

GO GREEN WIDCOMBE

Common Heat Loss Problems

- what the thermal image camera will show up
- and suggestions for dealing with them.

From the surveys we have done, we have identified the common places where energy efficient measures would help.

Energy efficient lighting

External doors

Letter box

Wall insulation

Windows

Attic insulation

Attic hatches and ceilings

Ground floors

Radiators on external walls

Condensation

Open chimneys

Please scroll down below for specific information on each area.

Energy efficient lighting

Your thermal image camera will show up those inefficient light bulbs that get too hot to touch. LED bulbs convert most energy to light - so will be only mildly warm - whereas other types get really hot, especially halogen.

There are now more options than ever to save energy and money on lighting. A single GU10 halogen downlight (spotlight with two thick studs) consumes 50W of electricity. An equivalent LED consumes 5W, a saving of 45W.

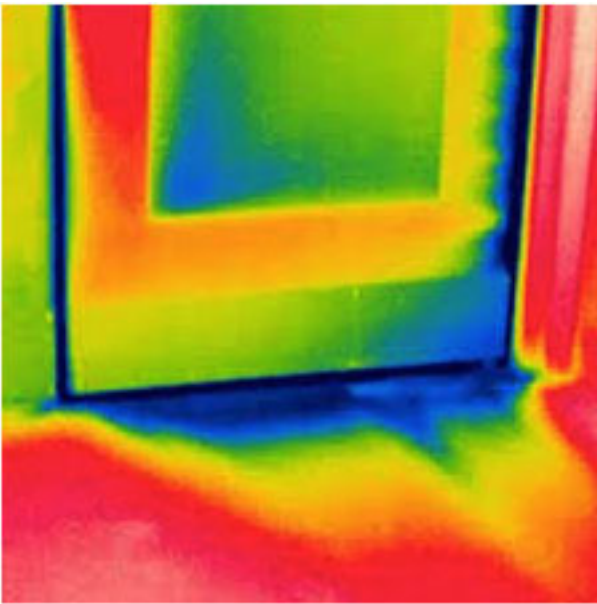
The average UK home has 15 halogen lights. So if these lights are left on for 2 hours each day, at 16p per kWh, that's a saving of £79 per year. And about 250kg of CO₂ emissions would also be saved. The cost of the LED GU10 replacements varies between about £1 and £10, so the return on investment is therefore between 2 and 23 months.

Transition Bath has created a Try Before You Buy LED kit, which allows you to see and test the different types of LEDs available. These come in different light tones, different beam angles and can also be used with dimmer switches. This box is available from Bath Central Library, or contact us at Go Green Widcombe and we can arrange for you to borrow it.



LEDs are available to buy from a wide range of outlets but prices vary significantly. Some online retailers to look at are <https://www.ledhut.co.uk/> and www.lightrabbit.co.uk. If you prefer not to buy online, Screwfix has a good and reasonably priced range. For more information about replacing halogens with LEDs, Transition Bath has produced a short guide which you can read here: <http://transitionbath.org/ledlighting/>

External doors



Where there is cold air coming in around external doors typically you will see streaks of blue as in the thermal image above. You might want to check the blue is from the gap between the door and the frame and not just from reduced air circulation, by making a thermal finger print. Just carefully place a finger on one side of the gap for a few seconds - and that will leave a finger print which will show up on the thermal image, locating the gap in respect of the blue. Anyway, you can usually confirm this by feeling the draught with your fingers, especially if they're wettened!

You can improve the draught proofing around the door by upgrading draught strips where these are in place and adding them if absent. There are lots of different draught-proofing methods easily available in DIY stores.



