THE COMPLETE SERVICE

ELECTRICAL SERVICES SPECIFICATION

St Augustine Church - Clutton

Wheeler's
ELECTRICAL | HEATING+PLUMBING | FIRE+SECURITY
An Employee Owned Company

ELECTRICAL SERVICES SPECIFICATION

ST AUGUSTINE CHURCH - CLUTTON
WE00673

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Revision:	Author:	Checked:	Comments:	Date:
T01	JG	MB	Draft	13/12/2024
T02	JG			28/03/2025

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SECTION 1
ELECTRICAL SERVICES
PRELIMINARIES

1.01 INTRODUCTION

This part of the Specification should be read in conjunction with other sections of this Specification, the Main Contract Conditions, Preliminaries and Contract Drawings.

1.02 DESCRIPTION OF BUILDING

The works involve a complete re-wire of the electrical services within a church following an unsatisfactory condition report.

The church electrical installation is outdated, a number of electrical faults have occurred, including a small fire caused by an overheating cable. The majority of the issues appear to stem from the condition of the main consumer unit which is corroded, as well as the condition of the MICC cabling which has suffered from high moisture levels and the sheathing is breaking down/splitting.

The church requires a complete rewire including replacement distribution boards. The intention is to retain all lighting fixtures and heating fixtures which is detailed further in this specification.

1.03 GENERAL SPECIFICATION

The whole of the works shall be carried out by the electrical contractor acting as the main contractor/ principal designer under CDM regulations. The electrical contractor shall ensure that they are aware of these conditions and that their works conform to these requirements.

All Tenders shall be deemed to have been submitted in accordance with these Documents. The Electrical Contractor shall, prior to the submission of their tender, raise any points on which he is in doubt as to the interpretation of the Specification and Drawings. The Architect/Contract Administrator's interpretation of the true intent and meaning of the Specification shall, at all times, be final and binding.

The Specification provide equipment sizes, general detail of cables and full design details for proposed equipment. **For the avoidance of doubt, the detailed design of all electrical services is to be undertaken by the appointed Electrical Contractors.** This shall consist of finalising the routes of cables and pipes with the architectural layout, ensuring that all services are discretely hidden. The electrical contractor shall make allowance for any meetings required to achieve this when submitting their Tender return.

1.04 SITE

The Contract relates to work at:

St Augustine Church
Clutton
BS39 5SF

1.05 SCOPE OF WORKS

This Specification encompasses the provision of the required electrical Services for the church.

The extent of the work shall produce a fully operational and integrated installation in accordance with the details and criteria laid down in this Specification, including (but not restricted to) the following:

(a) Small Power

(b) Internal and External Lighting, (Emergency pending fire risk assessment)

(c) Distribution

(d) Ancillary power supplies

(e) Surge Protection

Other specialists (if required) shall be employed for specific parts of the works are detailed under the relevant clauses in this Document.

The use of specialists to undertake the various sections of the work shall in no way diminish the electrical Contractor's responsibility to undertake and complete the whole of the works.

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1.06 DESIGN RESPONSIBILITIES

The details in this specification and on the drawings provided shall only serve as performance and guidance for the Electrical Contractors installation on the proposed refurbishment. The Electrical Contractor shall take on full responsibility for design development and accept full design liability for the installation including, but not limited to, the following items:

a) Co-ordination of all electrical services with the building structure and each other.

b) Setting out of all electrical services.

c) Brackets and support systems for all electrical services.

d) Devising layout of plant and associated equipment.

e) Selection of equipment and materials not specified outright.

f) Checking dimensions of all electrical equipment to ensure that they will fit in proposed locations, particularly around windows, furniture, and mechanical equipment.

g) Undertake the final sizing, selection and determination of electrical loads and cable sizes including any proportioning of mains losses, etc. based on the final equipment selection and coordinated working and installation drawings.

h) Check that cable size selections as specified are not invalidated by the selection of alternative routes during installation or selection of alternative manufacturers.

i) Detailed design and final location of all sockets and light fittings.

j) Positioning of control sensors and local control devices.

k) Ensuring that complete and safe maintenance is feasible.

l) Design of cable or cable containment routes and terminations on to electrical equipment.

m) Provision of safe operating and maintenance clearances for equipment.

n) Acceptable cable entries for the final location.

o) Detailed design of earthing and bonding requirements for:

- Electrical engineering services.
- Architectural elements.
- Structural elements.

p) Detailed sizing, location, routes, and design of electrical containment systems:

- Trunking.
- Tray.
- Supporting structures, brackets, fixings etc.

q) Design of electrical conduit systems including capacity, location, routes and fixing.

Details of all Contractor design elements, plus supporting calculations if appropriate, shall be presented to the Contract Administrator, if required, for scrutiny and approval before the electrical contractor commences the installation.

