

Holy Trinity Church, Hartshill.

Specification for Heating and Electrical Proposals

Background

The existing gas boiler and wet heating system at the Church is very old, unreliable, and inefficient.

It has become increasingly costly to operate, and replacement parts are mostly unavailable, meaning the system is now obsolete.

This combination of rising running costs and reduced income is placing significant pressure on the Church's finances and its capacity to maintain the building.

In line with national trends, the Church has a declining congregation, with most regular worshippers now above retirement age however the Church has embarked on a sustainability project which through initiatives to engage with the community it is hoped to grow the Church and make it more sustainable.

To provide a welcoming and comfortable environment for visitors and regular users of our building's facilities, a new heating system is required. The project does involve redecoration and introduction of further carpets.

The Church is committed to supporting the Church of England's target of achieving net zero carbon emissions by 2030.

Proposed Works

Removal of Redundant Heating services:

Removal of Existing Gas Boiler, Pipework, and Radiators

- Isolate and disconnect gas supply in accordance with Gas Safe requirements.
- Remove boiler, flue, and associated controls.
- Remove radiators and exposed pipework, cap remaining pipework at safe termination points.
- Make good wall penetrations using lime-based mortar or plaster.
- Remove redundant brackets and fixings
- Repair surfaces to match existing repaint with breathable paint.

Removal of Redundant Fan Convactor Radiators (West End)

- Disconnect electrical supply.
- Remove units and brackets.
- Make good wall surfaces using lime plaster; repaint with breathable paint.

Pew Heating:

Installation of twenty 450W and twenty 300W pew heaters supplied by BN Thermic. The BN Thermic supply brackets so that the heaters can be attached to the underside of the pews.



Heated Seat Pads (Unheated Pews):

The Church proposes to supplement the pew heaters system with a number of heated cushions. These will be purchased through the Parish Buying Scheme and will be certified with the appropriate safety CE marks.

- Type: low-voltage heated cushions, max surface temperature < 45°C.
- Power supply: plug-in transformers; no hard-wiring.
- Storage: fire-retardant cupboard or rack.

A dedicated charging station will be installed in a ventilated, non-enclosed area, positioned away from heat sources and combustible materials.

Targeted Infrared Heating:

To support the comfort of clergy, musicians, and service leaders who sit outside the main pew areas, the Church proposes using 4 fixed or portable infrared heaters.

One of the heaters to be located behind the altar. There will be a socket for this heater.

Three heaters will be located at the top of the Nave and their exact positions will be dictated by the service requirements. So, for example, one of the heaters will normally be positioned adjacent to the electric piano. However, if the church organ is to be used for a funeral or wedding (for example), the same heater will be moved to a location closer to the church organ.



It is proposed to use Warmlite 1000w Carbon Infrared Heaters which have two settings of 500W and 1000W for optimal amount of heat, with an adjustable thermostat to set the desired temperature.

It is lightweight and portable heater (2.2 kg) with a carry handle, and safety features include a tip-over switch and overheat protection.

The Warmlite 1000W Carbon Infrared Heater is CE-marked and meets the standard UK/EU electrical safety requirements.

Cabling for the 3 portable heaters will run through an existing channel in the floor at the top of the nave, covered by a grille, with sturdy fixed flip-top floor boxes provided.

Electrical Infrastructure:

Two new ring mains will run along the north and south walls. Wherever practical, the existing trunking will be reused. Where new trunking is needed, it will be reversibly fixed at low level and positioned close to the floor, largely screened by the side pews and matching the line of the current installation.

To supply wiring to the pew heaters 150mm-deep by 75mm-wide trenches will be cut across the side aisles to reach the central pews. These will be backfilled around circular ducting with concrete and concealed beneath new carpeting along the side aisles.

New trunking will be Marshall-Tufflex- Maxi Trunking 50mm x 50mm.

42 | Maxi trunkingMini and Maxi trunking

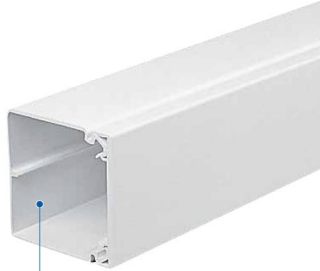
MAXI TRUNKING

A mid-size feeder and distribution trunking that can be subdivided to carry power and data. Larger sizes can also accommodate wiring accessories.

Product information

- A variety of sizes from 50 x 50mm to 150 x 150mm
- Single or divided compartment options
- Self extinguishing and non-flame propagating PVC-U
- Fire clips available to secure cables and prevent premature collapse in the event of a fire

Standard Colour
WH
WH: White





REASSURINGLY RECYCLED

OUR WHITE MAXI LENGTHS ARE MANUFACTURED USING 100% RECYCLED MATERIAL.

