Planning Report
Mechanical & Electrical Services

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1.0 INTRODUCTION

This report describes the proposals for new mechanical and electrical services installations associated with the refurbishment of the building. The existing services are at the end of their service life and are inadequate for the continued use of the building as a modern office facility.

Energy and sustainability are also considered in the light of what is reasonably achievable within the Listed Building envelope, although all new services installations will be to the latest standards of energy efficiency.

2.0 INSTALLATION STRATEGY

The new installations will be of a modest size, equivalent to a large private house. Individual items of equipment will be within rooms or concealed in new cupboards. There will be some external plant on the roof, although this will not be visible from street level and will be no taller than the existing roof ridge line.

Electrical and pipework distribution will be grouped in vertical risers, passing between floor joists. Horizontal distribution will be generally between joists so that there will be minimum disruption to the historic fabric.

Some small openings in walls will be provided for ventilation ducting, the largest dimension being of the order of 250mm.

Chasing into walls will be required for electrical accessories such as light switches and sockets. There will be no recessed lighting within existing ceilings.

3.0 PROPOSALS

3.1 Heating and cooling

New heating and comfort cooling is proposed for the offices, using reverse cycle air source heat pumps serving fan coil units in each room, which will be concealed in casings to match the interior. Since it is anticipated that the building will be let on a floor-by-floor basis, 5 individual systems will be provided, each having its own outdoor heat pump in an enclosure on the roof.

The central server room in the basement will be cooled by a separate system, served by a small outdoor unit in the basement area below the front entrance.

The outdoor plant has been selected to meet the noise criteria established in the acoustic report.

The existing gas supply to the building will be removed, along with its associated fire risk.

3.2 Mechanical ventilation

Offices: Generally the offices will be naturally ventilated, with the existing windows being refurbished. A small heat recovery ventilation unit in the basement will provide fresh air to the existing rear rooms which will lose their existing windows due to the building of new rear extension.

WC areas and kitchenettes will have mechanical extract ventilation from ducted fans

3.3 Hot water

Local electric water heaters will be provided to the WC/tea stations on upper floors. Due to the higher hot water demand, the basement wet areas will be serviced by an unvented hot water cylinder in the front vault.

3.4 Cold water

New insulated pipework would be installed to all areas from the existing incoming water main.

3.5 Waste plumbing and drainage

New pipework would be installed to all areas. Rainwater pipes will be tested and repaired as necessary.

3.6 Electrical supply and distribution

The existing electrical distribution will be retained. A new mains switchboard will be provided connecting to new local distribution boards in riser cupboards on each floor.

3.7 Small power and General Lighting

All areas will be re-wired with new accessories in locations to suit the new layout.

Lighting will be upgraded to low energy sources (LED), from a mixture of wall lights, suspended modern lights and chandeliers in existing locations.

Appropriate controls to minimise energy consumption may include presence detection and daylight sensing in corridors and WC's.

3.8 Emergency lighting

Where feasible, light fittings will incorporate self-contained emergency back-up. Where this is not possible, discrete surface mounted wall lights or ceiling lights will be provided.

3.9 Fire alarms

The existing system will be replaced with a new addressable system to BS5839, to the requirements of the Fire Officer.

4.0 ENERGY AND SUSTAINABILITY

4.1 General

Being listed, the existing building fabric is exempt from the energy requirements of the Building Regulations.

However, the new services and building elements will be designed for low energy and sustainability.

4.2 Heating energy

The principle heating energy efficiency measures would be:

- Existing heating replaced with air source heat pumps
- Refurbishment of windows and doors to include draught-proofing
- Insulation of all heating and hot water pipework
- Intelligent heating control systems and zoning to suit occupancy patterns

4.3 Electrical energy

The principle electrical energy efficiency measures would be:

- Low energy lighting
- Automatic lighting controls including presence detection and daylight dimming

4.4 Renewable energy

The provision of air source heat pumps as the primary heat source is a renewable technology.

4.5 Water conservation

All new appliances would be selected for low water use.

4.6 Green roof

The new green roof of the extension will reduce surface water run-off and provide an enhancement to the bio-diversity of the site.

4.7 Air pollution:

The HVAC solution would utilise grid based electricity and as such will emit limited pollutants.

4.8 Light Pollution

External lighting would be designed to minimise obtrusive light and night time pollution, with timers to prevent use outside of appropriate hours.

Light pollution from inside the development would be avoided through careful design.

4.9 Waste and recycling

The building includes waste storage with dedicated recycling facilities.