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**Anderson Bell + Christie Architects**

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# **BARRHILL MEMORIAL HALL M&E CONDITION SURVEY REPORT**



## M&E CONDITION SURVEY REPORT

### Revision History

Revision	Date	Purpose / Status	Document Ref.	Comments
<b>01</b>				

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## **M&E CONDITION SURVEY REPORT**

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## M&E CONDITION SURVEY REPORT

### 1. INTRODUCTION:

Ramboll's Stuart Tytler and Graeme McCutcheon, as instructed by Anderson Bell & Christie Architects undertook, on 1<sup>st</sup> February 2013 along with their Caroline Dearden, a non-intrusive site survey of the existing Barrhill Memorial Hall. The hall is located on the western side of the A714 on the outskirts of Barrhill Village, South Ayrshire. The site visit was done in order to produce a condition survey of the mechanical and electrical services systems and installations. Please find below the report based on our site observations.

## M&E CONDITION SURVEY REPORT

### 2. EXISTING BUILDINGS:

#### 2.1 GENERAL DESCRIPTION OF BUILDINGS ON THE SITE

##### 2.1.2 Main Hall building

The main building accommodation comprises a large main hall with smaller billiard room, reading room, entrance hall and toilets to the front of the building. On the end of the building are extension buildings forming further toilet, storage and kitchen accommodation.

##### 2.1.3 Construction of Main Hall Building

The building has external brick walls, assumed to be of a cavity wall construction, with an external render on the upper areas. The roof has various areas of pitched roof with traditional slate covering. The floors appear to be generally of a suspended timber construction. Windows are single glazed timber framed having clear glass. Most of the windows are of an openable type.

##### 2.1.4 Public Toilet Building

This building is a stand alone building and comprises male and female toilets, open for the public during our visit, with a storage / plant space in the centre. This central area was not accessible for inspection during our visit.

##### 2.1.5 Construction of Public Toilet

This building is of a similar construction and apparently similar age to that of the main building. It has external brick walls with flat roof. The floors throughout are concrete.

##### 2.1.6 Ancillary Buildings

Located separately are two single garage buildings of timber construction with no access during our visit. These buildings are of little significance apparently having no permanent mechanical or electrical services installations and have therefore, been discounted within this report.

##### 2.1.7 Biomass Boiler Plant Building

This is again a stand alone building which we understand is owned, operated and maintained by Community Energy Scotland. The building has been recently constructed and is of a timber construction and having a flat roof.

As this building is apparently owned separately and no access was available during our visit we have not included it within our report other than to make reference below to the source of low temperature hot water (LTHW) for space and domestic hot water heating.

It is understood that the biomass boiler plant serves only the Barhill Memorial Hall and was installed circa 2011.

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Main hall building.



Public toilet Building



Biomass boiler plant

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### 3. SERVICES INSTALLATIONS:

#### 3.1 MAIN HALL BUILDING

##### 3.1.1 Space Heating

The buildings currently have a mixture of two different systems.

The primary system is a low temperature hot water (LTHW) system serving wall mounted steel panel radiators. These radiators are fitted with hand wheel radiator valves and do not have thermostatic control valves. The source of LTHW is the biomass boiler plant operated by Community Energy Scotland. Heat is conveyed to the Main Hall building via underground LTHW distribution mains entering the building below the raised stage area. These mains connect to a primary header / manifold arrangement. From this primary manifold are several individual pumped circuits complete with heat metering. These serve separate heating zones as well as a zone serving primary LTHW to heat the domestic hot water cylinder.

The LTHW heating system is a closed system with an expansion vessel located below the raised stage in the main hall. The distribution system is installed in metric sized copper pipework.

In addition to the LTHW systems described above are electric heaters mostly of the storage convector type. It is assumed that these heaters remain from the existing space heating system and have simply not been removed. It appears that at least some of these heaters are still capable of operating however, we assume the LTHW system is used as the primary space heating medium.

##### 3.1.2 Ventilation

Other than a few wall mounted extract fans in the kitchen and toilet areas no other mechanical ventilation is present. The Main Hall itself has large ceiling mounted grilles. These grilles are traditionally connected to timber transfer ducts within the roof void and vent through the roof to atmosphere providing natural ventilation. There is no evidence of ventilators externally through the roof. We have concluded that existing roof outlets have been removed at some time during building maintenance or refurbishment. These grilles now appear only to open into the roof void. In common with other areas in the building the Main Hall is therefore, naturally ventilated via manually operated opening windows.

##### 3.1.3 Domestic Hot Water

The domestic hot water is generated in a central mains pressure storage vessel. The primary heat source is LTHW from the biomass boiler installation. There is a backup 3kW immersion heater within the cylinder. In addition to this there are older point of use electric water heaters in toilet areas.

