

40 CHESTER TERRACE, LONDON NW1

**DESCRIPTION OF PROPOSED NEW MECHANICAL SERVICES INSTALLATIONS
AND ASSESSMENT OF ENVIRONMENTAL NOISE**

1.0 Introduction

- 1.1 John Stone Associates have been appointed by Mr Victor Segal to provide initial proposals for new mechanical services installations including an assessment of the likely plant required together with an assessment of environmental noise levels.
- 1.2 Ian Sharland Ltd, acoustics consultants, have been appointed by John Stone Associates to carry out an environmental noise level survey and to prepare a report setting out the measures required to limit plant noise levels in order to achieve the design targets. Ian Sharland's report is attached.
- 1.3 The proposed works are shown on the Architect's (Kerr Parker Associates) drawings and comprise:-
- Construction of a single storey basement including lap pool, gymnasium, home cinema, wine store, staff accommodation, kitchen and plantroom.
 - General refurbishment of existing ground, first, second and third floor together with the two storey mew's annexe.

2.0 Existing Mechanical Plant

- 2.1 The existing cast-iron sectional gas fired boiler and indirect hot water cylinders are installed in a boiler room at basement level. In addition, there is a gas-fired warm air heater installed at basement level although this appears to be redundant.

The boiler flue terminal discharges into a courtyard.

The existing boiler plant is probably c. 20 years old and the warm air heater possibly c. 40 years old. By present day standards, the plant is inefficient and various aspects of the installation would not meet current Building Regulation requirements.

It is proposed therefore to remove all existing mechanical plant, heat emitters pipework etc and to entirely replace these with new equipment to current day standards appropriate to a project of this nature

3.0 Proposed New Mechanical Services

3.1 Comfort cooling

Comfort cooling will be provided to all reception rooms, bedrooms, home cinema and gymnasium. The system will be of the two pipe variable refrigerant volume type including a heat pump air cooled condensing unit, concealed fancoil units together with interconnecting refrigerant pipework.

The system will provide cooling during the summer months and will be capable of providing heating during the winter months should the boiler fail or be shut down for maintenance purposes.

The condensing unit will be positioned in the central vault at basement level. As part of the refurbishment works, two existing vaults will be excavated to provide additional headroom for plant and maintenance personnel.

Air will be drawn from the basement open area via a louvre in the left hand vault and discharge via a louvre in the central vault.

The required attenuation measures in order to limit plant noise levels are described in detail in Ian Sharland Ltd's report (attached).

3.2 Ventilation Plant Serving Lap Pool

A packaged air-handling unit will be installed in a new plantroom to be constructed adjacent the lap pool at basement level.

The air-handling unit will be designed to maintain the required air temperature and relative humidity in the pool room. The unit will include passive heat recovery via a cross plate heat recuperator and active heat recovery via an integral heat pump. Dehumidification will be provided by the heat pump and by introducing fresh air.

Fresh air and exhaust louvers will be installed in the external wall between the plantroom and existing courtyard.

The attenuation measures required in order to limit plant noise levels are described in detail in Ian Sharland Ltd's report (attached).

3.3 General Ventilation Plant

Mechanical ventilation with heat recovery will be installed throughout the property. The design will be based upon the requirements given in Building Regulations Approved Document F1 – System 4.

Fresh air will be supplied to habitable rooms and extract will be provided in wet rooms, i.e. shower room, cloakrooms, kitchens, utility room and ensuites etc.

Domestic type heat recovery air-handling units will be installed in two locations as follows:-

- Plantroom adjacent lap pool - Serving basement and ground floor (excluding lap pool) with intake and exhaust louvres in plantroom wall.
- Roof space – Serving first, second and third floor with intake and exhaust via discrete slate vents.

Due to the domestic nature of the plant, it is not anticipated that any attenuation measures will be required.

4.0 Heating

- 4.1 Two wall mounted high efficiency gas fired condensing boilers will be installed in the garage. Flues will be of the fan assisted balanced type with terminals positioned above the flat roof to the mews annexe.
- 4.2 The boilers together with their controls systems will comply with the requirements of Building Regulations Approved Documents – L1B.
- 4.3 The boilers will serve the following circuits:-
- Variable temperature warm water underfloor heating to basement excluding pool room and wine store (refer to item 3.2).
 - Variable temperature radiator heating to ground, first, second and third floors.
 - Constant temperature pool water and air heat exchangers.
 - Constant temperature towel rails (independent circuit to allow year round use).
 - Constant temperature primary hot water to cylinder.
- 4.4 New heating distribution pipework will be installed throughout.

5.0 Cold Water Services

- 5.1 Drinking water to sinks and hose union bib taps will be supplied direct from the main.
- 5.2 Softened cold water will be supplied to all other draw-offs together with the hot water cylinder via a break tank, booster pump set and water softener installed in the right hand basement vault. The vault will be excavated to create the additional head room required for the plant and maintenance personnel.
- 5.3 New cold water distribution pipework will be installed throughout.

6.0 Hot Water Services

- 6.1 An unvented hot water cylinder will be installed in the right hand vault and this will serve all hot water draw-offs throughout the property.
- 6.2 The primary circuit will be fed from the new boiler plant. An electric immersion heater will be fitted to the cylinder to provide back-up heating should the boiler plant fail.
- 6.3 New hot water distribution pipework will be installed throughout.

7.0 Gas Services

- 7.1 The existing gas meter is located under the staircase between basement and ground floor. This is not ideal from a means of escape point of view and it is proposed therefore to relocate the meter to the right hand vault.
- 7.2 From the new meter position, gas services will be installed to serve the boiler plant, kitchens and decorative fuel effect fires.
- 7.3 New gas distribution pipework will be installed throughout.