

ELECTRICAL SPECIFICATION

Lighting General

The festive lighting installation must be carried out to the satisfaction of the Employers Representative.

The Contractor shall supply all materials and labour necessary for the complete electrical installation as herein specified. Only Electrical Contractors of good standing and members of a regulatory body i.e. **RECI** or **ECSSA** will be permitted to undertake the work. The Employers Representative may also require information about the arrangements and work schedule for completion.

The contractor will be required to produce a safety plan along with method statements, SSWP's, traffic plans etc. which shall show how the works are to be carried out and how appropriate Health and Safety management will be achieved.

Applicable Rules And Standards

The public lighting installation work must comply with:

“National Rules for Electrical Installations” 4th edition, ET101:2008 published by the Electro-Technical Council of Ireland.

“Code of Practice for Public Lighting Installations in Residential Areas” ET211:2003 published by the Electro-Technical Council of Ireland.

“Road Lighting” IS EN 13201:2003 published National Standards Authority of Ireland.

“Code of Practice for the Design of Road Lighting” BS5489-1:2003

“National Code of Practice for Customer Interface” 4th edition, 2008, published by ESB Networks.

Any updates of the above rules and standards.

Notice To Electricity Board

The existing festive lighting installation to all locations is currently supplied by a 230V 50Hz TN-C-S connection to the ESB networks.

The Electrical Contractor shall consult at an early stage with ESB Networks to arrange for any additional technical requirements in respect of the proposed installation. The Contractor shall liaise closely with the ESB on these works and provide the coordinating role. The Contractor shall complete the necessary documentation to the UMR for the addition of the new lights. The current energy supplier is ‘ENERGIA’.

Inspection Of Work And Materials

All materials to be used in this contract shall comply with the relevant British Standard Specification (Irish, British or equivalent harmonised standard published by the appropriate authority of a member state of the European Communities) for electrical materials and be available for examination by the Architect at any time during the progress of the contract.

If requested, sample or materials must be forwarded to the E.R before commencing work. Any departure from the specification or the approved samples without written confirmation from the E.R may also cause certification of the installation to be refused.

Workmanship And Supervision

All work to be carried out to the highest standards by suitably qualified crafts-persons. The Contractor shall keep a fully qualified Electrician constantly on the site while he is carrying out electrical works and shall, give notice in writing to the Architect of the name of the Electrician.

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Apprentices must be supervised by a qualified craftsman, of the same trade, at all times while on site. The contractor should take notice of the recommended ratio of qualified craftsman to apprentices and should not exceed these ratios. Qualifications and apprenticeship details must be produced if requested by the E.R.

The Electrician must be empowered to settle any minor details that may arise on site and to carry out alterations or instructions, which may be given to him by the E.R.

Examination Of Completed Work

The E.R. shall be notified when each phase of the electrical installation has been completed and also when the testing and certification is complete.

Completion certificates as approved by the Electro-Technical Council of Ireland shall be submitted for each ESB Networks connection (if new connection is required).

These certificates must be submitted to the Regulatory Body to allow supply to be connected. A copy of these certificates as well as associated test record sheets must be submitted to the E.R.

Wiring

All lighting cabling shall be carried out in either: 2 x 6mm² NYCY to VDE specification 0271/5 or 3 x 6 mm² PVC/SWA/PVC to BS 6346:1989.

Cabling shall be contained in ducting coloured red and have a high resistance to impact. The minimum degree of resistance to impact shall be 750N load rating per 5% deflection according to IS/EN 50086-2-4.

All ducting will be provided by the Employer. The Electrical Contractor will liaise with the Employer on site to ensure the ducting satisfies their requirements and the requirements of the specification.

Core colours shall be Brown, Blue and Green/Yellow. Where NYCY cabling is used the protective conductor should be covered with protective heat shrunk sleeving of green/ yellow insulating material.

Earthing & Bonding

Earthing and bonding shall be in accordance with the "National Rules for Electrical Installations" published by the Electro-Technical Council of Ireland.