The distribution pipework system is a mixture of newer metric sized copper pipework interconnected with the older imperial sized copper pipework.

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### 3.1.4 Domestic Cold Water

The domestic cold water is fed from the incoming mains cold water service (MCWS). All cold water appears to be mains fed with no central cold water storage supply. There is evidence of an existing cold water storage tank having been installed however, its use appears to have ceased possibly as a result of the installation of the mains pressure hot water system circa 2011.

The distribution pipework system is a mixture of newer metric sized copper pipework interconnected with the older imperial sized copper pipework.

### 3.1.5 Above Slab Drainage

The above slab drainage system has soil pipes rising from below the floor to vent to atmosphere through the roof. In some instances, from single appliances, there are unventilated discharge pipes dropping directly to below the floor.

The installation comprises cast iron, PVC and copper pipes indicating various upgrades and changes over the lifetime of the building.

### 3.1.6 Electrical Small Power

The building is provided with a 200 amp three phase electrical supply. Single phase circuits distribute from the main distribution board serving small power and lighting.

Circuits appear to be run throughout in pvc covered twin and earth cable. A mixture of cable containment was apparent from our survey visit and included recessed metal and pvc conduit, surface mounted metal and pvc conduit and surface mounted pvc mini trunking.

### 3.1.7 Electrical Lighting and Emergency Lighting

There are various types of lighting installed within the building. The main hall general lighting is provided by surface mounted fluorescent batten fittings with diffusers. The emergency lighting provision is from surface mounted integral bulkhead emergency fittings.

Within the small halls and other rooms lighting is typically provided by pendant lamp holders with GLS tungsten lamps.

There are only a few external lights included around the building at the rear door from the kitchen and under the soffit at the main entrance. These being surface mounted 2D type fittings.

### 3.1.8 Incoming Utilities Services

The metered MCWS comes from the utilities mains distribution system below Barrhill Main Street (the A714). A utilities meter is located within a meter chamber to the front of the building within the grassed area. The incoming MCWS appears to be installed in blue PE pipework. We saw no evidence of lead pipework however, the building is of an age where there is a possibility of lead pipe remaining below floors or in other concealed locations.

There is no incoming natural gas system apparent within the building.

The three phase electrical supply enters the building below ground with a cable head, rated at 200 amps, and meter assembly within the distribution board cupboard.



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An overhead telecom line enters the building at high level from Gowlands Terrace into the end of the main hall.

### 3.2 PUBLIC TOILET BUILDING

#### 3.2.1 Space Heating

There appears to be no space heating in this building.

#### 3.2.2 Ventilation

There is no mechanical ventilation within the public toilets, all ventilation being natural via the door openings and roof ventilators.

#### 3.2.3 Domestic Hot Water

There appears to be no domestic hot water in this building.

#### 3.2.4 Domestic Cold Water

The domestic cold water is fed from the incoming MCWS. All cold water appears to me mains fed with no central cold water storage.

The distribution pipework system is of copper pipework

#### 3.2.5 Above Slab Drainage

The above slab drainage system has soil pipes rising from below the floor to vent to atmosphere through the side wall.

The installation comprises PVC and pipes.

#### 3.2.6 Electrical Small Power

The building has an electrical supply however, there was insufficient access to determine the location or size of this incoming supply or of any distribution board. It is unclear if this building is separately metered or fed from the main halls building but is assumed that it has a separate metered supply.

Circuits appear to be run throughout in pvc covered twin and earth cable. The cable containment apparent from our survey visit was surface mounted metal conduit.

#### 3.2.7 Electrical Lighting and Emergency Lighting

Within the toilets lighting is provided by surface mounted bulkhead type fittings.

#### 3.2.8 Incoming Utilities Services

The MCWS comes from the utilities mains distribution system below Gowlands Terrace. The pipe as it enters the building is installed in blue PE pipe. We saw no evidence of lead pipework however, the building is of an age where there is a possibility of lead pipe remaining below floors or in other concealed locations.

There is no incoming natural gas system apparent within the building.

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The location or capacity of the incoming electrical service was not identified during our visit due to lack of access.



Main Hall indicating electric storage heaters & LTHW radiator.



Mains pressure hot water cylinder.



LTHW manifold fed by biomass boiler.



Point of use electric water heater.

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Electrical incoming cable head meters & distribution boards

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### 4. CONDITION OF MECH & ELEC SERVICES INSTALLATIONS:

#### 4.1 MAIN HALL BUILDING

##### 4.1.1 Space Heating

The steel panel radiators and copper distribution pipework are relatively new, circa 2011, and are in good condition where visible for inspection. Access to inspect the external below ground pipework distribution system between the Main Hall Building and the Biomass Boiler plant was not available during our visit. This would appear to be the primary source of space heating, making redundant the electric storage convector heaters.

