

SPECIFICATION

FOR

MECHANICAL ENGINEERING SERVICES

AT

**ST. PAUL'S CE CHURCH,
EDENFIELD ROAD,
NORDEN,
ROCHDALE.
OL12 7SL.**

Prepared by;

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SECTION 1.

GENERAL CONDITIONS & PRELIMINARIES

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GENERAL CONDITIONS & PRELIMINARIES.

1.1 CONTRACT

The general conditions of contract as far as the mechanical services contractor is concerned will be as awarded against a direct instruction from the Client - the PCC of St.Paul's Church, Norden.

The order of instruction to the successful tenderer will take the form of a simple letter from the Parish's representative, or alternatively from the Consulting Engineer acting as their agent, stating acceptance of the agreed tendered sum as identified on a completed Summary & Form of Tender included within this specification.

All aspects of the contract will in general terms be covered under English law, however the following matters will form the specific agreement basis;

- a) the tender shall be submitted on a Fixed Price basis to cover an overall period of 6 months.
- b) the Client will hold a retention of 2.5% against applications for payment and the final account sum for a period of 12 months from the date of practical completion.
- c) the date for practical completion shall only be determined by the Consulting Engineer, after satisfactory inspection and handover.
- d) the anticipated start & completion dates shall be as follows;

start on site	-	for tender purposes assume January 2025
completion	-	say within 10 weeks of commencement
- e) prior to commencement on site the contractor must provide his own detailed work programme which must take into account consultation with the incumbent to take into account any specific arrangements that the Church may have. Additional liaison will be expected to be catered for without duress.

1.2 SCOPE OF WORKS.

The scope of works covered by this specification is for the supply and installation of mechanical services associated with the replacement of the existing LPHW heating system at St.Paul's Parish Church, Norden.

The definition of "works" shall include the stripping-out of the existing gas fired boiler plant and heating installation and provision of new boiler plant, and heating services and shall mean a complete installation including supply, installation, testing, commissioning, setting to work including full instructions to the Client as to the operation of the plant, equipment and controls.

1.3 SITE VISIT.

The prospective tenderer is advised to visit site to ascertain the full extent and nature of the works and to translate the information contained within this specification and detailed on the drawings to suit the particular implications of the site in general. Failure of the tenderer to acquaint himself fully with site conditions shall not form the basis of additional claims for monies whatsoever. Arrangements to visit site should be made by contacting Andrew Mawson – 07465 970020, or Ian Short – 07734 259460

1.4 DOCUMENTATION.

To assist the preparation of a tender bid, the following documentation is provided:

a) Tender Drawings

The following drawings which accompany this specification to form the tender package are to be used at this time for tendering purposes only. They are diagrammatic only and must be read in conjunction with the specification. Site dimensions must not be taken from Tender drawings. The tenderer must include for all necessary fittings, offsets, components, bends, parts etc., as may be required to provide a full, comprehensive services installation even though they may not be indicated on the drawings due to their scale.

- 107.24.M1 - Existing Heating Services
- 107.24.M2 - Proposed Heating Services
- 107.24.M3 - Proposed plant & Schematic detail

b) Specification

Tenderers shall comply fully with the requirements of the Standard and Particular sections of the specification. Any anomalies or queries noted by the tenderer shall be relayed to the Consulting Engineer at tender stage.

c) Tender Breakdown & Form of Tender

A copy of the Tender Breakdown & Form of Tender, duly completed in all respects and signed, shall be submitted by the tenderer with the tender bid.

1.5 CO-ORDINATION OF SERVICES.

The mechanical services contractor shall be fully responsible for the co-ordination and integration of his installation with the electrical services and the structure/proposed internal arrangement of the building. In addition the mechanical contractor shall be responsible for the co-ordination of all activities and management of Sub-Contractors.

1.6 SCHEDULE OF RATES WITH QUANTITIES.

Within fourteen days of being notified that his tender bid is being considered for acceptance the sub-contractor shall submit a fully priced and detailed schedule of rates with quantities, the total price of which is to correspond with the tender amount. The schedule will be used, where applicable, for the preparation/pricing of variations.

1.7 WORKING PROGRAMME.

The mechanical contractor shall arrange his works to comply with an agreed programme of works to enable the areas to be completed in a phased areas as agreed. The contractor shall issue a draft programme with his tender return followed by a more detailed programme after order placement for discussion prior to any works being undertaken.

1.8 COMPLIANCE WITH REGULATIONS.

All parts of the installation shall comply with the following regulations current at the date of tender:

- a) Building Regulations – Current Edition at the time of tender.
- b) Statutory requirements including the Clean Air Acts.
- c) The Health and Safety at Work Act, 1974.
- d) The I.E.E. Regulations (18th Edition).
- e) Regulations under the electricity at work acts.
- f) Regulations and requirements of the Building Control/Fire Officer.
- g) British Standards ruling at the time of tender.
- h) C.I.B.S.E. guidance notes and codes of practice
- I) The Water Regulations 1999.
- j) Gas Regulations 1998
- k) The Current CDM Regulations
- m) Health & safety Plan.

