Donald Insall Associates

Inspecting Architects Report on Proposed New Central Heating Boiler

The Church of the Ascension Hall Green

Chartered Architects and Historic Building Consultants

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1. Existing Heating Installation

The Church of the Ascension, Hall Green is heated by means of a gas fired conventionally flued boiler located in a below ground boiler room beneath the vestry lobby on the South East corner of the church. The gas meter is located in a locked metal cabinet fixed to the outside face of the boiler room access stair wall.

The boiler serves a low pressure wet system of large diameter cast iron pipework and cast iron radiators arranged in a single pipe system.

The timer and controls for the system are of a modern type but were installed in 2008. Flueing is via a brick chimney. It is not known whether this is lined or not.

2. Existing Heating Problems

a) The existing boiler is of some age and the church has been troubled with poor reliability during the heating season and the difficulty of getting spare parts for it.

b) The below ground boiler room suffers from periodic flooding and is routinely very damp.

c) The boiler plinth is very shallow and encourages flooding of the base of the boiler.

d) Lack of headroom in the boiler room has caused the flue installation to be made with a 90 degree bend above the boiler outlet. While compliant when originally installed this bend should be 135 degrees under current regulations.

e) It was noted that the boiler flue outlet was of 225mm diameter. The existing flue has been reduced to 175mm diameter suggesting that the brick flue may not accommodate the correct, design flue size.

f) The heating pipework and radiators appear in fair condition and no leaks are reported. However one or two rusting joints are noted and parts of the cast iron pipework is buried beneath the aisle and chancel floors without duct access. The condition of those hidden parts is not known.

3. Proposal

The church has obtained a quotation from Warmington Plumbing and Heating Ltd for the installation of a new high efficiency, condensing gas central heating boiler to replace the existing.

In considering this proposal it would appear that there are 3 options.

3.1

Installing a new conventionally flued boiler in the existing boiler room: This is compromised by the inability to achieve compliant flueing and the unknown condition of the brick chimney flue and lining, if any.

Flooding of the boiler room might be alleviated by the installation of a sump pump and raising the boiler plinth. this last will exacerbate flueing problems.

The damp environment may cause problems of unreliability in a modern high efficiency boiler reliant on printed circuit boards and electronics.

The use of a balanced flue boiler in this location is also discounted as the flue would discharge at low level and be prone to vandalism in this secluded part of the church.

A handrail should be installed to the access steps and boiler room ventilation improved to current regulations

3.2

Installing a new wall mounted fully condensing gas boiler in the vestry lobby at the foot of the South transept balcony stairway.

There is space to accommodate such a boiler on the East wall of the lobby. The necessary balance flue would exist through that wall.

This location would facilitate a simple connection to the heating pipework in the boiler room below.

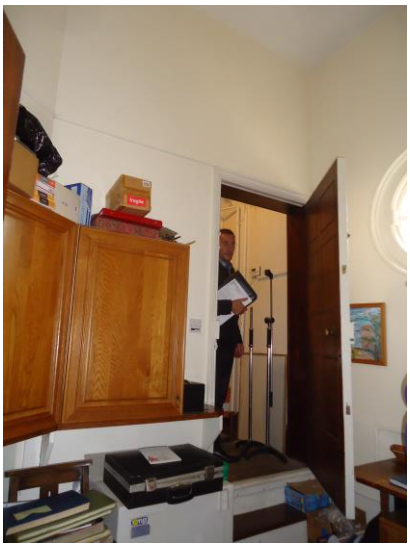
The proposed external balanced flue may require Listed Building Consent.

It is proposed that the new boiler be provided with a plate heat exchanger to ensure that the heating pipework is held at low pressure.

The lobby is used for maintenance access to the organ blower and equipment. It is also a possible means of escape from that balcony and the vestry via an external door. The balcony is not used by the congregation and other means of escape are available in the North and South walls of the transept besides the main West porch.

3.3

Installing a similar modern gas boiler within the vestry on the South wall above an existing cupboard bearing a memorial plaque. Flueing would be via that South wall and then at right angles at high level within the lobby to exit through its East wall.

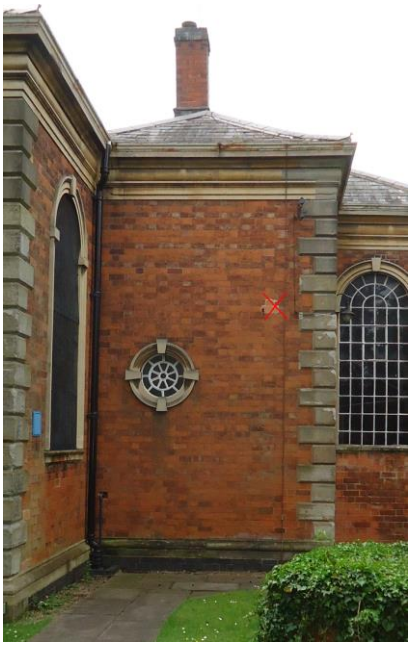


This would have the advantage of not compromising the space in the lobby but it is noted that pipework in this location may cause disruption to the memorial cupboards and their setting.

4. Discussion

It appears clear that the existing boiler needs replacement and that there are issues regarding the boiler room that militate against a like for like replacement.

The chosen location in the vestry lobby is reasonable and allows simple connection to the existing pump and pipework below. It is noted that improvements and replacements to the existing one pipe system is not included in the church's proposal and no comment is made on this part. The issue of access via the external lobby door; which is not used and kept locked. We do not feel that its loss as a means of escape is relevant in this instance.



New flue marked X

The balanced flue will probably require Listed Building Consent. We recommend therefore that the external parts should be powder coated to match the facing brick colour. We also recommend that its installation be used to relocate the existing header tank immediately below it and to make good the poor quality pointing where the overflow pipe was installed.

The alternative location within the vestry has little to recommend it over that in the lobby above. The comments regarding the flue location and colour would still apply.

Additional to the boiler installation it is proposed to renew the gas supply pipe through the boiler room upgrading it from 28mm to 35mm diameter.

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