Should a Collateral Warranty be required for the installation this will be the responsibility of the appointed Contractor. Professional Indemnity Insurance cover is to be in line with the main contract documents as required.

1.07 PROJECT DRAWINGS

Please refer to appendix 2 for the list of project drawings.

These drawings shall be read in conjunction with this Specification, these are intended to be general arrangement drawings only and do not purport to show complete details of equipment or buildings. All cable and duct routes are indicative only and the electrical contractor shall establish final routes to suit the layout of the building before commencing installation.

1.08 CODES OF PRACTICE/REGULATIONS/STANDARDS

The electrical contractor shall supply, install, connect, test and commission the whole of the installation to the entire satisfaction of the Engineer and in compliance with all relevant statutory requirements or Regulations/Codes of Practice current at the date of Tender, in particular the following:

(a) The Construction (Design and Management) Regulations 2015

(b) Health and Safety at Work Act 1974

(c) Relevant and current British Standards and British Standard Codes of Practice, Acts, Bylaws, Regulations

(d) The Environmental Protection Act 1990

(e) Any special regulations issued by the Local Supply Authority

(f) 18th Edition of the IET Wiring Regulations (BS 7671:2018)

(g) 9th Edition of the Joint Code of Practice on the Protection from Fire of Construction Sites and Buildings Undergoing Renovation

(h) Building Regulation Approved Documents

(i) CIBSE Guides

(j) CIBSE Lighting Guides

(k) Ensure, as far as is reasonably practicable, that all persons employed on, or visiting, the site are adequately informed, instructed, trained, supervised, and equipped such that they are able to perform their duties safely.

Unless stated otherwise the Works shall comply with the appropriate British Standard (BS) or Code of Practice (CP) and where no BS or CP is applicable comply with the Agreement Certificate for the particular item.

Ensure all equipment and systems are designed and installed in accordance with the relevant standards and that operational compatibility exists between the systems and any other system installed in the same location.

All products must have the recognised 'CE' mark attached. Provide certificates of compliance with British Standards, BSI Certification Schemes, and/or other Quality.

1.09 THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2009

The electrical contractor's attention is particularly drawn to their responsibilities under these regulations. Responsibilities include, but are not restricted to:

(a) Acting as Principal Contractor and Designer.

(b) Obtain from their Sub-Contractors all relevant information that relates to Health and Safety at Work, which is a consequence of their work.

(c) Obtain from their Sub-Contractors all relevant information that is necessary for inclusion in the Project Health and Safety File. This is likely to include detailed Method Statements for installation procedures.

(d) Generally, comply with the requirements of the CDM Regulations by:

- Compiling risk assessments.
- Preparing method statements.
- Providing information on the contract works that might affect the health and safety of any person.
- Providing all necessary Pre-Construction Information and Construction Phase Plan.
- Providing all necessary input to the health and safety file.
- Supply method statements and comply with all CDM procedures.

1.10 PROGRAMME OF WORKS

All work shall be carried out to an agreed programme between the electrical contractor (Principal Contractor) and the church representatives/ faculty.

The overall Programme and details of phasing etc. shall be advised. The electrical contractor must satisfy themselves that they have adequate information in this regard before submitting their Tender as no additional payments will be made because of want of knowledge in this regard.

1.11 CONTRACT INTENT

The whole of the works shall be executed according to the true intent and meaning of the Contract Documents. If at any time during the progress of the works a dispute or difference shall arise as to the true meaning of the Contract Documents, or as to the quality of materials or workmanship, then such dispute or difference shall be decided by independent arbitration.

1.12 SUB-CONTRACTORS

The electrical contractor shall seek written consent of the transfer, assignment, or sub-letting of any part of the work involved in this Contract. Proposed sub-letting details shall be submitted on the appropriate form when returning the tender documents at tender Stage.

Before accepting any estimate in respect of work to be executed by sub-traders, the electrical contractor must gain written approval from the church faculty and ensure that the conditions of the estimate conform to the conditions of this Contract, and that the Sub-Contract work can be executed to conform to the Contract Programme.

The electrical contractor must take full responsibility for the co-ordination, supervision, and administration of all his Sub-Traders delivery of all associated materials and goods, in accordance with the Work Programme. Approval of Sub-Contracts will not relieve the electrical contractor of their responsibilities under this Contract.

The electrical contractor must provide general attendance in respect of work by their Sub-Traders. The term 'general attendance' shall be deemed to include providing space for office accommodation and for storage of plant and materials, providing scaffolding/access equipment, temporary lighting and power and temporary water supplies for their work, clearing away rubbish and allowing use of all temporary means of access already fixed or placed in position on the site for men and materials.