1.9 BUILDERSWORK & ELECTRICAL WORKS.

The mechanical contractor shall be responsible for providing all necessary information for their builders and electricians works to enable the services to be installed and to enable their sub-contractors to carry out the work. This shall apply to bases, holes through walls, floors, roofs etc. trenches, boxings and any other specific items.

Further specific details are included within Section 2.

In addition the mechanical contractor shall be responsible for the co-ordination of all activities and management of Sub-Contractors.

1.10 DEFECTS LIABILITY PERIOD.

The sub-contractor shall be responsible for the correct operation of the works for twelve months from the date of practical completion and shall make good at his own expense any defects which arise, fair wear and tear excepted. The sub-contractor shall inform the Consulting Engineer in writing of his final practical completion so that handing over of the works and commencement of the Defects Liability Period can begin.

1.11 OMISSION OF WORKS.

Omission of the works whether in part or whole shall not entitle the contractor to claim for anticipated overhead recovery and/or loss of profit.

1.12 OPERATING & MAINTENANCE INFORMATION.

The sub-contractor shall include for instructing the Client's representatives on the operating and maintenance of the installations and shall provide three copies of "as installed" drawings and operating/maintenance manuals at the time of handover. All documentation should be in line with CDM regulations and should be produced for approval prior to final issue at handover stage.

1.13 SERVICE VISIT.

The Contractor is to allow within his tender for returning to site twice during the 12 months defects liability period to carry out service works.

The first visit shall take place after 6 months and the second after 12 months. Both visits are to be co-ordinated with the Client and their advisors.

SECTION 2.

PARTICULAR SPECIFICATION REQUIREMENTS

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PARTICULAR SPECIFICATION REQUIREMENTS.

2.1 STRIPPING-OUT EXISTING SERVICES.

Existing services to be stripped-out relate to existing gas fired boiler plant, cast-iron radiators & heating pipework services presently installed within the Church. It is therefore essential that the contractor visits site prior to the submission of his tender to ascertain the full extent and nature of this work.

2.2 NEW HEATING SERVICES.

A new improved heating system is to be provided as shown on the drawings and shall include for a completely new mild steel pipework system with steel column radiators and steel pipework. The radiator valves to be provided shall be the 'heritage' type as manufactured by Crane their type D.201 wv and D.202 lsv (please note that these types of valve are also provided by other decorative cast-iron radiator valve suppliers and are noted as their type BNB (black and brass)).

Where a TRV is to be installed a brass in-line 'ballofix' type valve shall be installed on the flow riser pipe prior to the TRV itself. **The contractor shall be responsible for checking that the specified radiators and lengths of steel finned element pipework can be installed in their intended location prior to ordering. All radiators shall be required to be supplied in an approved RAL colour as initially indicated on the tender drawings but again to be confirmed at the time of order placement.**

A quotation for the specified radiators has been produced by the Zehnder Group Ltd., and the Area Sales Manager shall be contacted for a copy of this to be included within this tender submission contact – Alex McDonald – 07795 361643. **Particular note shall be made to the radiator schedule on the drawings with reference to how radiators will need to be supported / bracketed within their various locations and the fact that the weight of some of these radiators will need specialist handling equipment to allow safe installation of them.**

The radiators shall be provided with the appropriate brackets, both to walls & floors bearing in mind that in most cases the heating F & R pipework has to run below the radiators themselves.

2.3 TESTING & COMMISSIONING.

Testing and commissioning of all systems must be undertaken in accordance with the standard specification with only suitably qualified personnel being utilised. Full and documented instructions must be given to the Consulting Engineer and Client's representatives and a call back allowance must be included for, to cover the end user's understanding and comfort with the systems.

2.4 WATER TREATMENT.

The LPHW system shall be chemical cleaned and a suitable corrosion inhibitor added on completion of all works and a certificate issued. The inhibitor shall comply and be in accordance with the boiler manufacturer's requirements/instructions. Appropriate treatment is available from either messrs Sentinel or Fernox . Sterilisation of domestic water supplies shall also be carried out in accordance with the Regulations and relevant BS.

