#### Sustainable Overton – Using the Thermal Imaging Camera – Quick Guide

#### Why do I need to use a thermal imaging camera?

Improving energy efficiency, by reducing the amount of energy that households need, forms a crucial part of our sustainability aims. Identifying issues that may be making homes less efficient – like drafts – and addressing them is a quick way to reduce energy consumption save money on bills. Energy efficiency measures include double glazing, cavity wall, insulation to efficient light bulbs.

To help residents identify drafts and fix them, Sustainable Overton has a thermal imaging camera that residents can use. This how to guide provides quick and simple instructions about how to get the best of the camera and what to do with the results.

#### How can I borrow the camera

Borrowing the camera is easy. Martin at Parnell, Jordy and Harvey is keeping the camera safe for us between loans so if you are interested in loaning the camera pop in a fill out a form providing your details: name, address, phone number and photographic proof of identify.

If the camera is not out of on loan, then you can take it there and then and use it on your own home, if the camera is out, then Martin/one of the Sustainable Overton team will give you a ring when it is back and it is your turn to use it.

We ask that as part of the loan that you keep the camera for no more that a week and that you return the camera charged for the next user (charging wires are included in the case).

In terms of your data and personal information, [placeholder once details are confirmed]

## Quick Step Guide:

## Downloading the flir application:

1. Download and install the latest Flir One app on your phone:



- 2. Open the App on your phone and then switch on the camera by pressing the power button for 3 seconds, until the lights on the camera have illuminated. The camera should automatically find your phone and you should see a thermal image of the room appear on your phone's screen. This this does not happen, then please follow the instructions to pair your device to the camera.
  - 3. Thermal images can be saved to the App and/or your device. Images saved to the App gallery retain the key displaying range of temperature whereas those saved to your device will not. An alternative is to take a screenshot. Please check the gallery before returning and remove your own images as appropriate.

## Best conditions for the camera:

- 4. If possible, heat your home to the temperature you'd usually set before the survey this helps to give accurate results.
- Carry out the survey two hours after sunset for best results and ensure there is a 10°c difference between the outside temperature and the temperature in your home.
- 6. Experiment with the distance from areas to be photographed, not too close and not too far away, for the best sharpness and contrast.
- 7. Take a photo in the usual way or a screen shot, this should be filed into the photo gallery on your phone you can then upload them from there.
- 8. Inside the colours you want to see are orange, yellow and white the brighter they are the warmer the area. Areas of blue or purple show cold air coming in.
- 9. Outside the colours you want to see are dark blues and purples, the darker the colours the colder the area. Areas of orange, yellow and white show where extra insulation may be needed.
- 10. Use the temperature scale on the side of the image to understand what you are seeing. You are looking for a big differential in temperatures in places where there shouldn't be a large difference.

Should you wish to experiment more, then the annex provides a more-in-depth guide to using the camera.

### Example images



Image taken from the inside: The solid dark line along the bottom of the door and floor junction suggests a lower temperature in this location. This can indicate higher localised heat loss, suggesting that the door it not been installed correctly or is draught exclusion is missing.



This image is taken from the outside and shows two properties. The house on the left (purple colouring) does not have insulation and the house on the right (yellow colouring) does.

# Tips on Reducing Heat Loss and Energy Consumption

Once you have identified areas of heat-loss within your property, there are several ways that could help you reduce energy consumption and heat loss.

These include:

- Insulate your house with loft insulation and ensure the loft hatch is also insulated.
- Improving the insulation of the property, especially through roof or wall insulation, as well as double glazed windows; and/or
- Reducing air leakage, for example around door and window frames, or letter-boxes.

Although the above options may require professional inputs, there are also some simple (and cheap) DIY options to reducing heat loss:

- use heat reflective aluminium foil behind the radiator to reduce heat loss.
- use thick curtains, with a thermal lining, to reduce heat loss through the windows.
- stop heat being lost up the chimney when not in use by using a chimney balloon or woollen chimney insulator; but remember to remove them before starting any fires.
- watch out for mini-draughts, such as letterboxes or cat flaps its worthwhile putting an extra barrier there in the form of a "brush".
- use draught excluders along the base of doors.
- cover bare floors, which account for as much as 10% of heat loss if they're not
- insulated.

## More in depth guide

- 1. Should you want to explore more about the heat loss of a particular area you can used more of the camera's functions and capabilities. The target finder icon allows you to see the temperature of an object which is displayed in degrees centigrade.
- 2. A scale indicator on the top right of the screen shows the range of temperatures within the image.
- 3. The arrow at the base of the screen allows you to access the menu with additional functions.
  - i. "Auto/Manual" allows you to switch between automatic and manual calibration of temperature range. In Manual mode you can double tap the temperature range indicator and set the upper and lower values. This can be useful if you want to take 'before' and 'after' images for comparison purposes when undertaking home improvements.
  - ii. "Colour" allows a different colour palette or filter to be selected.
  - iii. "Measurement" gives options for the camera to automatically identify the hottest and coldest spots in the image.
  - iv. "Mode" allows you to switch between the 3 modes: infrared image, digital image and a mixed image of thermal and digital.
- 4. Thermal images can be saved to the App and/or your device. Images saved to the App gallery retain the key displaying range of temperature whereas those saved to your device will not. An alternative is to take a screenshot. Please check the gallery before returning and remove your own images as appropriate.