

# Case Study

March 2022



**ACTion**  
with communities  
in cumbria

## Tirril & Sockbridge Village Hall



*Tirril &  
Sockbridge  
Village Hall*

### Heating and Insulation improvements

Sockbridge & Tirril is 2 miles south of Penrith on the B5320 between Eamont Bridge and Pooley Bridge at the northern end of Ullswater, with a population of around 430.

The village hall was constructed in 1914 as 'The Tirril and Sockbridge Reading Room and Library'. It provides a much-loved meeting place for the community but, like many older buildings, heating was a problem.

### Background

The village hall had 40-year-old coin operated, wall mounted, electric bar heaters. High ceilings added to the long warm-up time and in colder months, the hall was always cold on arrival and sometimes still cold when leaving.

The building is of a solid stone construction, with a main hall and committee room at the front, and kitchen, toilets and store room extension to the back. The complex layout added to the hard to heat cold spots and condensation problems.

### The Project

Insulating the main hall and committee room with loft and internal solid wall insulation was prioritised before replacing the heating. However, the rear of the building was more of a challenge, and a new insulated flat roof and solid wall insulation (to avoid disruption to utilities and units in the toilets and kitchen) is being completed now.

A far infrared (FIR) heating system was chosen, with wireless controls using the hall's WiFi. Not to be confused with mid infrared (MIR) heaters with an orange glow, far infrared heating uses the far end of the infrared spectrum. It is fast to warm up a room as it heats objects (like walls, floors, furniture and people) rather than air and provides a pleasant heat with no cold spots. It produces heat with no visible light and is often referred to as 'comfort heat' as the wavelengths can be more easily absorbed by objects and people. E.g. sunshine provides far infrared heat and even if the air is freezing, people feel warmed by the winter sun on their skin.

The system's efficiency was compromised slightly by installing wall mounted heaters at the same height as the previous units, avoiding the cost and disruption of chasing new electrical cabling into the solid stone walls. The wireless control system also avoided additional cabling.

The total cost of the new heating system and electrical work was about £15,000 including an estimated £2,000 for a new electrical distribution board, which was already scheduled to be replaced. A £10,000 grant was secured from the National Lottery fund to support the project.



*Far  
infrared 2.4Kw  
heaters in the  
main hall*

## What has been achieved?

The new heating was installed in September 2019 before the final task to link up all the components to work as required.

The system is controlled by an authorised user from a computer or smartphone. Data goes through the internet router to a Network Controller and then by WiFi to each Area Controller (AC) in different areas, which then sends on/off instructions to a Switch Controller on each heating panel. Network boosters were also needed so the wireless signal reaches all ACs in the solid stone building. The resulting system can heat areas to different temperatures at different times.

The AC in each area looks like a modern domestic central heating controller. It shows the current temperature in the room as well as the on/off times and temperature settings. The system is locked but has been set so hall users can adjust the temperature by 2 degrees warmer or cooler.

The building was divided up into seven areas, each controlled by an AC. The time and temperature settings are adapted depending on when the hall is booked and for what type of activity e.g. warmer for more sedentary activities. Settings can be changed instantly from anywhere by authorised villagers via a smartphone.

The system has been set to minimise energy use – heating comes on 30 minutes before use, so it's warm on arrival, and off 30 minutes before a booking ends, as the hall stays warm for that time. Unused rooms are set to low temperatures as a damp and frost preventer.

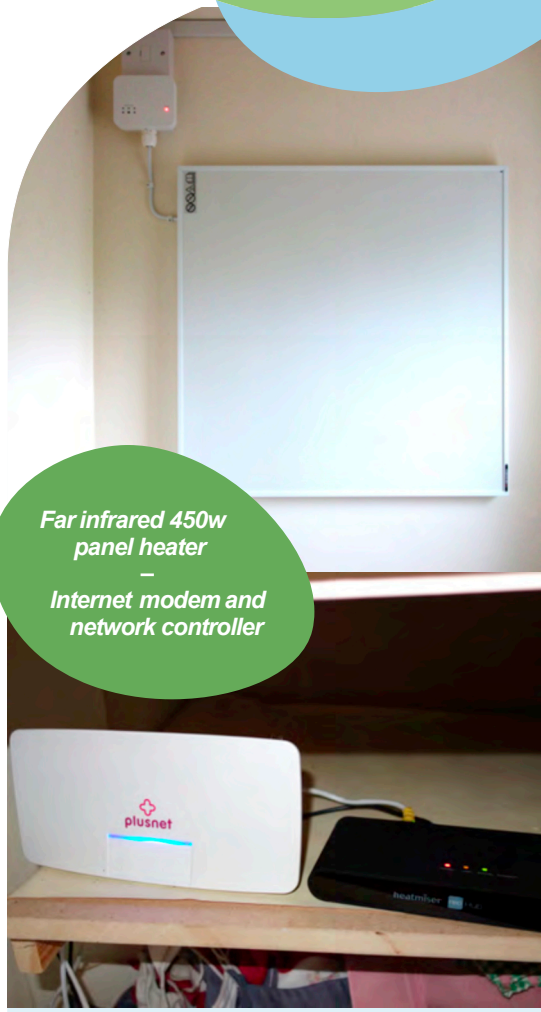
It has been difficult to assess any energy savings as since the new system was installed, the hall has been unused for many months due to Covid-19 restrictions. The additional insulation being completed is also expected to add to energy savings.