2.5 AS-INSTALLED DOCUMENTATION.

As installed drawings and manuals shall be provided at the end of the contract in accordance with CDM regulations and standard specifications. Three copies of this documentation will need to be provided after one copy has been submitted for approval. The contractor shall also include for the provision of this documentation on a CD, with the format to be advised by the Client in due course. **It is important to know that this documentation being provided must be project specific and a simple generic format will not be accepted.** The contractor shall also make provision for providing all necessary information for the completion of a Building Log Book for this project in accordance with Part L2A of the current Building Regulations. **The contractor must take note of the sub-contract conditions which indicates that monies will be withheld if this documentation is not properly completed and issued well in advance of the contract handover.**

2.6. LPHW HEATING PLANT INSTALLATION

LPHW heating shall be installed to serve all parts of the buildings. The heating circuit to be provided shall be a constant temperature circuit to serve the radiator systems. The boiler system shall comprise a Alpha Protec 68NX hydrogen ready gas boiler as detailed on the drawings, however the Church heating system will also have a Samsung ASHP system interconnected into the system, via a buffer vessel unit as detailed on the drawings. The heating systems shall be supplied with individual single pump-sets as manufactured by Grundfos Limited. The new heating systems shall all be mains fed and shall be pressurised via individual Mikrofill units and system expansion vessels.

All plant & equipment serving the heating system & located in the plant rooms are described later and outlined in the schedules contained within section 4.

2.7 PIPEWORK

All internal heating pipework and pipework from the air/water heat pump units shall be installed in Black 'Medium' Tubing to BS1387 complete with screwed or welded fittings as appropriate.

All pipework must be adequately supported and arranged to accommodate pipe movement caused by thermal changes. Generally, allow the flexure at changes in direction and allow for movement at branch connections.

All pipework shall be graded to facilitate air venting and draining down and must be fitted with air vents and draincocks at all high and low points respectively.

THE USE OF CRIMPED TYPE JOINTING SYSTEMS WILL NOT BE PERMITTED TO THE HEATING PIPEWORK SERVICES.

2.8 VALVES

Bronze wheel head gate valves shall be fitted on flow pipework with lockshield type valves on the return. Draincocks shall be fitted at all low points with hose union connections. Valves shall be as manufactured by Hattersley Newman Hender Ltd., or approved equivalent.

Wheel Valves	fig. 33X DZR
Lockshield Valves	fig. 33XLS DZR
Draincocks	fig. 81HU
Commissioning Valve	fig. 2432 DRV/MS
Gas	fig. 100
Mains Cold Water	Yorks Fig. 501GM

2.9 GAS INSTALLATION.

The existing gas meter is adequate for the new installation and requires no new application for it's use to be made, however new gas supply to the boiler location shall be provided, from the existing meter outlet within the basement boiler-room.

Internally, pipework shall be painted / identified to suit gas regulations requirements. Final connections to equipment shall be made by the mechanical contractor and shall include a lever handled gas isolation ball valve.

Pipework shall be run in Black Heavy weight tubing to BS1387 complete with weldable/screwed fittings as appropriate. Isolation valves shall generally be Hattersley 100 or as specified or denoted elsewhere.

2.10 THERMAL INSULATION.

The mechanical contractor shall include for the insulation of all heating pipework in voids, service ducts, within cupboards, purpose made boxings and in the plantroom throughout. All valves, flanged connections and the like shall be provided with aluminium insulation boxes. Insulation shall comply with BS5422 and the British Standards publications referred to therein. Also comply with BS5970 and BS3533.

Materials must comply with BS476 part 4, non-combustibility test or obtain a Class 'O' fire rating. Insulation in voids and spaces shall be foil faced phenolic foam pipe insulation to. In the plant room the insulation shall be mineral wool sections having Isogenopak protection having a minimum thickness of 0.8mm. All pipework shall be identified in accordance with BS1710.

Insulation shall be carried out by an agreed specialist insulation contractor. Do not apply insulation until the installation has been fully tested and all joints proved sound. Insulation shall be carried out by an agreed specialist insulation contractor. Do not apply insulation until the installation has been fully tested and all joints proved sound.

2.11 AUTOMATIC CONTROLS

Control of the heating installations shall be from 2No. Heatmiser V3 push-button RF 'Neostat' programmable room thermostats contained within a TG.510A clear plastic lockable / ventilated enclosure. These shall be located as shown on the drawing and shall also include for complete new wiring of the supplies to the boiler, ASHP's and the pumps within those locations shown on the drawing.

2.12 PLANT ROOM INSTALLATION

The plant providing the heat source to the CT system serving the radiators shall be provided by 1No. Samsung ASHP as the quotation specified. The boiler shall be Alpha Protec 68NX hydrogen ready gas boiler, and to be installed in accordance with manufacturers instructions and shall be commissioned by the manufacturer or his representative on completion of the works.