1.13 SUPERVISION

A competent Foreman shall be employed by the electrical Contractor who shall have charge of the works and who shall be accessible to receive instructions in the absence of the electrical contractor's project engineer/manager.

The engineer shall have the right to require the withdrawal of any such person whose general conduct or handling of the job is, in the engineer's opinion, not satisfactory.

1.14 CO-ORDINATION

The electrical contractor shall be responsible for the co-ordination of all installation work within their contract with all existing services and structural work elements to avoid clashes etc.

The electrical contractor shall check all rooms below the installation to ensure that equipment is located correctly in relation to door swings, structural elements, existing furniture, etc.

It is crucial for the success of this project that the approach to the installation is well planned; the electrical Contractor must therefore carefully programme the works well in advance.

1.15 PROGRESS CHART

Immediately upon signing the Contract, the electrical contractor shall draw up a fully detailed Progress Chart, indicating the times required for the execution of the works.

1.16 SITE MEETINGS

The electrical contractor shall have an authorised representative in attendance at any site meeting which may be held and to which their attendance is requested.

1.17 ALL NECESSARY SURVEYS

Existing record drawings of any existing services on the site were not available at the time of design. As such, the electrical contractor shall undertake all necessary surveys to identify the location, size, and nature of all existing services, which are either affected by the works; or that shall be maintained throughout the construction.

Any drawings or information which is either issued to the electrical contractor or they obtain from any other source, which purport to indicate any details of existing installations or services shall not be relied upon. The electrical contractors on site survey must verify all information that they require.

Assess the general condition of the existing services that are to be re-used, based on visual inspection, indicating any faults or defects found and recommended where further specialist investigation is required. Prepare a report prior to commencement of work. Survey the existing services installations to determine:

a) Condition.

b) Function.

c) Size.

d) Material.

e) Location with respect to existing structure and architecture.

f) Safety.

g) Maintainability.

h) Hazardous substances/materials.

i) Compliance with current statutory regulations, codes of practice or normal good practice.

Advise on the requirement for any urgent works or required action as a result of non-compliance and any parts of the services installation found to be potentially hazardous.

1.18 HEALTH AND SAFETY

General

a) Comply with Main Contract Preliminaries for the requirements of safety, health, and welfare.

b) Conform to all safety rules, regulations, and codes of practice.

c) Check that facilities provided by others fulfil the obligations and advise accordingly.

d) First aid facilities to be provided.

e) Ensure, as far as is reasonably practicable, that all persons employed on, or visiting, the site are adequately informed, instructed, trained, supervised, and equipped such that they are able to perform their duties safely.

f) All safety helmets and protective clothing must comply with the latest British Standards.

g) Ensure that only authorised persons are allowed into any construction area.

h) Ascertain the accuracy and sufficiency of information provided by the Employer or the Contracts Administrator to ensure the safety of all persons and the Works.

i) Wherever possible labour-saving lifting devices shall be used, and materials sized to allow easy manual lifting.

HSE Regulations

The management of health and safety is to be undertaken in conformity with the requirements of the HSE and the corresponding Approved Code of Practice. Comply with the requirements of the HSE Regulations by:

a) Compiling risk assessments

b) Preparing method statements

c) Providing information on the contract works that might affect the health and safety of any person.

d) Providing all necessary Pre-Construction Information and Construction Phase Plan

e) Providing all necessary input to the health and safety file

f) Supply any method statements and comply with all Health and Safety procedures required.

1.19 SITE FIRE PRECAUTIONS

The electrical Contractor shall take all reasonable precautions to prevent loss or damage on the site from fire.

Waste flammable materials should be collected at regular and frequent intervals and removed. Great care should be exercised in the use of oxyacetylene cutting and welding gear, which often causes sparks to travel for considerable distances. Liquefied petroleum gas cylinders must not be exposed to direct sunrays and when quantities of cylinders are on site, a protective covering should be provided.

Use and storage of petrol is covered by Petroleum Regulations, which shall be strictly observed.

Temporary electrical wiring for lighting and power circuits shall conform to BS 7671, the Regulations of the Institution of Electrical Engineers (18th Edition with amendments).

1.20 DAMAGE TO PROPERTY

During the course of removal of existing material or the installation of new, the electrical contractor shall exercise every precaution to avoid unnecessary damage to the building fabric, decorations, furnishings etc. Should any damage result from the negligence of their employees or those of the sub-contractors or suppliers etc., they shall be responsible for making it good or meeting the cost thereof, to the satisfaction of the church representative.

1.21 PROTECTION OF PERSONNEL ON SITE

The electrical contractor shall ensure that all holes and duct openings, etc. being used by them or the sub-contractors are adequately covered and/or guarded at all times. Any injury or damage caused due to non-compliance will be the responsibility of the electrical contractor. The covering material shall be provided and placed in position by the electrical contractor.

