ENG DESIGN
BUILDING SERVICES CONSULTANTS

ST JOHN'S CHURCH SELSDON
HEATING SYSTEM

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St John's Church Selsdon

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1.00 INTRODUCTION

An entire new wet heating system is to be fitted at the Church of St John the Divine, Upper Selsdon Rd, South Croydon CR2 8DD. The contractor will be responsible for design, supply and installation of the entire new heating system.

1.01 STRIP OUT

The existing heating consists of an old gas-fired boiler in a basement boiler room, and a mixture of radiators and convectors in the church. The boiler and pipework in the basement boiler room, the feed & expansion tank and associated pipework are all to be removed. All visible heat emitters and pipework in the church are to be removed. The older built-in convectors and wall grilles are to remain.

2.00 EQUIPMENT

2.01 GENERAL

MAIN HEATING

1. New wall mounted gas fired boiler
2. New Low loss header and associated pipework
3. New heating circulation pump and distribution pipework
4. New radiators
5. New programmable controller

SUPPLEMENTARY HEATING

1. Electric convector heaters in the ancillary rooms and Baptistery.

2.02 BOILER

2 No. condensing boilers with a nominal output of 80kW shall be fitted.
The preferred location of the boiler plant is in the basement boiler room. An option exists for the First Floor of the Tower.

2.03 FLUES

The preferred flue route is to reuse the existing chimney and reline it for condensing boiler use.
If the boiler plant is located within the Tower the flue shall run inside the boiler room, and out through the upper wall of the Tower through the west wall.
Flues shall be selected from the manufacturers' standard ranges sized to suit to flue length and route.

2.04 PUMPS

Heating pumps are to be selected from the Grundfos range.

2.05 HEATING WATER PIPEWORK

Heating water pipework shall be copper manufactured by Pegler Yorkshire with press-fit fittings. The contractor is responsible for all pipe sizing.

Pipes in public areas shall be fixed using schoolboard pipe clips. Pipework and equipment within the boiler room shall be fixed using Unistrut supports and dammgulast-lined pipe clips.

2.06 VALVES

Isolating and commissioning valves are to be selected from the Hattersley range or equivalent. Position to allow balancing and isolation in accordance with CIBSE guidelines.

2.07 CONTROLS

A programmable room thermostat controller is to be mounted in a secure position agreed with the client and communicate with the boiler. A remote temperature sensor shall be provided at an agreed location in the church. Controllers to be as Danfoss TP5000 SI with Danfoss RX wireless receiver and wireless temperature sensors.

2.08 RADIATORS AND FAN CONVECTORS

Radiators and fan convectors shall be positioned as shown on EngDesign drawings 3265-5-3B The radiators shall be as specified on EngDesign Radiator Schedule dated 17 Oct 2023. Contractor to confirm heat emitters fit in space indicated.

All heat emitters to have wheel head and lockshield valves.

2.09 GAS

Gas pipework to run from the meter into the boiler room. The contractor is to confirm the route and check the metre and pipework size is adequate for the new boiler.

2.10 PRESSURISATION SET

The pressurisation unit shall be Mikrofill 3 and positioned within the boiler room. A suitable cold water main shall be provided.

3.00 INSTALLATION

3.01 APPROVALS

Pipework shall be generally run on the surface. The contractor shall agree all pipe routes and equipment locations in advance with the client and the client's consultant.

Before installation, the contractor shall prepare a drawing showing all pipe routes and indicating any places where pipe will be buried or concealed within the fabric. The contractor shall also prepare a drawing showing the boiler location and flue position and details.

3.02 DESIGN

Unless otherwise indicated, all calculations are to use the standard methods described in the Chartered Institution of Building Services Engineers Guides A, B and C.
All design to follow manufacturers' recommendations.

3.03 STANDARDS

The complete design and installation shall comply with all relevant British Standards, industry codes of practice, Institution of Gas Engineers' publications, manufacturers' recommendations, Building Regulations and Health & Safety legislation, particularly as below:

The heating installation shall be in accordance with the **Building Regulations: Approved Document L2B** and **British Standards 6644** and **5449** as applicable. Flues shall be installed in compliance with **Building Regulations: Approved Document J**.

The gas installation shall be in accordance with the **Gas Safety (Installation and Use) Regulations**, **BS 6891** Installation of low pressure gas pipework of up to 28mm in domestic premises, and Institution of Gas Engineers publications **IGE/UP/2** Gas installation pipework, boosters and compressors on industrial and commercial premises, **IGE/UP/1** Soundness Testing and Purging of Industrial and Commercial Gas Installations and **IGEM/UP/10** Edition 4 +A: 2016 - Installation of flued gas appliances in industrial and commercial premises

All electrical work in connection with the heating system shall be in accordance with **BS 7671:2008 as amended** (IEE Wiring Regulations).

3.04 WIRING

Where new mains control and power wiring is required, it shall generally be surface-mounted galvanised steel conduit. ELV control and sensor wiring shall be screened cable to the controls manufacturer's recommendations. All necessary earth bonding shall be included. An IEE Completion Certificate shall be provided for the electrical work.

Electric convector heaters in the smaller rooms are to be connected to individual circuits taken from the local distribution board. The contractor is to confirm any upgrades needed to the submain supply or distribution board.

The power supply for the fan convectors of the main heating system is to include a single control switch in addition to local isolators to allow all fans to be turned off together.

3.05 BUILDER'S WORK

Builder's work shall be carried out by an approved building contractor or tradesman as a sub-contract to the Heating Contractor. All work to be agreed with the client in advance.

Builder's work is expected to be:

1. Holes through walls for pipework and flues.
2. Remove floor surface to allow pipe to cross doorways if necessary.
3. Generally make good holes and localised damage to walls, floors and ceilings to match the surrounding materials and surfaces.

3.06 COMMISSIONING

As per relevant standards and manufacturer's recommendations. When the installation is complete, balanced and the controls commissioned, the systems shall be run for a continuous period of 30 consecutive days under full automatic control.

3.07 LABELLING

The boiler plant and pipework must be clearly labelled.

3.08 OPERATING & MAINTENANCE MANUAL

A full O&M manual shall be provided, as CIBSE TM31 and Building Regulations. Specifically, drawings of M&E systems designed & installed shall be included.

3.09 MAINTENANCE

The contract includes one year of maintenance, with an annual service visit at the end of the period.

3.10 SITE ARRANGEMENTS

Hours of work, parking, access, noisy work, protection and access will need to be agreed with the church before any work commences.