The boiler is to be mounted on a frame off the wall and the ASHP's are to be mounted on a 150mm high concrete plinth and have all standard mountings, including T & P safety valves with discharge pipes to terminate over a floor gulley at low level, drain-cock, thermometer and altitude gauge. Combustion air ventilation shall be installed to the Boiler Room as required by the Building Regulations, ACOPS Regulations and manufacturer's requirements / instructions. The Hydro units shall be wall mounted and the buffer vessel shall be mounted on a 150mm high concrete plinth.

CIRCULATING PUMPS

The heating systems shall have pumped circulation throughout with single-pump set being provided to all circuits as noted on the drawings.

Pumps shall be as manufactured by Grundfos Pumps Ltd., with heating pumps being suitable for 240v/1Phase/50Hz. They shall be complete with anti-vibration mountings, isolating valves, altitude gauges and flexible connections as necessary.

PRESSURISATION UNIT

The heating systems shall incorporate 1No. pressurisation unit comprising expansion vessels and automatic make-up unit, connecting group and high/low pressure switches all as manufactured by Mikrofill. The unit shall be mounted on a steelwork frame within the plant room area. The unit shall comply fully with all water regulation requirements.

INCOMING MAINS COLD WATER SUPPLY

A 15mm MCW supply shall be run from the existing supply within the boiler-room from the existing adjacent supply to connect to the Mikrofill units c/w SC., DCVA & DOC.

ELECTRICAL INSTALLATION TO MAIN CHURCH BOILER PLANT

SUMMARY OF WORK TO BE CARRIED OUT

The current existing incoming 100amp 3-phase electrical supply into the Church is going to be retained but the existing 1-phase meter will need to be changed to a 3-phase meter along with adjacent distribution board modifications. The works associated with this particular contract will include the provision of Electrical Supplies to One (1no) Gas Boiler, together with supplies to One (1no) Air Source Heating Pump (ASHP) and 2No. Hydro units to replace the existing heating plant.

The various aspects of the Electrical Engineering works are as listed below:

- a. All Electrical Installation work and associated services must be carried out in accordance with BS.7671:2018 (IET Wiring Regulations) including all current amendments and Guidance notes as of the date of tender.
- b. Removal of all electrical services within the existing Boiler House in conjunction with the Mechanical services installation.

- c. Liaison with the local distribution company (Network and/or Meter Operator) in future modifications to the existing 3-phase & neutral, 1-phase direct metered supply. It is proposed to retain this supply in its present location, but the meter will be changed to a 3-phase meter by instruction from the Client to their electrical supplier. **Please note.** That a provisional sum is catered for the reconfiguration of the existing circuits for connection to the new three phase distribution board at the existing incoming supply location.
- d. Provision and installation of new three phase and neutral supply to the existing Boiler House for connection of the new supplies to the new gas fired boiler and ASHP installations.
- e. Provide a new three phase distribution board within the existing boiler house for connection of the heating plant and ASHP
- f. Liaison with the Mechanical Contractor during installation of all Boiler Plant together with assistance and attendance during commissioning
- g. Earthing and bonding.
- h. Test and commissioning of all systems.
- i. “As Fitted” drawings and Manuals including instruction to Client users.

The “works” shall include the supply, installation, testing and commissioning together with the setting to work of the new installation.

The “works” complete supply and installation shall mean not only the major items of plant and equipment detailed in this specification or on the drawings, but all sundry components necessary for the complete and satisfactory execution of the works. This is to include all labour charges and premium time rates for overtime working should this be required, whether or not these are mentioned in detail in the tender documents or shown on the drawings.

The Electrical Contractor is advised to visit the proposed site to fully acquaint himself with the locality and construction of the building. Failure of the Electrical Contractor to fully acquaint himself with site conditions and the intention of the Consulting Engineer in the provision of the new heating installation shall not form the basis for claims for additional monies whatsoever.

All electrical work shall be carried out by an Electrical Contractor who is currently registered with one of or both of the following organisations.

- i. Electrical Contractors Association (ECA)
- ii. N.I.C.E.I.C (National Inspection Council for Electrical Installation Contracting)

1:2 **Existing main supply location.**

As previously mentioned in section 1:1 the existing supply to the church is to be retained in its existing location however, it will be necessary to carry out some modification to ensure existing single-phase supplies are modified and reconnected to a new three phase MCB distribution board. A provisional sum is indicated in the Tender Summary for this work and instructions will be issued if necessary for the Electrical Contractor to carry out the necessary reconfigurations to be set against the provisional sum indicated.

Please note the Electrical contractor prior to the commencement of his work is to carry out a PSc and Ze test at the existing main distribution board and report the findings to the Consulting Engineers.

1:3 **New Main Distribution Board Installation.**

The Electrical Contractor is to remove the existing 4way TP&N distribution board and replace with an 8way TP&N mcb board, details of which are contained in the Equipment schedule which forms part of this specification. The existing incoming supply from the meter location (meter tails) shall be replaced with 35sqmm double insulated cables, since it is unlikely that the existing lengths will be suitable for reconnection to the new distribution board.