The new wiring will be Cleveland-cable- surface -wiring-twin and earth-cable- 624-B-LSZH

624*B SURFACE WIRING, TWIN AND EARTH - LSZH CABLE

APPLICATION

Domestic wiring cable. This cable has a bare protective conductor plus 1, 2 or 3 cores. Used for fixed installations in dry or damp premises clipped direct to surface, on trays or in free air. Where mechanical protection is required, it can be laid in conduit or trunking.

CABLE STANDARDS

BS 7211
IEC 60754-1, IEC 60754-2
IEC 61034
BS EN/IEC 60332-1-2

CONSTRUCTION

Conductor
Upto 2.5mm²: Class 1 Solid Annealed Compacted Circular Copper Conductor
From 4mm²: Class 2 Stranded Plain Annealed Compacted Circular Copper Conductor
Insulation: Cross Linked Polyethylene (XLPE)
Sheath: Low Smoke Zero Halogen (LSZH)
Sheath Colour: White

CHARACTERISTICS

Voltage Rating: 300/500 Volts
Temperature Limits: -25°C to +90°C
Minimum Bending Radius: As per cable manufacturer datasheet

CORE IDENTIFICATION

1 Core: Brown or Blue
2 Core: Brown Blue
3 Core: Brown Black Grey

Should not be installed at temperatures below 0°C or above +40°C

New sockets will pattress box mountings, (except for the three sockets for the infrared heaters described above



The new wall-mounted sockets will be set at the same height as the existing ones already in the church, keeping a consistent look throughout the building.

Existing routes and secondary surfaces (e.g. existing timber skirting) are to be used wherever possible, and lower-level positions are kept, where they reduce visual impact and protect historic fabric.

Smart Control System:

The pew heaters will be divided into zones and each zone will be connected to a smart socket enabling the Church to manage electrical load and avoid exceeding the single-phase supply.

This under pew proposal will help us to provide heating to seats that would accommodate a congregation of up to 150 people. This would represent significant growth in our congregation which is presently a committed group of around 30 adults.

With the incorporation of smart sockets, the proposed heaters within this proposal will future-proof our heating system without the need to upgrade at this stage to a three-phase system.

Wi-Fi will be installed to support the smart control system and other electrical equipment. Using Google Home to help control our electrical outputs, we can easily ensure that we do not exceed the input supply – keeping the load within 80% of the capacity of the fuse protecting the main supply.

Google Home is essentially a simple control system for smart devices, designed to let us manage things like sockets, lights, heaters, speakers, to a selected routine. This resource can be shared across a platform, enabling control to be operated by a few pre-determined people.

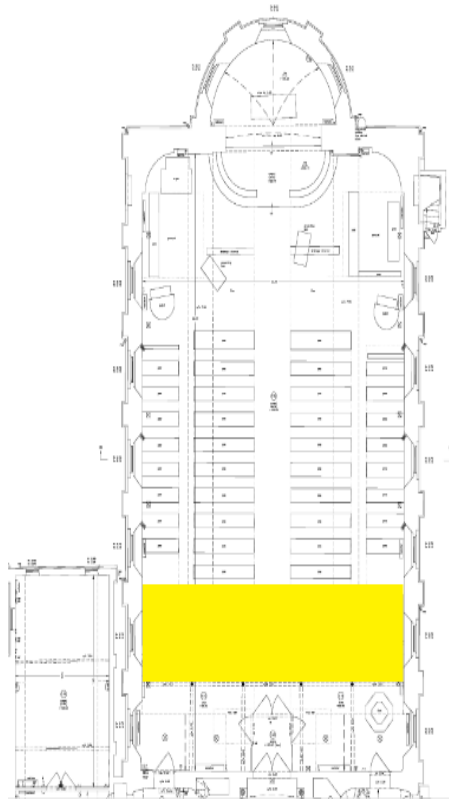
Occasional Large Services:

The fixed pews will have pew heaters or where they are not provided, we will be able to offer the use of heated seat pads. These may particularly benefit people with health-related conditions that make them more vulnerable to cold conditions. It will also enable anyone sitting away from heated pews to sit in different places.

We have identified a supplementary option for heating the church for occasional larger events.

In practical terms, only three of our larger planned services take place during the period when this form of extra heating might be needed. These are two school assemblies and the Christingle service; all held in the weeks immediately before Christmas.

The only area needing extra heat is the section used for temporary seating. This covers a floor area of roughly 6.5 m across the full width of the church and about 4 m deep, shown in yellow on the diagram.



The Church is proposing to buy 4 Dyson Hot+Cool™ AM09 units. When the creation of 2 new rooms has been achieved (which is another part of the overall church project) can be moved to be used in those rooms.

Dyson's technical team have confirmed that these units can be used to provide alternative heating during the times required before larger services or events.

