

M&E CONDITION REPORT

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Mechanical and Electrical Services Condition Report
for Proposed Refurbishment Project
at
The Almonry
Evesham



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INDEX

MAIN INDEX

MAIN INDEX	3
DOCUMENT ISSUE RECORD	4
1.0 INTRODUCTION	5
2.0 REVIEW OF EXISTING MECHANICAL SERVICES	5
2.1 Heating	5
2.2 Domestic Services	5
3.0 REVIEW OF EXISTING ELECTRICAL SERVICES	5
3.1 Power Installations	5
3.2 Lighting and Emergency Lighting	7
3.3 Fire and Intruder Alarm Installations	7
4.0 MECHANICAL SERVICING PROPOSALS	8
4.1 Heating	8
5.0 ENVIRONMENTAL & SUSTAINABILITY IMPROVEMENTS	9

DOCUMENT ISSUE RECORD

Revisions to the report will be recorded below.

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1.0 INTRODUCTION

- .01 This feasibility report has been prepared by Engineering Services Design Practice Ltd at the request of Ashleigh Jayes, to look at the condition of the existing mechanical and electrical services installations associated with the proposed refurbishment works.
- .02 The report is based on our preliminary site survey, information provided by Ashleigh Jayes, Pilio and Arnold Bartosch.

2.0 REVIEW OF EXISTING MECHANICAL SERVICES

2.1 Heating

- .01 The building is served by electric storage heaters with a total of 24 No Creda units of various sizes distributed throughout the building. The storage heaters do not provide sufficient heating and In cold weather these units are supplemented by oil filled electric radiators and fan heaters. A previous report measured the indoor temperature at 13°C in the daytime when the outdoor temperature was -2°C.
- .02 It is estimated that the heating accounts for over 85% of the total electricity consumption on site.
- .03 The night storage heaters are aged and inadequate with reports that some heaters do not work and others have limited/no thermostatic control.



Typical Storage Heater

Condition: Poor

2.2 Domestic Services

- .01 The mains water services is limited in scope and water use is restricted to the toilets and tea sink only with hot water provided by local electric water heater/hand wash units.

Condition Good

3.0 REVIEW OF EXISTING ELECTRICAL SERVICES

3.1 Power Installations

- .01 The building is served by a 100A rated TP&N electric supply with whole current metering, which enters the building from the front elevation into the electrical switch cupboard shown below and serves a new main electrical distribution board which has recently been replaced and fitted with RCBO to some circuits for fire and shock protection.

Condition Good



- .02 The main distribution board shown above feeds dedicated single phase and three distribution boards located at strategic points generally in the main switch cupboard and the adjacent display area on the Ground Floor.
- .03 SP&N metal clad distribution boards with miniature MCB's (now obsolete) feed the existing small power and lighting installations. A contactor controlled metal clad SP&N distribution board with miniature MCB's (now obsolete) serve some of the ground floor lighting by a contactor on/off button arrangement located at high level in the display area by a secondary entrance now used as a fire escape.

Condition: Poor



Contactor controlled DB on the left.

- .04 A TP&N MCB distribution board serves the Economy Seven Electric Storage heating – see Mechanical Services section for detail

Condition Fair

- .05 Final circuit wiring is a mixture of Mineral Insulated Copper Sheathed (MICS) cables and PVC twin & Earth (T&E) routed below the existing floorboards and surface mounted clipped direct with surface mounted metal clad electrical accessories.

Condition Poor

Photos above show the use of Twin and Earth Cabling for final circuits and Junction Boxes to serve the existing distribution board, all which require replacement.

3.2 Lighting and Emergency Lighting

- .01 The existing lighting installations are a mixture of surface mounted and suspended domestic style pendants to display areas with a mixture of bayonet caps, GU10 lamp holders and generally fitted with GLS filament lamps.
- .02 In the Toilets compact fluorescent lamps are installed manually switched.
- .03 In Storage Areas and the Office linear fluorescent luminaires with T8 lamps are installed manually switched
- .04 Generally the lighting is manually controlled and not automatically switched, non-dimmable type which do not have a daylight linking facility, for energy efficiency.
- .05 The emergency lighting to the building is of self-contained non-maintained type with batteries integral and covers escape routes and toilets.

Condition Poor**3.3 Fire and Intruder Alarm Installations**

- .01 The existing fire alarm system is a conventional type as Micro Vision with the main control panel located at the secondary Entry/Exit. The fire alarm panel should be located by the main entrance to comply with the current BS5839 Part 1.
- .02 The system is wired in MICS cabling with the feed from the switched fused connection unit wired in non fire-rated cabling and does not comply with the current BS5839 Part 1.
- .03 Automatic fire detection is provided to escape routes and general areas with electronic sounders, which is a Category L1 system.
- .04 The accessible toilet cubicle should be provided with dedicated sounder beacons to comply with BS5839 Part 1.



- .05 The existing intruder alarm is as Micro Vision Control Panel is shown above mounted adjacent the Fire Alarm Panel. The main keypad being located in reception.

4.0 MECHANICAL SERVICING PROPOSALS

4.1 Heating

- .01 Due to the poor condition of the current heating installation and the rising cost of electricity it is recommended that a new heating installation is provided utilising energy efficient low carbon air Source Heat Pump (ASHP) system(s).
- .02 There is a large garden to the rear of the property providing a number of options to locate an external heat pump unit. The unit will then be piped to the building using pre-insulated underground pipework and will distribute heating water around the building to serve heat emitters in each space.
- .03 Due to the nature of the building the preferred choice of emitter are low level radiators generally positioned in the existing heater locations. With the lower water temperatures used by ASHP systems and the need for safe surface temperatures, fan assisted units might be required which would also provide a high degree of control to increase the efficiency of the system.
- .04 As part of the proposed upgrade works a range of measures have been considered to improve the thermal performance of the fabric (and to enclose the external colonnade) which will be taken into account when selecting the heat pump and emitters.
- .05 There are considerable challenges in routing the new pipework through the building due to the flagstone floors at ground floor, the numerous changes in level and the junctions between the different parts of the building,



Typical external air source heat pump.



Proposed fan assisted LST radiators

5.0 ENVIRONMENTAL & SUSTAINABILITY IMPROVEMENTS

.01 This will be achieved through the installation of heat pumps and LED lighting replacing less energy efficient installations and reducing energy consumption.