

Alston Moor Partnership – Thermal Image Camera

At the end of 2019, the Lottery funded Town Heritage Scheme generously awarded a sum of money for the purchase of a Thermal Image Camera to be used for the benefit of the Alston Moor Community under the guidance of the Alston Moor Partnership (AMP).

As part of the Alston Moor contribution to the current emergency climate actions, it is planned that this camera will be loaned to the local residents of Alston Moor enabling them to review the insulation and draught proofing standards of their properties, and to recognise any significant shortfalls that might require some professional intervention.

It is generally recognised that a significant amount of energy is wasted from the older residential properties in particular, causing unnecessary expense in wasted fuel for the owner and excessive CO₂ emissions for the planet, and here on the Moor we have a very large percentage of 19th Century and earlier houses of stone construction, often with very little in the way of insulation fitted and frequently suffering from various problems caused by unsympathetic repairs over the last one hundred years or more, and in urgent need of being generally upgraded to a higher standard of energy efficiency.

Clearly the age, fuel type and efficiency of the central heating boiler plays a large part of the potential wastage of energy, but with a large percentage of the homes reliant on LPG or oil for fuel, providing that the boilers are maintained and serviced regularly there's very little that can be added without professional intervention and significant financial outlay.

However, quick wins and significant savings, both of money and emissions can often be made by the fitting or improving of insulation to a property, but identifying and prioritising the areas where these improvements can be made can be very difficult to identify with the unskilled naked eye.

A Thermal Imaging camera 'sees' in infra-red and displays a multi-coloured image that shows differences in the temperature of an object, with a resolution of as little as 1/10th of a degree C, enabling a cold spot on an interior wall or a ceiling for instance what would show as a dark patch on the camera to be identified, and the reason for the lower temperature investigated. It might be caused by a lack of insulation at this point, a draught of cold air, or possibly be the result of damp from a blocked gutter or leaky roof, and so often gives the first set of clues about the overall condition of a building and it's thermal efficiency.

There are a number of schemes available to assist homeowners and especially those on low income to improve the energy efficiency of their homes thereby improving the levels of comfort and energy usage, and several organisations set up specifically to carry out the work required and in some cases to fund, partially or in full, the costs of materials and labour once the requirement has been identified.

The usage of this camera should be seen as the first of a number of steps that residents of the Moor can take to identify if their property is unnecessarily wasting energy, and having recognised that there may indeed be an issue, to contact a professional for further advice.

The first camera that has been chosen for this scheme is a Fluke PTi120, which is a small ruggedized hand held device around the size of a large mobile phone which shows the thermal image as a picture on a display screen on the back, and also allows a number of thermal images and a regular photographs to be captured simultaneously, saved and then downloaded on to a computer for further analysis with the free Fluke Connect software. The results of the first trial usage of this equipment is shown below.

Thermal Imaging Camera Report – Alice’s House Feb ‘20

By Gordon Monk and Tim Haldon – Alston Moor Partnership



Tim using the Alston Moor Partnership’s new Thermal Image Camera to review the side of the house

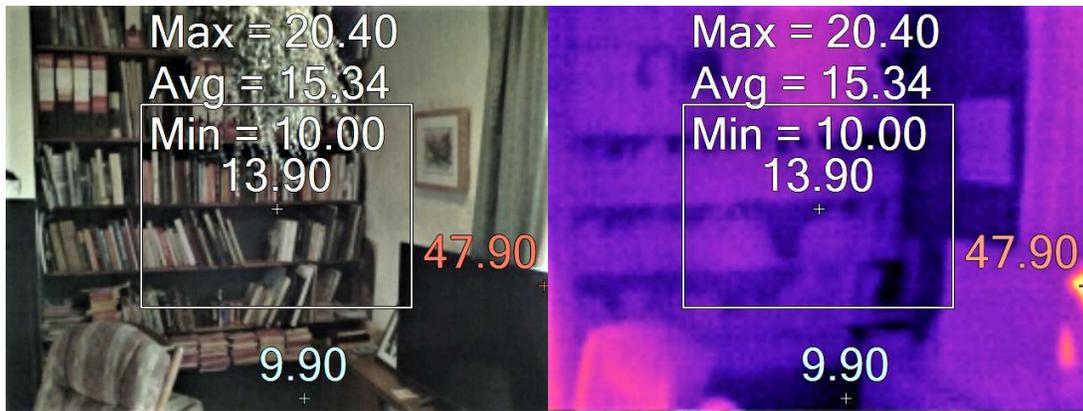


And this is what it shows – The numbers in these pictures are temperatures in degrees C.