A new 63A TP Type “C” mcb shall be fitted to the new main distribution board for the new three phase supply to the existing Boiler House. All other existing mcbs shall be retained for installation in the new DBd supply existing circuits.

It will be necessary to liaise with the church authorities in the replacement of the Distribution Board and meter connections since to carry out this work it will be necessary to disconnect all supplies to the building.

All existing supplies from the existing 4way Distribution Board are to be re-terminated in the new 8way 3phase distribution Bd, to ensure all existing circuits are retained.

1.4 **New supply to the Existing Boiler House**

A new three phase and neutral supply is to be provided from the new Main mcb Distribution Bd, to the existing boiler house located adjacent to the cancel at the opposite end of the church building. The new supply will consist of a 5c 16sqmm xlpe/swa/lfs (Cu) cable (L1, L2, L3, N& E) installed at high level as indicated on the attached drawing M2.

The cable shall be supported adequately throughout the length using suitably sized cleats and where possible installed in a neat and unobtrusive manner.

Termination of the new supply will be carried out in a new 4way TP&N Distribution Bd, details of which are contained in the equipment schedule of this specification. The location of the new boiler house distribution will be located in the same or adjacent to the position of the existing single-phase board.

As part of this section of the installation the existing single-phase supply will be removed in total prior to the new three phase service.

All incoming and outgoing circuits from this new boiler house distribution board will be carried out with suitable BW glands shrouds and locknuts.

1.5 Supplies to new Boiler Plant and Air Source Heat Pumps.

From the new boiler house distribution board the electrical contractor will provide supplies to one (1no) Air Source Heat Pump (ASHP), two (2No) Hydro units, and New Boiler unit.

The supply to the 3phase ASHP will be provided by 5core 6sqmm xlpe/swa/lzf cables with the supplies to the 3-phase Hydro units wired 5core 2.5sqmm xlpe/swa/lzf suitably supported on galvanised tray work to the external locations as indicated on the drawing. Each supply will be terminated by 4pole IP65 rotary lockable isolator, with final connection by single lzf cables in IP65 flexible conduit.

The new Boiler unit will also be supplied from the new distribution bd by a similar method to that of the ASHPs utilising a3c 1.5sqmm xlpe/swa/lzf cable terminating in a 20A DP IP65 rotary isolator.

1.5 Test and Commission

All aspects of the installation from the Main Distribution Panel at the incoming supply shall be tested in accordance with BS. 7671 and the relevant Guidance note 3 (Inspection and Testing).

ELECTRICAL EQUIPMENT SCHEDULE

TYPE

DESCRIPTION / MANUFACTURER

Main- Distribution Board	- Schneider Electric Load Centre KQ TP&N Distribution Board. Ref No SE24B250.-8way Distribution board fitted with the following: - 1. SE125SW4 switch disconnecter. 2. SE10C363 63A MCB's Type "C" TP – 15kA rating 3. Retain existing mcbs for reconnection to new DBd. 4. Door lock 5. Traffolyte ID labels stating: - a. Distribution board reference number b. Source of supply and MCCB rating c. Cable size, type and number of cores d. PSc and Zs ratings and date of test e. 400-volt danger labels management f. Blanks fitted on all spare ways.
Boiler House Distribution Bd	Schneider Electric Load Centre KQ TP&N Distribution Board Ref No.SE12B250.- 4way. Distribution board fitted with the following: - 1. SE125SW4 switch disconnecter. 2. 2no SE10C316 Type "C"16A mcbs 3. 1no SE10B106 Type "B" 6A mcb. 4. Door Lock 5. Traffolyte ID label and blanks as for main distribution Board noted above
IP65 Isolators	4pole 20-amp Legrand equal or approved.
D.P Switch for Boiler	Mk metal Clad equal or approved.

**QUALIFICATION SHEETS FOR ENGINEERING INSTALLATIONS IN
ACCORDANCE WITH STANDARD SPECIFICATION M & E No. 3.**

Qualification Sheets,
For
Engineering Installations,
in accordance with
Standard Specification-M & E No.3

SECTION ONE-GENERAL REQUIREMENTS

1.1	Scope	applicable
1.2	Definitions	applicable
1.3	Related documents	applicable
1.4	Proven performance	applicable
1.5	Standards	applicable
1.6	Regulations	applicable
1.7	Drawings	applicable
1.8	As installed drawings	applicable
1.9	Maintenance and operating documents	applicable
1.10	Electricity supply	240v/1ph/50hz & 415v/3ph/50hz
1.11	Painting	applicable
1.12	Asbestos material	applicable
1.13	Schedules	applicable