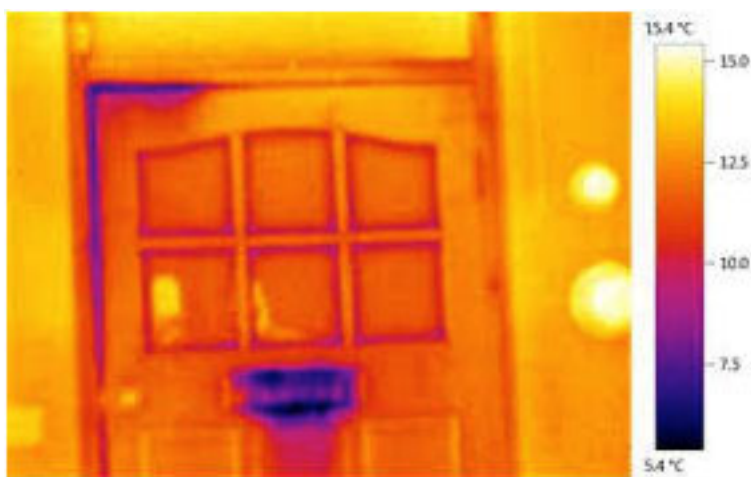
For the bottom of the door, there are two specific fittings (above): a concealed fixed bottom door fitting or a brush fitting.

A “sausage dog” is a quick and easy solution.

If space allows, a curtain to cover the inside of the doors in colder months works brilliantly!

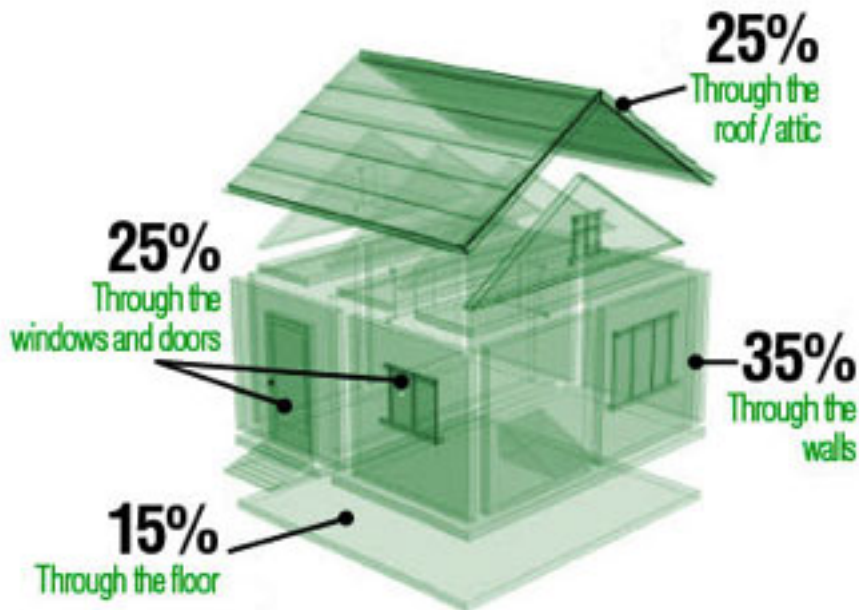
The introduction of a porch – if it’s possible – will provide excellent protection against draughts.

Letter box flap draughts



Where there is cold air showing through or around the letterbox, it can be remedied by fitting a secondary flap to the inside of the door or replacing the letterbox with a draught proof one – easily available from DIY stores.

Wall insulation



35% of heating is lost through external walls. Check the temperature of your external walls with the thermal image camera. Pointing the little circle in the middle of the screen at the wall in question and then note the temperature in degrees C in the top left hand corner. You can compare that with the temperatures of the internal walls.

Those in houses built since the 1930s are likely to have cavity walls – so cavity wall insulation is effective and will attract grants.