1.22 REDUNDANT AND DISUSED MATERIALS AND EQUIPMENT

The electrical contractor shall safely remove and dispose of all redundant and disused materials and equipment strictly in accordance with the requirements of the Environmental Protection Act within site skips as provided by the electrical contractor, unless otherwise agreed at appointment.

1.23 TRAFFIC INTERFERENCE

The electrical contractor shall, in carrying out all works, which may interfere with pedestrian and/or vehicle traffic on site roads, paths, internal corridors etc., provide the best facilities for transit and interfere with the general convenience of all concerned as little as possible.

Should the electrical contractor execute any part of the works that may cause unnecessary obstruction to any traffic and neglect to remove or remedy this inconvenience when called upon to do so, then others may remove the obstruction at the expense of the electrical contractor.

1.24 CLEANSING, COMMISSIONING AND SETTING TO WORK

The electrical contractor shall include for the regulating and testing of the complete Services Installations in accordance with the Standard Specifications, CIBSE Commissioning Codes and relevant British Standards etc., as applicable.

The installations shall be handed over fully and safely operational in accordance with the requirements of this Specification and to the satisfaction of the church representative. At handover, all installations shall be as new.

1.25 TAKING OVER TESTS

Where the contract requires tests on site, the labour and material required for the purpose of the test shall be supplied by the electrical contractor, until the prescribed tests have been passed to the satisfaction of the church representative.

In the event of the plant not so passing the tests, the church representative shall be at liberty to deduct from the contract price, all reasonable expenses incurred by him in repeating the tests.

The electrical contractor shall complete handover Certificates/Forms as required; these shall be provided prior to completion.

1.26 FUEL FOR TESTING

The cost of electricity shall be borne by the Principal Contractor for testing and commissioning of the installation.

1.27 TRAINING

The electrical contractor shall allow for a full day of training for Client's staff in the operation and maintenance of the system installed. Where specialist equipment is installed, the manufacturer's representative shall be in attendance to assist with the training.

1.28 OPERATING AND MAINTENANCE MANUALS AND 'AS INSTALLED' DRAWINGS

During the process of the works, the electrical contractor shall prepare and maintain duplicate copies of draft 'As Installed' drawings. These drawings shall be kept on site and marked up by the supervisor to indicate all positions, runs, sizes and types of equipment, etc.

Drawings shall be clearly marked 'As Fitted' or 'As Installed' with the prints coloured with distinctive colours for different services etc. All drawings shall also be provided in digital format compatible with AutoCAD LT.

The Maintenance Manuals shall include full descriptions of all systems/equipment, detailed Maintenance Programmes, and full manufacturers' details.

Two USB sticks should be presented each containing a copy of the completed and approved version of the O+M manual.

The electrical contractor should note that the contract is not considered complete until these clauses have been fully complied with. In the event of non-compliance, the church reserves the right to have prepared the necessary drawings etc. and to deduct the cost of preparation from the monies due to the electrical contractor before the issue of the final certificates.

1.29 DEFECTS LIABILITY PERIOD

The defects liability period shall be 12 months. During this period, the electrical contractor shall carry out all necessary maintenance, replacement of faulty equipment, servicing etc., all at no extra cost.

1.30 SPARES AND TOOLS

Not required within this contract.

1.31 HAZARDOUS SUBSTANCES

There is not envisaged any hazardous substances within the contract areas. Should there be any concerns regarding any presence of materials i.e., asbestos in any other areas, work shall be stopped in that area and brought to the church representatives' attention.

Asbestos

No material or goods containing asbestos shall be incorporated in the contract works. Be responsible for certifying at practical completion of any section of the contract works that no asbestos or asbestos related materials have been incorporated or by any sub-contractor employed.

The church representative will supply copies of destructive Asbestos Report and if any, safe reissue certificates before work commences.

SECTION 2
ELECTRICAL SERVICES
PARTICULARS

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SECTION 2
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2.01 GENERAL

It shall be clearly understood that the appointed contractor shall be fully responsible for the detailed design, supply, installation, testing, demonstrating, documentation and leaving the installation in a satisfactory working order.

The complete installation shall be designed, installed, tested and commissioned in accordance with the requirements set out in the current edition of BS 7671 (of The Institute of Electrical Engineers Wiring Regulations), the relevant British Standards and Codes of Practice, the Building Regulations, latest F.O.C. rules, Local Authority statutory requirements and the requirements of Parts L2, M and P of the Building regulations in respect of energy conservation, disabled facilities and electrical compliance.

