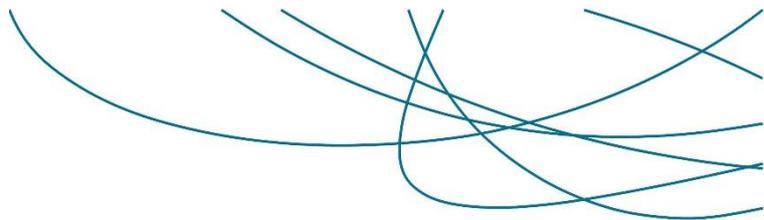


Condition Report on the:
Existing Electrical Services at
Llangwm Village Hall
Pembrokeshire

Project No: 16.12.014

Date: June 2020

Revision 2



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Revision Notes:

Rev 1 – Original feasibility report summarised with specific details on the condition of the existing electrical services installation only.

Rev 2 – Details of electric water heaters and hearing induction loop updated

1.0 Scope of Survey

A visual survey of the Hall was undertaken on the 19th January 2017 and this report is to determine the condition of the existing electrical services installation with compliance with current standards and guidance.

The majority of the electrical installation appears to be original to the Hall which was constructed in 1978-79. No previous inspection & test reports of the electrical installation were available or known to have been done. The recommended maximum period between an inspection and test of an electrical installation in a village hall is 5 years.

The toilet area was refurbished in 2013/4 and appears to be the only refurbishment and alteration to the building since it's original construction.

Limitations of the survey

The survey was a visual inspection only, with no covers being removed or test equipment used to prove the function, condition or integrity of the existing electrical installation. With exception to the roof voids all rooms were accessible at the time of the survey.

2.0 Electrical Services Installation

2.1 Incoming Electric Supply and Metering

The Hall is served by a buried incoming 230V 50Hz single phase supply cable originating from the local Distribution Network Operator (DNO) infrastructure namely Western Power Distribution (WPD). This cable terminates into a 100A rated fused service head which in turn feeds an analogue 240V 80A rated kWh energy meter (serial number 2043864) all contained within a flush mounted external GRP meter cabinet adjacent the side door leading into the Kitchen.

Recommendations

The energy meter has a lower rating than the 100A WPD service head. It is recommended that an inspection by WPD is arranged to confirm the actual rating of the supply fuse to ensure it does not exceed the rating of the energy meter.

2.2 On-Site Generation Systems

The building is not served by any on-site generation systems such as Photovoltaic (PV).

Recommendations

The Feed In Tariff (FIT) government scheme finished in April 2019 but has since been replaced by the Smart Export Generation (SEG) scheme available from various suppliers. The direct benefit or export of energy back onto the grid will need to be assessed with any future proposal for a renewable energy system(s) installation.

2.3 Earthing and Bonding

Earthing at the WPD service head within the external meter cabinet indicates a TN-C-S (PME) earth arrangement. The Main Earthing Terminal (MET) was not visible in the external meter cabinet so it is

assumed that this is located within the distribution boards and where the earth bonding conductor is connected for the incoming metal water incoming supply pipe.

The earthing conductor between the service head and MET appears to be undersized compared to the size of the line conductors from the energy meter.

Due to the age of the original installation it is possible that the cables serving the lighting circuits will not have an earth core to provide a circuit protective conductor (CPC).

Recommendations

An inspection of the existing electrical installation is recommended of all earth conductors and cables to ensure the earthing system is fully compliant with BS 7671.

2.4 Distribution Boards

The property is served by three old type 'A' metal cased Crabtree distribution boards using C50 Miniature Circuit Breaker (MCB) protective devices. The distribution boards located in the Kitchen serve all final outgoing power and lighting circuits throughout the building.

Although the old distribution boards are still functional some of the Crabtree C50 MCB's used are not recognised in accordance with BS 7671 and therefore non-compliant.

All of the distribution boards and the final circuits are fed via a single main 80A 30mA Residual Current Device (RCD). As all of the distribution boards and final outgoing circuits are protected by a single main RCD there is the risk that when this device trips it will isolate all lighting and power circuits in the building.

Circuit identification is poor with signs of original labels having been removed or fallen off. Maintenance access to the boards is restricted by the close proximity of a wall mounted cupboard.

Recommendations

To ensure that the electrical installation is protected to current wiring standards in accordance with BS 7671 and circuits are individually RCD protected to minimise inconvenience in the event of a fault from a single circuit, it is recommended that the existing distribution boards be replaced with new distribution boards utilising modern MCB and RCBO protective devices.

2.5 Sub Circuit Wiring

Final circuit wiring comprises flat multicore PVC/PVC cables installed flush within the building voids and fabric. It is assumed that all of the cables in the installation date from the original installation and have the old nonstandard red and black cable core recognition colours.

Recommendations

An inspection of the existing electrical installation is recommended of all installed cables to ensure the integrity of the system is fully compliant with BS 7671.

2.6 Small Power

The building is generally served by white plastic flush mounted socket outlets and fused connection units. The provision of socket outlets is limited and typical for the age of the building. Modern automatic hand dryers were installed in the WC's when this area was refurbished.

2.7 Water Heating

Post survey note - Hot water in the building is provided by local point of use electric water heating appliances:

The Kitchen sink is served by a 2kW under-sink Hyco Speedflow water heater mounted in the cupboard below the sink.

Hand basins in the Ladies and Disabled access toilets are served by Triton T30i hot water taps.

Recommendations

The water heater noted above have been installed recently and in good condition. However, the Gents toilet does not have any provision for hot water to the hand basin.

2.8 Space Heating

All space heating is electric throughout the building. The Hall is served by 5no. high level wall mounted infra-red radiant heaters and the Lobby is served by a high level wall mounted fan heater. No heating is provided to the Kitchen and toilets areas.

