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Project:

VICTORIA HALL

**SURVEY REPORT FOR MECHANICAL &
ELECTRICAL SERVICES**

Location:

**Talbot St, Glossop,
Derbyshire SK13 7DQ**

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MECHANICAL & ELECTRICAL CONDITION REPORT V.1.01

VICTORIA HALL, TALBOT ST, GLOSSOP

CONDITION REPORT ON THE MECHANICAL & ELECTRICAL SERVICES

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VICTORIA HALL, GLOSSOP

CONDITION REPORT ON THE MECHANICAL & ELECTRICAL SERVICES

1.0 INTRODUCTION

Victoria Hall is presently housing Library Services on the ground floor, a youth centre is a portion of the basement/lower ground floor and the second floor is restricted access due to falling debris from the building dilapidation.

The survey of the building was undertaken on 7th July 2014.

The building is listed, which will impose restrictions on the works allowed to be undertaken.

Without service history and operating performance of the existing M&E services, comments are based on visual inspection & observations only.

Our report and recommendations follow to elucidate our findings, along with budget costs for recommendations made.

2.0 INSPECTION and FINDINGS

2.1 Mechanical Services

A single gas-fired open-vented boiler is mounted in the basement of Victoria Hall and feeds one pumped heating circuit.

The boiler installation is reasonably new, though the pipework and radiators are not.

The single boiler and pump installation means there is no back-up in the event of boiler or pump failure.

The boiler flue is routed into an original riser/chimney and reasonably new, installed when the boiler was replaced.

The extra lengths of boiler flue have been left in the plantroom, dumped on top of the heating pump.

The controls for the heating system are somewhat lacking, and though the boiler will control its own operation by integral controls based on return water temperatures and thermostats. The pumps are simply on a time clock and the shunt pump & primary distribution pumps were both running when the inspection took place, though the boiler was off and there would not have been a demand for heating.

The distribution system throughout the building is a single pipe system, which is inefficient and difficult to control and should be replaced. The radiators are old style without convectors, and so have lower heat outputs than modern equivalents. In the library some radiators are fitted with thermostatic radiator valves (TRVs), but others have original radiator valves, which do not offer automatic control and therefore waste heat.

The 1st floor of the building is in a state of disrepair and not used. As it is not the heating season we did not establish whether the heating is still operational or whether this section has been isolated.

The basement is unheated and has portable electric heaters scattered around the rooms which are used.

The roof void houses cold water tanks and the F&E tank. These were not inspected due to access issues, but there was remaining evidence of when one of the tanks leaked.

The hot water in the building is provided by electric water heaters mounted locally to the outlets.

Ventilation to the toilets is by window/wall mounted fans in each toilet area, which are locally controlled. These were not checked for operation.

The library and 1st floor hall are naturally ventilated by openable windows.

2.2 Electrical Services

The incoming electrical supply is located in the WC lobby within the basement. The supply is rated at 100 amps three phase and neutral and the supply meter is located adjacent to the service head.

From the incoming service head, the supply connects to an adjacent Hager three phase distribution board that is relatively new. Sub main cables extend from this distribution board to other distribution locations throughout the building. The electrical infrastructure, including distribution boards and sub main cabling are in reasonable condition (with the exception of the first floor) and are deemed suitable for continued use, subject to periodic review and testing procedures as recommended by BS 7671:2008, requirements for electrical installations.

The basement area shows signs of recent additions / modifications including new power outlets and lighting, but these are entwined with older electrical systems throughout the basement. This area is deemed suitable for continued use in the short term only.

The ground floor contains the public library. Lighting is by means of suspended fluorescent luminaires that are extremely dated and nearing the end of their intended working life. Small power is generally cabled in MICC (mineral insulated) which is approximately 40 years old. Whilst this is suitable for continued use, any modifications required will likely cause these cables to fail. Generally the electrical installation to the library area appears in below average condition with remedial improvements required.

The first floor area is currently unoccupied and in a derelict condition. The electrical installation to this area is in extremely poor condition, with a variety of power and lighting partially removed. The first floor is cabled in a variety of cable types including PVC singles, twin and earth, and SWA. The installation is confused and requires rationalisation. The main hall area has dated suspended fluorescent luminaires that are inadequate and not fit for purpose.

Fire alarm – The building fire alarm system comprises of a conventional control panel linked to manual call points (break glasses) with the odd smoke detector to selected areas. Limited coverage is provided.

Emergency lighting – The building has recently had new emergency lighting installed throughout. This appears in good condition and is suitable for long term continued use.