The installation shall be in accordance with all specific requirements of this specification, without degenerating from the generality of the Employer's Requirements. Where no particular regulation or standard is applicable, then the works shall be carried out with due regard to general good workmanship and installation procedures.

An electrical contractor registered with NICEIC or ECA shall carry out the installation.

All drilling, chasing, and cutting of holes in the structure shall be agreed with the church representative prior to any work taking place. The electrical contractor shall utilise all existing routes and penetrations to avoid any additional damage to the historic fabric.

The Electrical Contractor should note that there is still an element of design required for final coordination of the services. The electrical contractor shall provide fully detailed design and co-ordinated working drawings for the electrical works.

2.02 EXTERNAL SITE SERVICES

2.02.01 Incoming Services

There is one existing incoming electrical supply:

a) 140kVA (assumed) located in the cupboard at the rear of the WC.

The existing electrical supply is deemed to be suitable to be re-used in its current state. No additional electrical loading is being introduced as part of these works.

The electrical contractor should allow a sum for any necessary liaison and assistance with from the supply authority regarding removing seals/ re-instating seals.

2.02.02 Distribution and Switchgear

The electrical contractor shall install and commission the complete electrical installation. The installation shall comply with BS 7671:2018 IET Wiring Regulations 18th Edition (current amendment) and the Electricity at Work Act. Provide full certificates following completion of the works.

New distribution boards shall be provided (at locations shown on drawings), from where all supplies to general lighting, general power, plant, and other electrical supply requirements within the buildings/area shall emanate.

All circuits shall be protected by MCBs / RCBOs. Socket outlets to be provided with RCBO/AFDD trip units. The electrical contractor shall include for a system of surge suppression on all incoming electrical supplies and sub- distribution boards.

Refer to the distribution board schedules for details of submains and final circuits. Where design lengths are indicted, these are for technical calculation purposes only and shall not be used in the compilation of the tender sum. The electrical contractor is responsible for the estimation of all cable lengths using the drawings provided and the sizes. The electrical contractor shall notify the engineer in the event of any significant discrepancies. Indicative circuit references have been provided; these shall be confirmed during the commissioning stage prior to labelling.

Incoming devices to distribution boards shall be manufacturer standard isolators, provide shrouding to incoming terminals.

The electrical distribution system shall have a minimum of 25% spare capacity throughout, i.e., at main switchboards, submains, final circuit distribution boards. Provide 25% spare ways minimum to all new switchboards and distribution boards.

The electrical contractor shall develop proposals for primary distribution routes. Generally, submains shall be run surface on the fabric of the building apart from the kitchen distribution board which has the route indicated on the drawings. Where cables rise vertically, they shall be cleated directly to the building fabric or fixed to a medium duty LV cable tray where possible.

There is a supply authority meter located at the electrical incoming position; additional metering is not deemed as being required as part of this re-wire.

2.03 STRIPPING OUT

Existing installation is to be removed completely; it is not envisaged that any part of the installation is to be re-used. Should the electrical contractor deem it feasible to re-use any aspect of the installation they must seek approval prior to removing or re-utilising.

The electrical contractor should approach the stripping out in a considerate manner as to not cause any additional damage to the building fabric.

Items that will not form part of the strip out and must be protected to allow them to be re-used:

a) All of the high-level IR heaters. The existing heaters should be re-connected. The electrical contractor should verify that they are suitable for continued service and meet relevant IP ratings regarding their positions. Any defects identified should be brought to the attention of church representatives at the earliest convenience.

b) Water heater in the kitchen. The Church is replacing the water heater in the kitchen. The electrical contractor should include to provide the supply and connection for this water heater.

c)Water heater, extract fan and hand drier in the WC. The water heater, extract fan and hand drier should be retained for continued service. The electrical contractor should verify that they are suitable for continued service. Any defects identified should be brought to the attention of church representatives at the earliest convenience.

d)Accessible alarm system in the WC. The accessible alarm should be retained for continued service. The electrical contractor should verify that they are suitable for continued service. Any defects identified should be brought to the attention of church representatives at the earliest convenience.

e) Audio system and hearing loop. The audio system including all the speakers and wiring, and the hearing loop system should be retained for continued service. Both of which should be left in full working order upon completion of these works.

f) Lighting throughout. Where stipulated on the drawings, the light fittings should be retained and re-used. The electrical contractor should verify that they are suitable for continued service. Any defects identified should be brought to the attention of church representatives at the earliest convenience.

The electrical contractor should allow for lifting tiling, excavating, and back filing the areas indicated on the drawings in the Nave, to allow for the cable serving the kitchen distribution board to be replaced. The making good and re-laying of the tiles will be covered by a specification produced by the architect.

The final making good and re-decorating will be detailed in an architectural specification prepared by the architect and will be conducted by the church separate to these works.