The client advised that when the Hall or Kitchen is in use the floors, walls and windows become very wet with condensation.

Recommendations

The heating system in the Hall is adequately sized for the room providing 15kW of radiant heat which work by heating objects and people but not directly the air. To be effective these heaters should be switched on for a reasonable period before the Hall is to be occupied to allow the walls and floors to heat up. To provide a quicker heating response the provision of additional electric panel convection heaters may be considered but these may not suit all users and functions of the hall.

The build-up of condensation is usual for a building which is not kept at a constant heated temperature and indicates that there may be problems with ventilation in the building to allow moist air to escape. This is detailed more in the Ventilation section of this report.

The Kitchen and toilet areas have no heating installed and may present a risk to pipes freezing up in winter.

2.9 Ventilation

The toilet areas are served by 100mm wall fans which unfortunately allow cold air to blow straight into the rooms. We would recommend that the external grills are replaced with ones with a cowl and/or back draught vent closures to prevent cold and moist air entering the building and restrict what warm air there is inside to escape. Replacing the fans with ones that have integral back draught vents would also be worth considering to assist in keeping cold and wet air out.

A closer inspection of the extract hood in the Kitchen found that the fan was not ducted to outside. Therefore, any moisture and smells extracted through the filters are blown straight back into the Kitchen! As the Kitchen will have a high moisture level in the air from cooking, hot water and the dishwasher it is recommended that a duct is connected onto the extract hood to an external vent and the passive window vent replaced with a 150mm extract fan with an integral humidity sensor and manual over-ride function.

To overcome the condensation issue generally in the Hall, extract fans are recommended to be controlled by an integral humidity sensor plus heat recovery functionality to reduce the internal heat loss.

2.10 Lighting

The internal lighting generally comprises ceiling surface mounted luminaires with T8 linear fluorescent lamps. The toilets are served by surface mounted bulkhead luminaires with compact fluorescent lamps.

Lighting is controlled by a central wall switch panel adjacent the main entrance with exception to the toilet areas which are served by ceiling mounted PIR motion sensor switches.

Recommendations

The building would benefit from lower energy use by replacing the existing lamps or luminaires with comparable LED versions.

There would be very little benefit in replacing the existing bulkhead luminaires in the toilet areas as compact fluorescent lamps are also low energy efficient and with PIR automatic on/off controls which are ideal for areas with transient occupation.

2.11 External lighting

The external lighting is provided by an IP rated LED floodlight with integral PIR and daylight sensor mounted above the entrance porch to illuminate the approach path and an older bulkhead luminaire mounted underneath the canopy to illuminate the immediate entrance porch area controlled internally by a manual wall switch.

Recommendations

The provision of external lighting is limited and additional lighting is recommended to improve visibility of the car parking area and of the gateway in the boundary wall path leading from the car park.

Although security or vandalism is not reported as an issue it would be recommended to provide additional perimeter lighting from wall mounted bulkhead luminaires particularly on the East, South and West elevations which would improve lighting to the immediate vicinity of the building in the car park, highlight the entrance and illuminate the building escape route via the fire exits in the Hall and Kitchen.

2.12 Emergency Lighting

Emergency lighting in the building is provided by stand-alone, self-contained fluorescent bulkhead luminaires mounted above the doors in the Hall and the main entrance door in the Lobby. The same type of luminaire is also mounted externally above the final exits from the Hall and Kitchen on the East elevation. The luminaires have a non-maintained function whereby they will only come on if there is a power failure to the circuit.

Exit legends have been installed adjacent the emergency luminaires above the final exit doors from the Hall and Lobby but not all fully comply with the current standards for directional signage.

Recommendations

The existing emergency lighting does not comply with the current requirements of BS 5266-1 due to the following reasons:

- No emergency lighting provided in the toilets, kitchen/distribution boards and externally to the main entrance,
- Emergency light levels and uniformity for anti-panic are unlikely to be compliant in the Hall,
- The external luminaire adjacent the fire exit from the Hall appears to be faulty.
- No records to confirm the emergency lighting has been regularly tested and inspected.

As the existing emergency luminaires appear to be older than 10 years and the expected useful life of the standby batteries is at least 6 years, it is recommended that a new fully compliant emergency lighting system be installed consisting of LED surface bulkhead and exit signs with 'Running Man' exit legends plus ceiling mounted luminaires to improve illumination and uniformity particularly in the toilets and Hall.

2.13 Telephone and Data

The building is not served or connected to a telephone or broadband utility supply

2.14 Fire Alarms

An automatic fire detection and alarm system has not been installed in this building. It is assumed that any alert of a fire or emergency incident will be communicated simply by people shouting out that the building needs to be evacuated.

Recommendations

The building is small enough to allow an alarm to be raised by word of mouth or by the use of a rotary gong. However, this will need to be based on the client's risk assessment to comply with the Regulatory Reform (Fire Safety) Order 2005 and as required by the local Fire Safety Inspections Officer.

2.15 Security Systems

Security systems have not been installed in the building.

Recommendations

The provision of security systems should be considered on the client's own risk assessment and insurance policy requirements.

2.16 Disability Systems

A modern assistance alarm system comprising of pull cord, remote beacon/buzzer and reset button has been installed in the Disabled Access toilet.

Post survey note – in accordance with Part M, a fixed hearing enhancement (induction loop) system has been installed in the Hall comprising of an Audio Technica Liberator amplifier unit.

Recommendations

The layout of the assistance alarm components does not comply with the layout and mounting heights detailed in Building Regs Part M. The pull cord should be located over the horizontal grab rail between the toilet and hand basin. The reset button should be mounted much lower at 1000mm FFL to bottom edge of plate.