3.0 RECOMMENDATIONS and PROPOSALS

3.1 Mechanical Services

Below is a list of the recommendations for the mechanical services

1. The mechanical installation is upgraded to a pressurised system thereby eliminating the requirement for feed and expansion tanks, which in turn will reduce the legionella risk and associated maintenance requirement. The pressure will be limited to 1.5 bar to avoid due pressure on the existing pipework and radiators.
2. The boiler installation is expanded to include 2 boilers to provide back-up during boiler failure. As the existing boiler is reasonably new we recommend installing a second boiler, smaller capacity to meet about 60% of the demand, so that the building is never without heat.
3. Pump installations are upgraded to twin-head pumps to provide duty/stand-by hence providing back-up during pump failure.
4. The controls are upgraded to include a summer/winter switch to stop the operation of the heating pumps in the summer period.
5. All heating pipework in the plantroom and concealed spaces is insulated.
6. The heating distribution pipework is replaced with a twin-pipe system, to improve the efficiency.
7. The radiators are changed and all new radiators are installed with TRVs.
8. The cold water tanks are eliminated by converting the hot and cold water systems to mains systems. The size of the incoming water mains shall be checked for suitability when the use of the 1st floor is established.
9. All electric hot water heaters are replaced with new heaters suitable for mains pressure and including suitably sized expansion vessels and safety valves.
10. WC cisterns are checked for suitability for mains feed and changed as necessary.
11. Water services to the 1st floor facilities should be drained down and sterilised before being put back into service.
12. All extract fans are checked for operation and replaced as necessary.
13. Installation of ventilation system incorporating heat recovery to provide ventilation to the 1st floor function room, particularly when the ambient conditions are unsuitable for natural ventilation to enable full benefit of the room to be realised.

3.2 Electrical Services

Below is a list of the recommendations for the electrical services:

1. The complete electrical installation has a full periodic inspection and test to certify its condition and compliance with BS7671. This will highlight any urgent remedial works required.
2. A new category L2 addressable fire alarm system is installed throughout the building. A fire risk assessment for the building is also recommended prior to these works to confirm that the category L2 system is adequate.
3. Complete rewire of the first floor, including new electrical distribution, power and lighting. The intended use for the area, and service requirements would need to be confirmed.
4. Replacement LED lighting scheme to the ground floor library, compliant with CIBSE guidelines, interlinked with an energy efficient lighting control system.
5. A condition survey and any remedial work identified, is completed to the buildings lightning protection system.
6. A trace heating system is provided to the buildings rain water system to prevent blockages and possible water ingress during freezing conditions.

3.3 Sustainable Technologies

When any works are undertaken on Victoria Hall and a Building Regulations application is required, compliance with Part L Energy Conservation may become a requirement.

The recommendations which have been made in the mechanical works do not take this into consideration.

The items of works recommended have been identified for the following reasons:

- to reduce risk of failure e.g. secondary boiler,
- to reduce maintenance requirements e.g. elimination of cold water storage tanks
- to improve energy efficiency e.g. installing TRVs and twin pipe distribution.

However, the items which fall into the latter category may not provide sufficient energy savings for compliance with Part L.

The general strategy to reduce energy requirements is to be lean by reducing the energy requirement by passive measures, then be clean by using efficient non-renewable systems and finally to be green by using sustainable technologies.

As this is an old building before we would recommend the installation of sustainable technologies such as photo voltaic panels, we recommend that the building fabric and insulation, glazing and general draft proofing are considered first.

4.0 PRELIMINARY BUDGET ESTIMATES

4.1 Mechanical Services

Works required within 5 years:

1. Pressurise heating system	£ 5,000
2. Install second boiler	£10,000
3. Install secondary heating pumps	£ 6,000
4. Upgrade control system	£ 5,000
5. Removal of cold water tanks	£ 2,000
6. Install 2 new hot water heaters	£ 1,500
7. Upgrade WCs	£ 500
8. Sterilise water system	£ 1,500
9. Upgrade 2 extract fans	£ 1,000

Works required within 10 years:

10. Install new heating distribution	£25,000
11. Install new radiators with TRVs	£30,000
12. Install 5 new hot water heaters	£ 3,750
13. Upgrade WCs	£ 1,100
14. Upgrade 4 extract fans	£ 2,000
15. 1 st floor ventilation system with heat recovery	£10,000

4.2 Electrical Services

Works required within 5 years:

- | | |
|---|----------|
| 1. Periodic inspection and remedial works (Immediately) | £ 4,500 |
| 2. New fire alarm | £ 15,000 |
| 3. First floor rewire | £ 18,500 |
| 4. Lightning protection test and remedial works | £ 5,000 |
| 5. Trace heating to rain water system | £ 8,000 |

Works required within 10 years:

- | | |
|-------------------------|---------|
| 6. New library lighting | £ 9,000 |
|-------------------------|---------|

Sustainable Technologies:

- | | |
|--|----------|
| 7. 10 KwP Photovoltaic (PV) Installation | £ 14,000 |
|--|----------|

Exclusions:

Asbestos identification or removal

Builder's work

Planning and listed building applications

VAT

Fees