2.04 MECHANICAL AND MISCELLANEOUS SERVICES

The electrical contractor shall provide all necessary electrical supplies to all items of mechanical plant and equipment. Due allowance should be made for all wiring, provision, and installation of isolator's etc.

The electrical contractor shall be responsible for ascertaining that the correct rating, phase, and location of supplies are provided to suit the mechanical installations.

The mechanical installation shall consist of (not limited to):

a) IR Heaters throughout.

b) Water heater in the WC

c) WC extract fan.

d) Water heater in the kitchen.

All mechanical controls will be carried out by the electrical contractor including all wiring and containment required.

The IR heaters should be wired through an appropriately rated contactor. All contactors should be in one central panel adjacent to the distribution board. A 4-channel smart programmer should be installed to allow the heaters to be timeclock controlled locally and if desired remotely operated via a mobile application. The allocation of the heater zones is listed on the small power drawings.

2.05 SMALL POWER INSTALLATIONS

The electrical contractor shall design, install, and commission the complete electrical installation. The installation shall comply with BS 7671:2018 (IET Wiring Regulations 18th Edition 2022 Amendment 2), and the Electricity at Work Act.

Small power distribution system shall be designed to include for the supply, installation, erection, and connection of all small power items. As per layout drawings.

The scheme shall include for all final connections to items of equipment etc and mechanical plant, including provision of isolating switches as required and for ensuring that these items operate correctly. All circuits shall be wired as ring mains, if possible, with RCBO/AFDD protection where required.

Internal final circuit wiring shall be FP200 and SWA/XLPE/LSF.

Surface cable drops shall be clipped direct with suitable fire rated fixings, where possible and aesthetically acceptable, medium duty tray shall be used for routes with multiple cables.

All exposed cables and conduit at high level shall be secured with metal fixings, in accordance with BS 7671 Section 521.10.202.

Final circuits shall be provided with 30mA RCD protection via RCBO/AFDD units located within the distribution boards in accordance with the requirements of BS 7671.

Supplies to mechanical plant, ICT racks, and other equipment requiring a plug and socket connection rated at 16A or above shall utilise BS EN 60309 "commando" type connectors. These shall incorporate interlocked isolators, preventing removal of the plug when not isolated.

Accessories shall be provided as per Appendix 1. Provide samples free of charge upon request.

2.06 EXTERNAL ELECTRICAL SUPPLIES

Separate external circuits shall be provided to enable the proposed external lighting and power requirements to be provided. Locations will be indicated on relevant drawings. These shall be provided with RCBO protection, as necessary.

2.07 ELV INSTALLATIONS

There are no ELV systems within the scope of these works.

2.08 EXTERNAL LIGHTING

External lighting shall be provided as shown on the drawings. With PIRs strategically placed to have sufficient coverage.

External final circuit wiring shall be XLPE/SWA buried direct. The existing cabling to the external ground mounted floodlights should be re-used, as shown on the drawings. The electrical contractor should allow for the testing of this circuit to make sure it is safe for continued service. Any defects identified should be brought to the attention of church representatives at the earliest convenience.

External light fittings mounted on the building fabric shall be directly wired to the fixed wiring installation via the existing surface cable routes and penetrations.

2.09 EARTHING AND BONDING

The electrical contractor shall install and commission the complete earthing and bonding installation. The installation shall comply with BS 7671:2018 (IET Wiring Regulations 18th Edition), BS 7430, the Electricity at Work Act, Electricity Safety Quality and Continuity Regulations, and Local Electricity Supply Authority requirements.

Comply with the requirements of BS EN 50174 Parts 1 – 3 and BS EN 50310.

Each sub-circuit shall have its own earth conductor that shall be in the form of a copper cable being a single conductor or part of a multi-core cable. The electrical scheme shall provide for a main earth bar adjacent to each main intake and bond between each of the following and the main earth bar using separate conductor sized as BS 7671.

a) Incoming mains cold water
b) Incoming supply earth
c) Lightning Protection System

Ensure Special Locations and other areas are bonded to BS 7671, Section 701 as required.

At each sink and hand basin bonding shall be provided between hot, cold, and waste pipes (if metal) using minimum 6mm^2 6491B cable.

All items of main distribution equipment shall be bonded together using minimum 10sqmm 6491X cable or equivalent copper tape. This shall include cable trunking, tray etc. Note: All bonding conductors shall be terminated using crimped lugs.

Combined Type 1 and 2 Surge protection shall be provided at the main switchboard.

Install surge protection devices in accordance with BS 7671, BS EN 50174 Parts 1 – 3, and BS EN 61643-11 and the manufacturer's recommendations.

2.10 LIGHTNING PROTECTION SYSTEM

Existing lightning protection system to be retained.