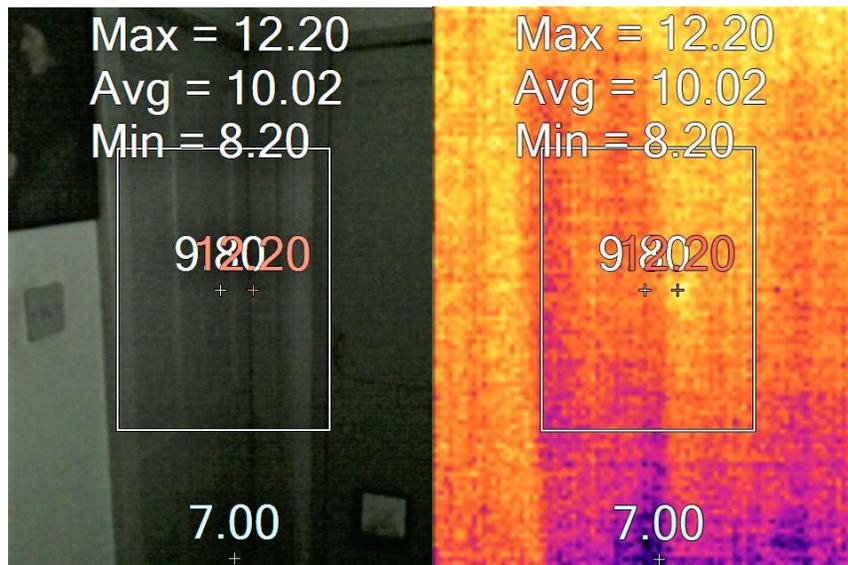
Due to the very strong cold wind with intermittent sleet and the thickness of the walls of this traditional 1840’s stone built Mine Manager’s house there is not too much of a temperature differential displayed, however there are a few patches that are a degree or two above the ambient which should be checked and could indicate that some insulation on the internal wall could be advantageous.



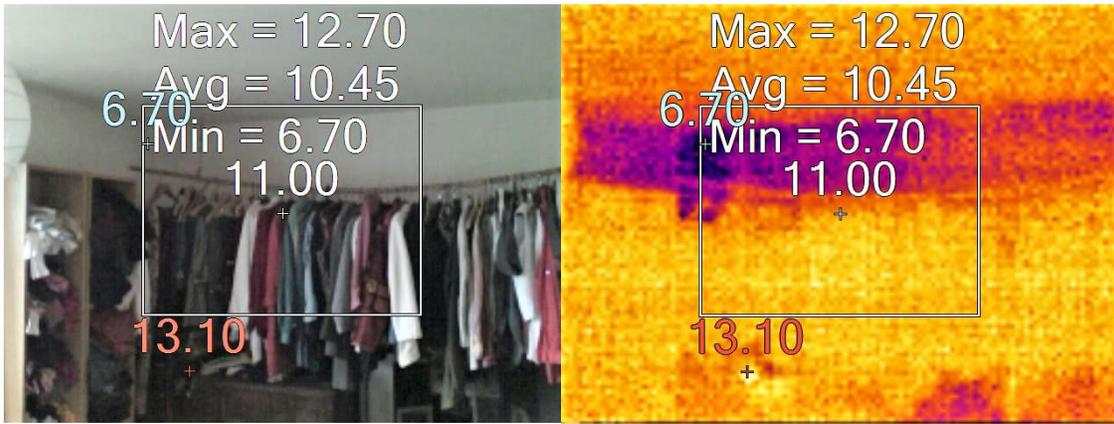
Looking from inside the house, we can clearly see that the outside wall to the right of the pictures is dark, indicating that it is several degrees colder than the rest of the room and that adding insulation here could make this corner a lot warmer. However, this area should be checked first to ensure that this difference in temperature is not due to rising or penetrating damp.



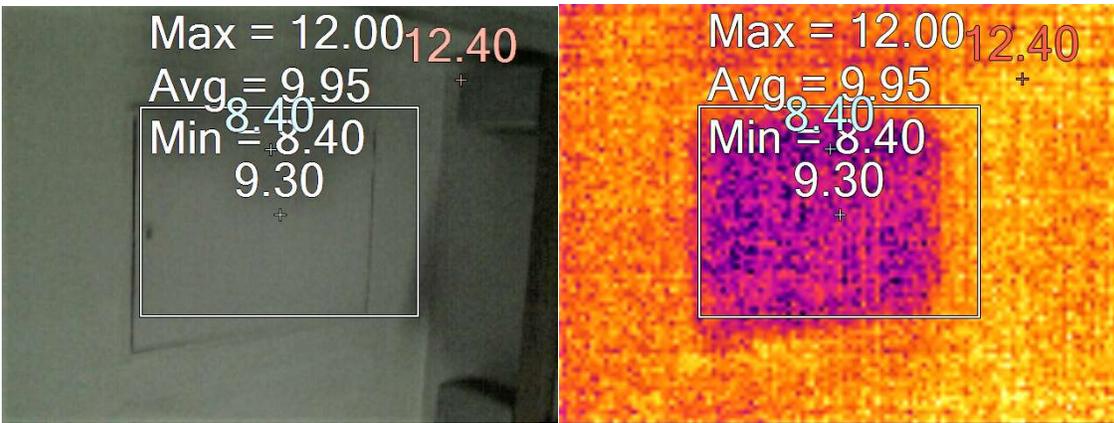
Likewise, on this picture the floor here and the wall behind the bookshelf is very dark and therefore several degrees colder, and both should be investigated to determine the cause. Note the chair to the lower left standing in front of the wood stove, and the reflection of the stoves heat on the TV showing a temperature reading of 47.9c!



Here we can clearly see the cold draught from under the door to the unheated larder, and we can conclude that it would be worthwhile fitting a suitable draught excluder to the bottom of this door.



Upstairs we can see a dark patch in the corner of the room, which should be investigated as it could indicate some penetrating damp from above or outside, possibly caused by a problem with the guttering. However, the ceiling is warm, which considering the outside temperature shows that the loft insulation is doing its job effectively.



The lack of insulation on the loft hatch shows clearly, however the draught seal looks to be good.



In all an excellent first trial for this camera, and one that shouldn't raise too many concerns for the owner of this house.