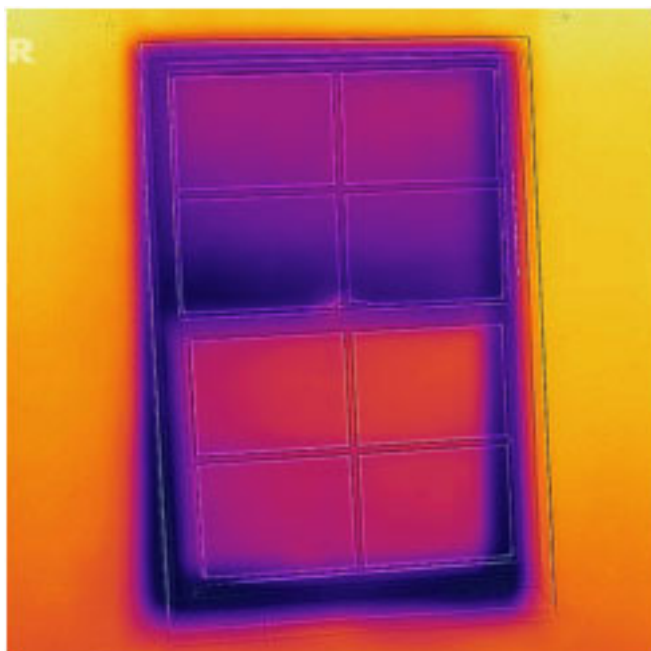
If you have an older house with single ashlar solid stone walls, these colder walls commonly attract condensation. External and internal wall insulation can make a massive difference.

For more information:

<http://www.energysavingtrust.org.uk/home-insulation/solid-wall>

And find out about planning and grants from the councils “energy@home” service <https://www.energyathome.org.uk/solid-wall-insulation-and-planning> Finally, check out planning permission. If you do need it, do not be put off by the bureaucracy. GGW would be *very* happy to help.

Windows



The thermal camera can show up draughts around windows. As with doors, you might want to check the blue is from the gap between the window and the frame and not just from reduced air circulation by putting a thermal finger print on one side of the gap.

Installing or renewing draught proofing strips around the frame is the obvious first step. If you have older sash windows that are difficult to draught-proof, replacing the windows or re-conditioning them will pay off. The results can be impressive. There are two local companies that do this.

Even if they're not draughty, windows can get pretty cold. ***Simply closing curtains, shutters or blinds at dusk can reduce heat loss by around 15%!***

The aim would be to fit double glazing to all houses, benefitting them not just with insulation but also in blocking draughts. Some older double glazing installations can get less energy efficient over time and would need replacing.

Another useful method is secondary glazing. There's good information on this in the Bath Preservation Trust's "Warmer Bath" on page

26 (https://www.cse.org.uk/downloads/reports-and-publications/energy-advice/insulation-and-heating/warmer_bath_june2011.pdf). Although this is aimed at historic buildings, it's actually applicable to any house. There's a local firm that provides and installs these.

The council provides some useful information about energy efficiency upgrades for listed buildings with an explanation of the potential savings, and also what permissions are required:
http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planning-and-Building-Control/Planning-Policy/Sustainable-and-Retrofitting/listed_building_guidance_-_energy.pdf