2.11 FINAL POSITIONS

Final positions of all outlets shall be taken from the detailed drawings. The electrical contractor shall be made responsible for ensuring that items of equipment fitted by other sub-contractors are marked-out by that sub-contractor to the satisfaction of both contractors.

2.12 OTHER TRADES

The electrical contractor shall be made responsible for the co-ordination of cable routes and equipment positions.

2.13 TESTING

The electrical contractor shall be responsible for testing the whole installation, tests shall be thorough as detailed in the testing and commissioning section of the tender specification and all results tabulated and handed to the engineer prior to his inspection for his use during witness testing.

Testing shall be to current BS 7671 and all test certificates provided.

2.14 COMMISSIONING AND INSTRUCTIONS

All systems shall be fully commissioned upon completion by the electrical contractor and the client shall be given full instructions as to their correct operation. The whole installation shall be thoroughly tested, and the results tabulated and handed to the engineer prior to his inspection for their use during witness testing. Testing shall be to current BS 7671 and all test certificates provided.

2.15 WIRING SYSTEMS

All cabling for the church shall be carried out using white FP200 Gold (or equivalent) or SWA/XLPE/LSF steel wire armoured cable (for sub-mains). All cabling shall be run surface on building fabric or within ceiling/floor voids where possible.

Surface wiring routes must be agreed with the architect prior to installation. Unless otherwise specified, it shall be assumed that accessories are to be mounted surface with metalclad boxes fixed to the building structure. For all accessories except lighting switches without an earth terminal the electrical contractor shall install a 6491X earth link between box and accessory. Where an accessory is controlling a fixed appliance i.e., water heater, the final connection shall be made using suitably sized flexible multi-core cable with minimum size of 0.75 sq.mm.

Low level exposed cabling is subject to increased risk of mechanical damage, the electrical contractor should consider using a more durable cable/containment system to increase protection.

Surface cable drops shall be clipped direct with suitable fire rated fixings, where possible and aesthetically acceptable, medium duty tray shall be used for routes with multiple cables. PVC/LSF coated P clips fixed using a round head screw and plastic wall plug should be used.

The electrical contractor should avoid using joints where possible, and junction boxes installed shall be "no maintenance" types with push fit terminals.

Twin and Earth (T&E) may NOT be used.

All FP200 Gold cables should be fully compliant with British standards marked with BASEC. Equivalent cables i.e. Firetuf will not be acceptable.

FP200 Gold cables, or equivalent, with the PVC sheath coloured (if possible) to match its background colour where visible.

2.16 LIGHTING

The electrical contractor shall install and commission the complete electrical installation. The lighting installation shall comply with BS 7671:2018 (IET Wiring Regulations 18th Edition 2022 Amendment 2), SLL Code for Lighting, and the Electricity at Work Act.

The scheme shall comprise of a combination of re-using existing flood lights and highbay fittings, wall lights, LED strips and pendants and the supply of new when the existing is not fit for purpose.

The electrical contractor shall be responsible for the complete lighting installation and shall include the design, supply, installation, erection, and connection of all luminaires, to provide a complete working installation.

The final switching arrangements, and positions of all light fittings and switches shall be agreed on site by the electrical contractor with the architect or client, prior to commencing works. The electrical contractor shall mark all proposed positions on the walls/ceilings. The electrical contractor shall update their working drawings to record any site requested changes and submit for written approval by the client or architect.

2.17 LIGHTING CONTROL

All internal lighting will be controlled by standard rocker switches except for two flood lights and a bulkhead by the WC which have integral PIR control. These provide a route to the central position to allow all the remaining lighting to be switched on.

External wall mounted fittings have PIR control.

External ground mounted floodlights shall have a timeclock, external photocell and manual switch override.

2.18 FIRE ALARM INSTALLATIONS / SECURITY INSTALLATIONS

There are no fire alarm and security system requirements within the scope of these works.

2.19 ADDITIONAL GUIDANCE

The electrical contractor should also bear in mind the following points, taken from Annex B of Guidance note: Electrical Wiring Installations in Churches.

a) All cables routes must be agreed with the architect/surveyor, submitted to the DAC and included in the faculty petition. Unless they follow the existing route, the electrical contractor must be required to submit drawings for approval showing the proposed routes of all cables and equipment locations. Where this is not practicable, the routes of all cables and equipment locations should be clearly described in writing, and marked up photographs.

b) Holes or chases must not be made in or through buttresses, piers, mullions, columns, detached shafts or vaulting ribs.

c) No hole may be drilled in, or fittings fixed on, any bosses – whether stone or wood – unless they have already been drilled for a previous installation.

d) Beams, structural timbers or moldings are not to be drilled, notched or sawn on any surface.