SECTION TWO-CENTRAL PLANT

2.1	BOILERS	applicable
2.1.1	General	applicable
2.1.2	Steam boilers	n/a
2.1.3	Hot water boilers	n/a
2.1.4	Domestic hot water heaters	n/a
2.1.5	Boiler equipment	applicable
2.2	INSTALLATION	applicable
2.2.1	Solid fuel installations	n/a
2.2.2	Oil fired installations	n/a
2.2.3	Gas fired installations	applicable
2.2.4	Dual fired installations	n/a
2.3	COMBUSTION CONTROLS	applicable
2.3.1	General	applicable
2.3.2	Oil burners	n/a
2.3.3	Gas burners	applicable
2.3.4	Solid fuel installations	n/a
2.3.5	Dual and multi-boiler installations	n/a
2.3.6	Electric boilers	n/a
2.3.7	Multi-boiler installation	n/a
2.4	SAFETY CONTROL	applicable
2.4.1	Steam boiler systems	n/a
2.4.2	Hot water boiler systems	applicable
2.4.3	General requirements	applicable
2.5	PROTECTION CONTROL	applicable
2.5.1	General	applicable
2.5.2	Preheating	n/a
2.5.3	Overheating	n/a
2.6	INDICATOR LIGHTS AND ALARM	applicable
2.7	CHIMNEYS, FLUES & FLUE DUCTS	applicable
2.8	DAMPERS	n/a
2.9	HOT WATER SYSTEM PRESSURISATION	applicable

2.9.1	General	applicable
2.9.2	Gas pressurisation systems	n/a
2.9.3	Sealed diaphragm vessel systems	applicable
2.9.4	Constant or intermittent running pump	n/a
2.10	WATER TREATMENT	applicable
2.10.1	General	applicable
2.10.2	Water treatment	applicable
2.10.3	Steam boiler blow-down	n/a
2.10.4	Chemical conditioning equipment for steam systems	n/a
2.10.5	Filling hot water installations	applicable
2.11	INSTRUMENTATION	applicable

SECTION THREE-PUMPING EQUIPMENT

3.1	Circulating pumps	applicable
3.1.1	General	applicable
3.1.2	LTHW & MTHW heating & DHWS systems	applicable
3.1.3	HTHW heating systems	n/a
3.2	Boiler feed pumps	n/a
3.3	Condensate pumps and receiver sets	n/a
3.4	Semi-rotary hand pumps	n/a
3.5	Oil circulating & oil transfer pumps	n/a
3.6	Fire protection system pumps	n/a

SECTION FOUR-DISTRIBUTION INSTALLATION

4.1	Tubes and pipes	applicable
4.2	Pipework joints and fittings	applicable
4.2.1	LTHW & MTHW systems	applicable
4.2.2	HTHW systems	n/a
4.2.3	Steam systems	n/a
4.2.4	Condensate systems	n/a
4.2.5	DHWS systems	n/a
4.2.6	Cold water services	applicable
4.2.7	Natural gas services	applicable
4.2.8	LPG vapour distribution systems	n/a
4.2.9	Oil fuel systems	n/a
4.2.10	Fire protection systems	n/a
4.3	Welding	applicable
4.4	Brazing	n/a
4.5	Ancillary equipment	applicable
4.5.1	Pipework	applicable
4.5.2	Anchors	n/a
4.5.3	Expansion devices	n/a
4.5.4	Air venting	applicable
4.5.5	Emptying down, draining & flushing	applicable
4.6	General	applicable

SECTION FIVE-CALORIFIERS, CYLINDERS, CISTERNS AND WATER TANKS

5.1	Calorifiers	n/a
5.2	Cylinders	n/a
5.3	Electrically heated hot water storage vessels	n/a
5.4	Cisterns & cold water tanks	n/a
5.5	Feed/expansion and spill vessels for boilers	n/a
5.6	Hotwells for steam boiler	n/a
5.7	Blowdown tanks for steam boilers	n/a

SECTION SIX-SPACE HEATING EQUIPMENT

6.1	Radiators	applicable
6.2	Convectors	n/a
6.3	Continuous perimeter heating	applicable
6.4	Radiant panels, strips, ceilings & floors	n/a
6.5	Unit heaters	n/a
6.6	Equipment for steam and HTHW heating appliances	n/a
6.7	Surface temperatures	n/a

SECTION SEVEN-VALVES, TAPS AND COCKS

7.1	General	applicable
7.2	Safety and relief valves	applicable
7.3	Pressure reducing valves	n/a
7.4	Thermostatic control valves	n/a
7.5	LTHW radiator valves	applicable
7.6	Regulating valves	applicable
7.7	System commissioning valves sets	n/a
7.8	LTHW & MTHW heating systems	applicable
7.9	HTHW heating systems	n/a
7.10	Steam systems	n/a
7.11	Condensate systems	n/a
7.12	DHWS & cold water supply systems	applicable
7.13	Natural gas services	applicable
7.14	LPG vapour distribution systems	n/a
7.15	Oil fuel services	n/a
7.16	Fire protection systems	n/a
7.17	Valve labelling	applicable