The electric storage convector heaters are of indeterminate age but are much older. This system is beyond its economic life and the retention of this system should not be considered.

##### 4.1.2 Ventilation

Those wall mounted extract fans which have been installed are generally inoperable at present. They are beyond their economic life and the retention of these systems should not be considered.

The existing timber windows are in a poor state and would require extensive maintenance and renovation to allow their use for natural ventilation. The use of opening windows within the Main Hall itself is unlikely, on their own, to meet the requirements of the current building regulations given the proposed use for the hall area and a supplementary form of is recommended.

##### 4.1.3 Domestic Hot Water

The mains pressure hot water cylinder is in good condition along with the primary LTHW heating system and back up electric immersion heater, this installation having been installed circa 2011. The cylinder is located within the store adjacent to the kitchen.

The older imperial sized copper pipework is of an age where consideration should be given to its replacement as a result of its age, the difficulty of adapting the system with newer pipework and the poorer standard of thermal insulation that is installed on it.

Any lead pipework which may be found as part of a more intrusive survey shall require to be stripped out and replaced.

Reference requires to be made to any proposed new building layout which may require resized plant and / or the alteration / relocation of the hot water system.

##### 4.1.4 Domestic Cold Water

The older imperial sized copper pipework is of an age where consideration should be given to its replacement as a result of its age, possible leaks, the difficulty of adapting the system with newer pipework and the poorer standard of thermal insulation that is installed on it.

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Any lead pipework which may be found as part of a more intrusive survey will require to be replaced.

### 4.1.5 Above Slab Drainage

The above slab drainage system whilst it appears still operational, is a mismatch of various pipe materials with a number of add-on's and extensions.

Without the benefit of internal CCTV surveys the condition particularly of the cast iron pipework cannot be confirmed. We would recommend that further CCTV surveys be undertaken to confirm the condition and suitability for future use or alteration.

The condition of the below slab drainage is out with the scope of this report.

### 4.1.6 Electrical Small Power

Our survey being non-intrusive is unable to determine the condition of the wiring installations. It is a statutory requirement that electrical installations such as this have Periodic Condition and Inspection Reports undertaken at intervals of no more than five years. We would ask for confirmation that such Periodic Reports have been done within the last five years. At the time of our site survey Periodic Reports were not available to us. We would ask therefore, that copies of these be forwarded to us. Upon receipt we shall review these documents and provide additional advice on the systems.

### 4.1.7 Electrical Lighting and Emergency Lighting

The existing lighting installations are generally old and do not meet current Building Regulation standards. There are existing redundant external fittings which should be checked to ensure they have been isolated, disconnected and left in a safe condition.

Energy efficiencies are available by upgrading the lighting installations to the current standards.

### 4.1.8 Incoming Utilities Services

The metered MCWS, which appears to be in blue PE pipework, is likely to be a more recent installation and should be in good condition. Where this pipe enters the building was not identified during our site survey but could easily be adapted or reconnected to any new internal installation that may be installed.

The incoming electrical supply and cable head is in the ownership of the electrical supply authority and as such any future maintenance or replacement shall be their responsibility. It should be noted that there are two electrical meters presently installed one general tariff and one on an off-peak tariff serving the existing electrical storage heaters. We would recommend the isolation and removal of the off-peak tariff meter as there shall be on going charges with this meter even though the storage heaters are not used and no electricity consumption through this meter.

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### 4.2 PUBLIC TOILET BUILDING

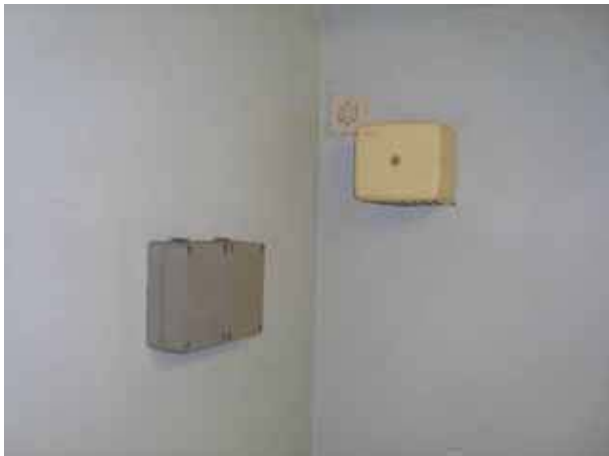
The condition of the M&E systems is of lesser concern with this building as we understand this building is planned for demolition and removal.



LTHW pipework indicating missing thermal insulation.



PVC drainage pipework below kitchen sinks.



Existing wall mounted extract fan.



External lighting plus redundant fitting.