e) No chases shall be made in brickwork, masonry or plaster without express description in the specification and approval of the architect/surveyor.

f) Wiring must not be laid over the surface of any carvings or paintings nor, if any other line is available, may it be laid over the face of mouldings.

g) Where woodwork – e.g. pews or panels – must be pierced, care must be taken to drill the smallest and neatest hole that can give reasonable clearance for conduit or cable and to make to in the least conspicuous position.

h) Proper care should be taken to protect the organ and any other musical instrument. Articles of furniture and works of art liable to damage should either be removed from the area of work or adequately protected.

i) Where visible, all cables, conduits, trunking, or other cable enclosures must be painted to match the colour of the surface to which they are being attached.

j) Plugs in walls for conduits, switches, fuseboards, saddles, etc. should be as small as practicable. If the condition of the masonry or plaster is such that any other fixing method appears necessary, then the architect/surveyor must be consulted.

k) "Hot works" – e.g. soldering connections – must be avoided and other methods employed.

l) The contract should forbid the use of radios.

m) Allowance must be made within the contract to minimise, as far as is possible, any interruption to regular church services and unscheduled services such as funerals.

This guidance is issued by the Church Buildings Council under section 55(1)(d) of the Dioceses, Mission and Pastoral Measure 2007. As it is statutory guidance, it must be considered with great care. The standards of good practice set out in the guidance should not be departed from unless the departure is justified by reasons that are spelled out clearly, logically and convincingly.

SECTION 3
ELECTRICAL SERVICES
APPENDICES

APPENDIX 1 - ELECTRICAL EQUIPMENT SCHEDULES

ITEM	TECHNICAL SPECIFICATION	MANUFACTURER
Small Power:		
Light Switches	Metalclad Plus	MK
Small Power accessories	Metalclad Plus	MK
Accessories	Metalclad Plus	MK
Floor Socket	Polished Brass	Knightsbridge
Luminaires:		
Internal Flood Lights	Where indicated to replace a lamp holder	Allow £80.00 per fitting
LED Strip Light	IP Rated	Allow £50.00 per strip
External LED Bulkhead	Built in PIR	Allow £55.00 per fitting
Linear LED fitting		Allow £80.00 per fitting
LED Bulkhead Light		Allow £55.00 per fitting
External Lighting Controls	When not integral to fitting	Steinel or equal
Time Clock (Lighting)	24hr/7 day digital/ programmable	Timeguard or equal
Programmer (Heaters)	Secure H3747 4-Channel Smart Wireless Controller / Programmer	Hortsmann
Distribution:		
Distribution boards	Acti9 Isobar P	Schneider
Enclosures for AFDDs	Acti9 Isobar P	Schneider
Containment:		
Tray	Medium duty perforated	Marshall Tufflex or equal

APPENDIX 2

ELECTRICAL DOCUMENT ISSUE SHEET

PROJECT TITLE: St Augustine Church - Clutton

PROJECT No: WE00673

SHEET No: 1 of 1

DAY	13	28														
MONTH	12	03														
YEAR	24	25														

DOCUMENT No:	TITLE:	REVISION: (P=PRELIMINARY, A=APPROVAL, T=TENDER, C=CONSTRUCTION, AF=AS FITTED)														
CH-DR-GF-E100	SMALL POWER LAYOUT	T01	T02													
CH-DR-GF-E101	LIGHTING LAYOUT	T01	T02													

APPENDIX 3 – DISTRIBUTION BOARD CHARTS

Issued separately.

ELECTRICAL SERVICES
TENDER SUMMARY

EXAMPLE HOUSE

ELECTRICAL TENDER SUMMARY

The following is an analysis of the quoted figure as on the Form of Tender and must be a completed by the Tenderer at the time of Tender and must be arithmetically correct.

The total sum shall include for all items covered by the specification. Each sum shall include for all work necessary to complete that particular section of work.

1.	Preliminaries including site welfare facilities	£
2.	Detailed design and drawings including design warranty	£
3.	Stripping and removal of all redundant electrical services	£
4.	Mains distribution boards and electrical power distribution	£
5.	Lighting installation including re-connecting existing	£
6.	Electrical small power installation	£
7.	Containment	£
8.	Builders works	£
9.	Mechanical (Wiring and Connections only)	£
10.	Earthing & Bonding	£
11.	Testing and Commissioning Electrical Services	£
12.	Drawings / Manuals	£

PROVISIONAL SUMS		
19.	Liaison with Supply Authority (seals)	£500.00
20.	Items deemed unsuitable to be re-used	£500.00
21.		

GRAND TOTAL TO FORM OF TENDER	£

Signed: ..... **Date:** .....

For and on behalf of: .....