SECTION EIGHT-AUTOMATIC CONTROLS, CONTROLLERS, CUBICLES & PANELS

8.1	GENERAL	applicable
8.2	SPACE HEATING & DOMESTIC HOT WATER CONTROL	applicable
8.2.1	Primary temperature control	applicable
8.2.2	Time programme control	applicable
8.2.3	Space temperature control	applicable
8.2.4	Thermostats & temperature detectors	applicable
8.2.5	Heating calorifiers	n/a
8.2.6	Combined heating & DHWS systems	n/a
8.2.7	DHWS systems	n/a
8.3	CONTROLLERS	n/a
8.3.1	Types and construction	n/a
8.3.2	On/off controllers	n/a
8.3.3	Integral controllers	n/a

8.3.4	Proportional plus integral controllers	n/a
8.4	CONTROL CUBICLES & PANELS	n/a
8.4.1	Construction	n/a
8.4.2	Indicator lamps	n/a
8.4.3	Wiring	n/a

SECTION NINE-MISCELLANEOUS EQUIPMENT

9.1	THERMOMETERS	Applicable
9.1.1	General	Applicable
9.1.2	LTHW heating & DHWS systems	Applicable
9.1.3	MTHW & HTHW heating systems	n/a
9.2	PRESSURE GAUGES	applicable
9.3	STEAM TRAPS	n/a
9.4	STRAINERS FOR HOT WATER HEATING SYSTEMS	applicable
9.5	HOT & COLD WATER MIXING VALVES AND FITTINGS	n/a
9.6	GAS METERS	n/a
9.7	PLATFORMS, GALLERIES, STAIRWAYS & LADDERS	n/a
9.7.1	General	n/a
9.7.2	Flooring, landings & stair treads	n/a
9.7.3	Handrail systems	n/a
9.7.4	Stairways	n/a

SECTION TEN-THERMAL INSULATION

10.1	GENERAL	applicable
10.2	TYPES OF INSULANT	applicable
10.2.1	Within buildings	applicable
10.2.2	External to buildings	n/a
10.3	METHODS OF APPLICATION	applicable
10.4	FINISHES	applicable
10.4.1	General	applicable
10.4.2	In boiler houses and plant rooms	applicable
10.4.3	In buildings other than boiler houses and plant	applicable
10.4.4	External to buildings in open air or in ducts	applicable
10.4.5	Painting	n/a
10.4.6	Colour code	n/a

SECTION ELEVEN-ELECTRICAL EQUIPMENT & WIRING

11.1	General	applicable
11.2	Electric motors	applicable
11.3	Control Gear	applicable
11.4	Enclosures	applicable
11.5	Immersion heaters for hot water	n/a
11.6	fan convectors	n/a
11.7	Bonding	applicable
11.8	Testing	applicable

SECTION TWELVE-INSPECTION, TESTS & COMMISSIONING

12.1	Inspections by Competent person	applicable
12.2	Responsibility for reporting infringement of regulations	applicable
12.3	Cleanliness	applicable
12.4	Inspection & tests on completion	applicable
12.5	Tests generally	applicable
12.6	Commissioning	applicable
12.7	Boiler performance test	applicable

SCHEDULES

No.1	M&E3: Particular application to this contract	applicable
No.2	Information to be supplied by the tender	applicable

APPENDIX: COMMISSIONING & TEST CERTIFICATES

Form W2200: Commissioning certificate for heating, hot & cold water, steam & gas installation	applicable
Form W1930: Detail sheet & initial test certificate for steam & hot water	applicable
Form W1910: Detail sheet & initial test certificate for Electrical installations	applicable
Form 1910A: Continuation sheet	applicable
Form W1538: Certificate of pressure test of part of a system	applicable

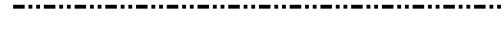
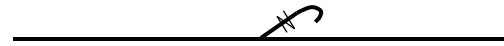
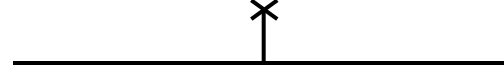
SECTION 4.

MECHANICAL SERVICES DRAWING LEGEND

TESTING / COMMISSIONING SHEETS.

