Honeywell.	
1.6		
1.7	Amount for internal lighting and wiring installation alterations	
1.8		
1.9	Amount for data / telephone outlets, patch panel and Cat 6e wiring installation. Wi-Fi router to take down / put back up, in the Ground floor Reception Area.	
1.10	Amount for all television and satellite connections, outlets and wiring in Reception Area – Ground floor.	
1.11	Amount for security installation including devices and wiring modifications required.	
1.12	Amount for cable supports and conduit etc.	
1.13	Amount for strip-out of existing electrical services in partitions to be demolished to remodel the new Reception Area – Ground floor.	
1.14	Amount for testing and commissioning including as built drawings All the separate systems	
1.15	Sum included for all internal lighting fittings within the Tender for lights on the drawings (Totally Separate to the contingency sums)	
	Sub Total	
	VAT @ 13.5%	
	Total incl. VAT	

FORM OF TENDER DOCUMENT

I/We have inspected the site and examined the appropriate section of the Contract Documents, including Specifications, conditions of Contract and Drawings.

I/We do hereby undertake to supply all necessary labour, plant and material required to carry out the work described in the Contract Documents, to the complete satisfaction of the Architects and Engineer for the sum of:

_____ (in words)

(Including _____ V.A.T.)
(in words)

Euro _____

I/We are prepared to enter a Contract Agreement with the Main Contractor in accordance with the R.I.A.I. Form of Contract Latest Edition (where quantities do not form part of the contract).

I/We agree to complete the works to the Architect's satisfaction all in accordance with the programme provided with the Tender documentation.

I/We name the following Insurance Company:

Name: _____

Address: _____

as a surety to be bound in a sum equivalent to 25% of the Tender for the due and proper completion of the works within the time stipulated in the Form of Tender and Contract Documents.

I/We understand that the Client is not obliged to accept the lowest or any tender and also that he shall not be remunerated for any inconvenience or expense incurred in compiling this Tender.

Name of Firm: _____

Address: _____

Bill of Quantities

- a. The Electrical Contractor shall submit, with his Tender but in a separate and sealed envelope, his priced Bill of Quantities for the project. This envelope will be opened by the Engineers during appraisal of the lowest tenders.

Unsuccessful Tenders will receive their priced bills returned. The priced bill of the successful Tenderer shall be opened after he has been informed, and he has given permission to open the Bill of quantities.

- b. Extra works which may be required will be the subject of quotations in writing to the Engineers priced per the accepted Bill of Quantities and presented in Bill of Quantity form to indicate rates used.

Such extra works shall not commence until the quotation is accepted in writing by the Engineers.

- c. Where extra works are required and authorised by the Engineers but where Electrical Contractors priced Bill of Rates or Quantities do not apply, such work shall be carried out at the following rates.

Labour

The following rates shall indicate the nett hourly labour rate, and the additional percentage required to include all overheads i.e. the use and repair of hand tools, insurances and social welfare charges, pay related benefits, pension and sick pay scheme, training levy assessment, out-working expenses and dirty money, overheads and profit.

For normal hours, productive time: -

Charge hand Tradesman	per hour plus.....%
Tradesman.....	per hour plus.....%
Senior Apprentice Tradesman.....	per hour plus.....%
Junior Apprentice Tradesman	per hour plus.....%
Labourer / Helper	per hour plus.....%

These rates must be shown. Reference to the Association of Electrical Contractors is not acceptable.

For overtime hours, non-productive time -

.....% as per the percentage on the nett hourly rate required for overheads, etc., on non-productive time, if overtime is sanctioned for the completion of dayworks.

Materials

The following rates will apply to materials and carriage extra to the contract -

Materials - nett cost plus%

Carriage - nett cost plus%

Signature

For and on Behalf of

.....

.....

Date