Earthrods (Earth electrodes) shall be installed close to the customer service pillars in accordance with the ETCI wiring rules and shall have a suitable cover allowing for future inspection. The cover shall be green in colour and labelled "Electrical Earthrod."

Care must be taken when driving earth electrodes into the ground to avoid damaging underground services such as cables, pipes and ducts.

CUSTOMER SERVICE PILLARS Not Applicable

Customer service pillars, metered and unmetered, to contain all ESB equipment and necessary consumer equipment shall be provided by the contractor in accordance with ESB Networks requirements as indicated on the drawings.

The metered pillars should consist of a rectangular box of minimum overall dimensions 1250mm x 500mm x 225mm, with bottom extension plates for anchoring purposes, root depth 350mm. The pillar should be vented and fitted with a vertically hinged door, fixed with two 8mm triangular locks with a weathering strip all round. The enclosure shall have no sharp edges.

The minimum dimensions for ESB equipment shall be 600mm high x 465mm wide x 225mm deep. The minimum to bottom of meter is 600mm.

The shell, door and extension plates should be 3mm thick mild steel and the entire unit should be hot dipped galvanised to BS 729. Customer service pillar shall contain:

- ESB cut-out

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- ESB isolator
- ESB Meter
- ESB trunking in the customer equipment section
- Gland plate
- customer cut-out with 63A Main Fuse with 16kA breaking capacity
- customer individual sub-circuit MCBs & RCBOs
- customer control timeclocks, photocells & contactors
- main earth terminal mounted on baseboard with earth electrode connected in 10mm² PVC
- Earth terminal on pillar frame connected to main earth terminal with 10mm² PVC
- Neutral terminal
- main protective conductor “neutralising link” – 10mm² PVC
- a fire retardant base board for fixing above items
- high voltage warning sign minimum 100mm x 120mm, black on yellow face securely fixed to pillar door.

Items contained in the service pillars shall have a minimum degree of protection of IP33. The service pillars must be located at a distance greater than 2m from the nearest ESB minipillar. Final locations of pillars are to be submitted to the Architect for approval prior to installation.

Light Fittings

The cable is to be protected on the tree trunk by suitable protection fixed by wrapping green gardeners mesh around the base of the trunk. A 1.5m extension (approx.) must be wrapped / protected temporarily to the trunk of the tree during the holiday season. Strings are to be fixed to the tree with removable black cable ties. Any existing fixings / ties must be removed carefully in order to alleviate any distress to the urban trees.

Fittings are by MK Illumination String Lite 120 (20m, 30V) warm white LED as follows;

Tree Lighting

String Lite 120 – 20m with chains containing a maximum number of 4 sets connected to a Quickfix box. Each chain is capped. The lighting pattern to be carried out using the ‘Classic’ method i.e. main trunk, main branches and branches shall be wrapped in accordance with the manufactures methodology.

Wrapping the trunk

The trunk should be wrapped loosely, as with the main branches.

Wrapping the main branches:

The light strings should be wrapped loosely around the main branches. Before commencing decoration, a plan must be prepared and submitted for agreement with the E.R. based on the decorative structure that each tree presents.

Wrapping the smaller branches:

The light strings should be wrapped loosely around, and up to the end of each smaller branch in turn.

The strings are to be installed by the electrical contractor. One tree is to be completed as a sample for approval by the Architect. Cables shall be routed through underground civil infrastructure supplied by the Employer. Cabling shall be routed from the meter pillar and shall terminate in a 450mm dia. Ground junction box for connection with each tree location.

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Connection from the power supply to the tree lights is by H07 RN-F cable. Where ducting may have to be stopped short of a tree bole, the cable is to be protected along the ground by means of a 'heavy duty (external grade) flat laying cord cover or other suitable method. Cable on the tree trunk is to be protected by suitable metal protection fixed by wrapping green gardeners mesh around the base of the trunk. The light strings shall commence at a height of between 2.5 to 3m and upon final agreement with the Employers Representative. A 'hands' width shall be allowed as the strings are wound about the tree trunk and branches as per the manufacturer's installation methodology.