Hire charges have been reviewed to incorporate heating costs, since the coin operated system has been removed. The new system has been enthusiastically welcomed by everyone. The hall is now a warm, cosy place where users can be assured of a comfortable environment even on the coldest day. "Wonderful" is a common feedback comment.

## The Learning

- Get advice from other village halls with similar systems before making a final decision.
- Obtain expert guidance on the correct siting of IR heaters (wall/ceiling mounted etc.) to achieve optimal efficiency.
- Take time to set up the system, note warm-up and cool-down times, and temperature settings for different types of activity, to plan ahead for optimal use.
- Insulating a property is nearly always beneficial, even though FIR heating itself doesn't rely on high insulation levels to be effective.

The old saying that: *"If I had to do this job again, I'd do it in half the time and with far fewer errors"* is certainly true in this case. Tirril & Sockbridge Village Hall are happy to share their learning with anyone considering a similar project.



Far infrared 450w panel heater  
–  
Internet modem and network controller

## Want to know more?

For more information please contact Simon Brown at Tirril & Sockbridge Village Hall, Email:

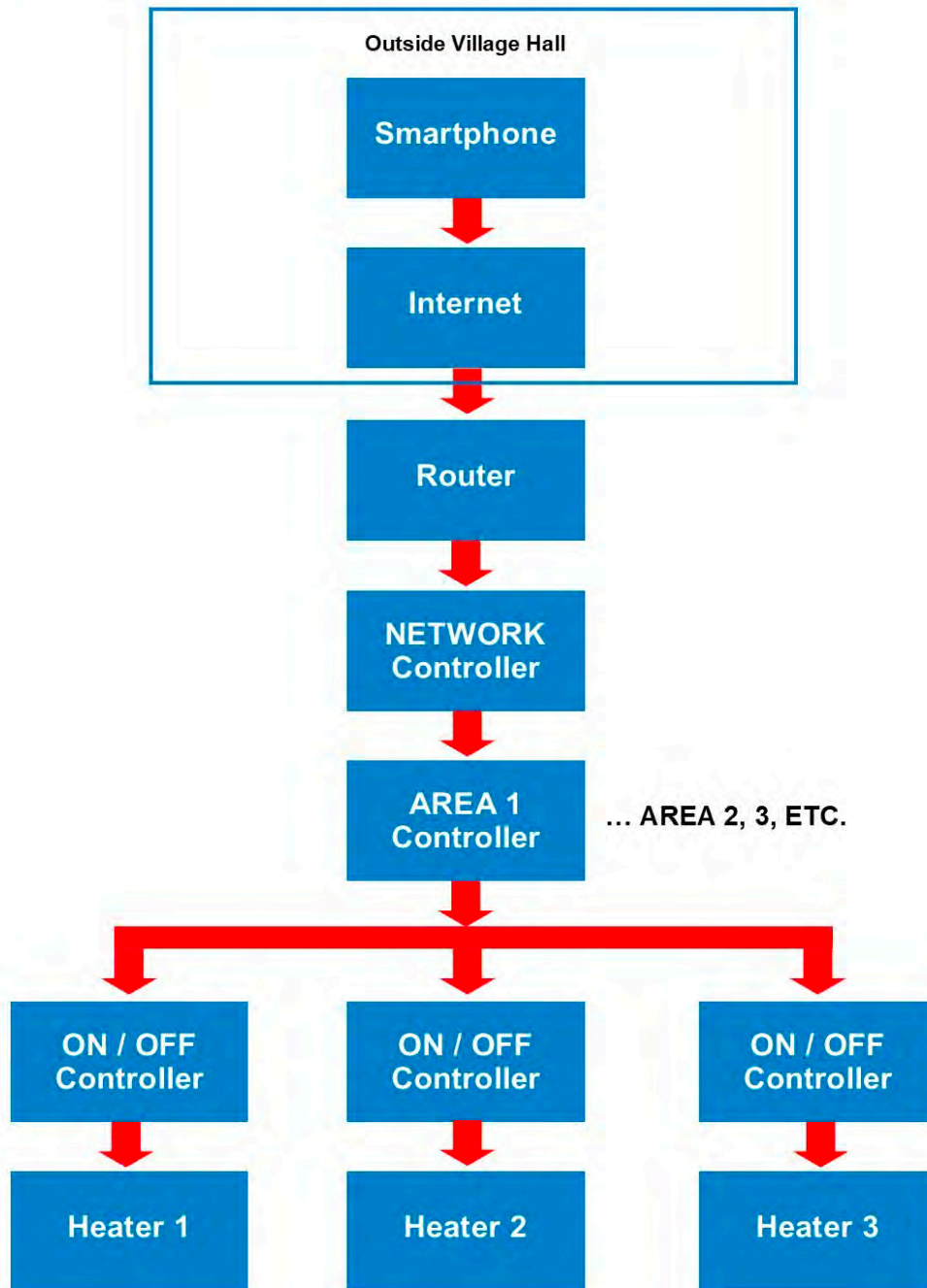
[simonbrown@zen.co.uk](mailto:simonbrown@zen.co.uk)



**ACT**ion  
with communities  
in cumbria

See the system components  
and relationships overleaf

## VILLAGE HALL IR HEATING SYSTEM - MAIN COMPONENTS



N.B. Non technical terms are used in this diagram