EQUIPMENT SCHEDULE

MECHANICAL SERVICES DRAWING LEGEND

	Pipework in Floor Duct / Trench
	Pipework At Low Level
	Pipework At High Level
	Pipework In Roof / Ceiling Void
	Change In Pipework Level
	Radiator
	Wheel Valve Or Stopcock (SC)
	Lockshield Valve (LSV)
	Motorised Valve
	Air Vent (AAV)
	Draw Off Cock (DOC)

Abbreviations

RTA	-	Rise to above
DFA	-	Drop from above
DTB	-	Drop to below
RFB	-	Rise from below
DTLL	-	Drop to low level
RTHL	-	Rise to high level

Mechanical and Electrical Services

COMMISSIONING CERTIFICATE

for

HEATING, HOT AND COLD WATER, STEAM AND GAS INSTALLATIONS.

1. Establishment (Full Address)

2. Drawings

3. Specification

4. External Conditions At Times of Thermal Tests

Date

Air temperature (average) during test

°C

“ “ (mean) day before

°C

“ “ (mean) two days before

°C

General synopsis f Wet f Dry f Sunny

f Overcast

Wind force

Wind direction

Any unusual conditions

Note: Temperature and other data relevant to the thermal performance of Central and Sub-Plants shall be recorded subsequent to any boiler combustion efficiency trials.

5. Deficiencies

List any significant aspect, either physical or operational, in which the installation fails to comply with the specification or the safety requirements.

6. Remarks

List any points likely to be helpful to the user in operating or maintaining the plant.

7. Marked Drawings

* This certificate is to be read in conjunction with marked drawing(s) Nos.(a)

* Delete if not applicable

8. General Notes

(1) The evidence of satisfactory test results shall not supplant the requirements of any relevant specification.

(2) Acceptance of this Certificate by the Consulting Engineer shall not imply acceptance of the installation.

(3) All sections of this Certificate must be completed, where appropriate, write NT (not tested), or NA (not applicable) or none.

(4) On completion, this Certificate shall be signed by the authorised representative of the Contractor or his appointed Specialist and countersigned and retained by the Consulting Engineer.

9. Declaration

I am satisfied that the information given in this certificate is an accurate record of the results obtained and a true statement of plant settings etc., during commissioning on.....(dates)

The installation was complete/incomplete when commissioned.

Signed.....

for and on behalf of.....

Date.....

Witnessed by.....
for and on behalf of the Consulting Engineer

Date.....

CERTIFICATE OF PRESSURE TEST OF PART OF A SYSTEM

Contract No..... Main Contractor.....
Sub Contractor.....

Project Title.....

Location.....

Service Under Test.....

Relevant Contract Drawing.....

Relevant Clause(s) in Standard and Supplementary Specification.....
.....

Specification Working Pressure.....(state units)

Test Pressure.....(state units)

Nature of Test.....(state air, hydraulic, etc)

Duration of Test.....hours/minutes

Remarks

Identification Sketch

.....
Witnessed by

.....
Foreman for Contractor

MECHANICAL SERVICES EQUIPMENT SCHEDULES.

- | | |
|----------------------|--|
| Pump Sets | - Grundfos Pumps Limited,
contact – local pump supplier |
| Radiators | - Zehnder Group Ltd..
contact – Alex McDonald
– 07795 361643
Alex.McDonald@zehnder.co.uk |
| ASHP units | - Easyair quote no. EACQ 4980
contact – Mark Chattwood
– 07813 709478
<u>markchattwood@easyairconditioning.com</u> |
| Buffer Vessel | - McDonald Water Storage
Contact sales for part quote
01592 611123
<u>sales@mcdonaldwaterstorage.com</u> |

SECTION 5.

SUMMARY OF TENDER.

SECTION 5

SUMMARY OF TENDER - ST. PAUL'S CHURCH – NORDEN

1. PRELIMINARIES	£
2. STRIPPING-OUT EXISTING	£
3. ASHP INSTALLATION	£
4. BOILER PLANT INSTALLATION	£
5. LPHW PIPEWORK INSTALLATION	£
6. RADIATOR INSTALLATION	£
7. CONTROLS & ASSOCIATED ELECTRICAL WORKS (including new sub-main distribution cable & dist.bd)	£
8. GENERAL BUILDERS-WORKS, (including external duct)	£
9. PAINTING OF PIPEWORK (where exposed)	£
10. TEST & COMMISSION SYSTEMS	£
11. WATER TREATMENT & DOSING	£
12. AS-FITTED DRAWINGS & MANUALS	£
13. FIRST 12 MONTHS SERVICE VISIT	£
14. Any other items not included above;	
(i)	£
(ii)	£
15. Sub-Total	£
16. Provisional Sums and Contingency Sums	
a) Possible asbestos R & D survey	£ 750.00
b) Possible works required to existing electrical connections	£ 1,500.00
c) Contingency Sum	£ 750.00
17. TOTAL TENDER VALUE	£