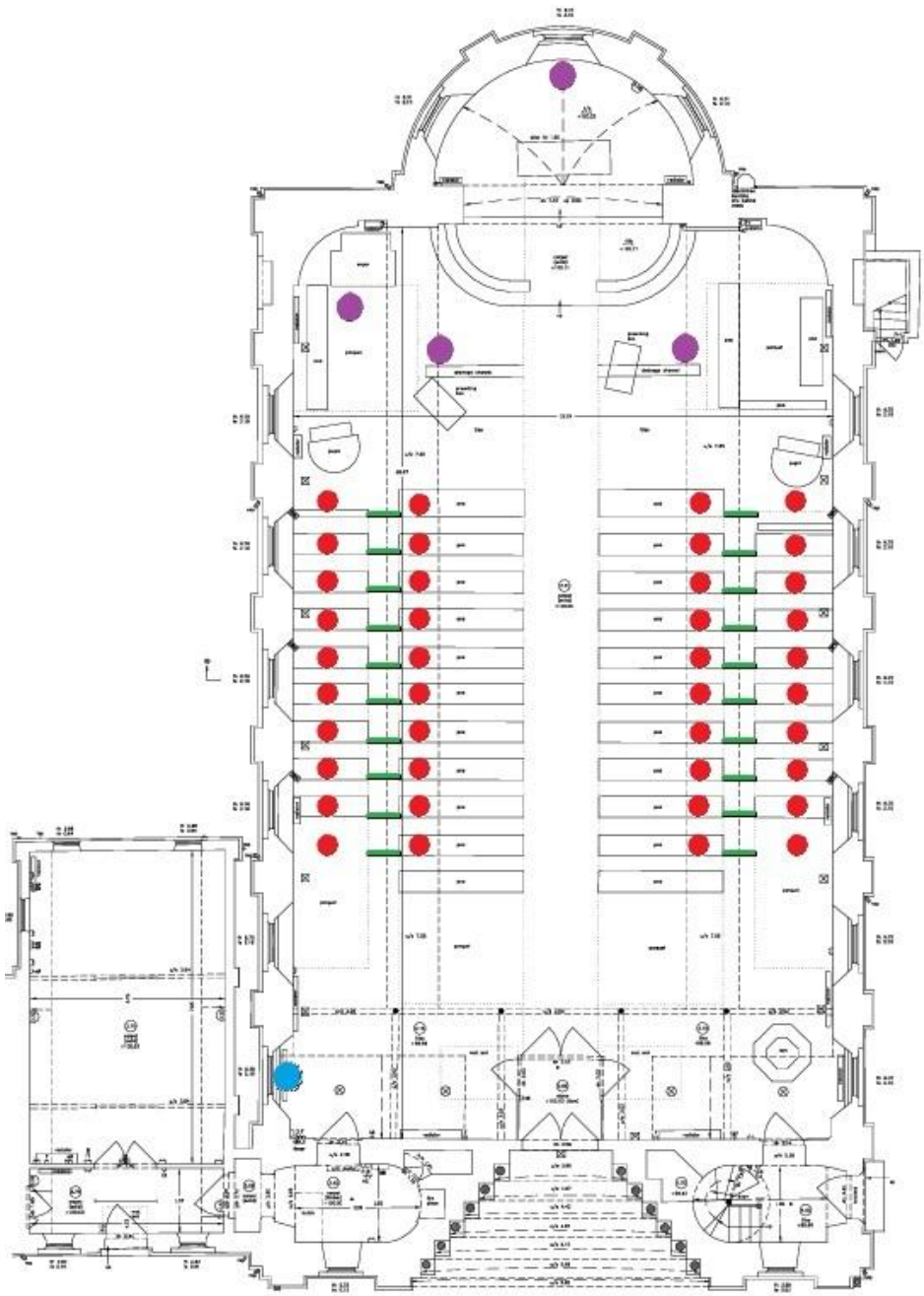
Our insurers have also confirmed they are happy with this approach, provided the trailing leads are managed in the way we've set out.

Management of Trailing Electrical Leads:

They will be managed so that they do not create trip hazards or obstruction. Any necessary leads will be routed tightly along walls or fixed surfaces, using clips, conduit, or trunking where appropriate, and will not be placed across aisles, doorways, or circulation routes.

Where a lead must cross a floor temporarily, it will be protected with a proprietary heavy-duty rubberised cable cover that is clearly visible against the floor surface. All leads will be secured at both ends to prevent strain on plugs or connectors, regularly inspected for wear or damage, and kept to the minimum length required, ensuring they are never left coiled while in use.

The Plan below shows the location of pew heaters, portable infrared heaters, battery charging station and the cabling trenches across the side aisles



-  **Under Pew Heaters**
-  **Infra Red Heaters**
-  **Battery Charging Station**
-  **Underground Cable Runs**