Attic insulation

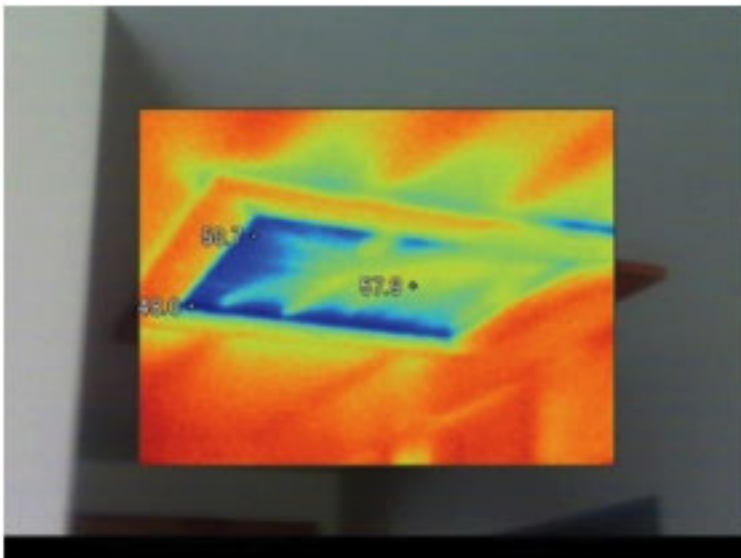


It's usually pretty easy to check on your attic insulation by viewing the infra red images upwards from the room below. If you can see the rafters with cooler insulation in between, then you most likely don't have enough insulation. Of course you could go up and look as well! Check that the insulation extends to the shallower edges of the attic space. (N.B. the insulation shouldn't cover the gap in cavity walls). Where thermal images of the ceiling suggest that the insulation may be insufficient or patchy, we would definitely recommend adding to what is there or replacing it. The recommended depth for the blanket style insulation is 270mm - that's 10 to 11 inches.

We do not have a view on which type of insulation to use. The most common types of materials used for loose-fill insulation include cellulose, fiberglass, and mineral (rock or slag) wool. All of these materials can be produced using recycled waste materials. Cellulose is primarily made from recycled newsprint. Most fiberglass products contain 40% to 60% recycled glass. This is a relatively cheap measure with massive benefits.

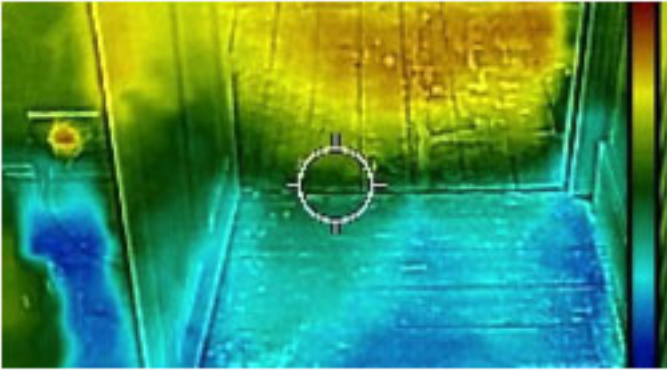
More info here: <https://www.energyathome.org.uk/loft-insulation>

Attic hatches



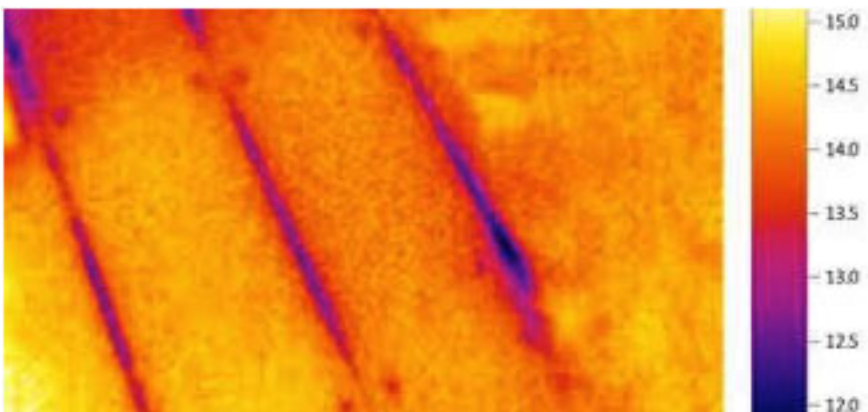
Your infra red camera will easily identify issues with attic hatches. If the loft hatch has not been insulated, it is an easy job to fit a square of board insulation to the inside of the hatch. This boarding is available from hardware / DIY shops – and is easily cut to size. Also consider adding draught proofing strips around the edge of the hatch.

Ground floors



If you have a cellar, basement or undercroft running underneath your house, it is worth considering insulating under the floorboards to stop cold air seeping into the rooms above. The Energy Saving Trust has a comprehensive guide to different types of insulation: <http://www.energysavingtrust.org.uk/home-insulation>.

Underfloor insulation work may be eligible for a grant from the local authority. B&NES Council provides some advice on this here: <https://www.energyathome.org.uk/>

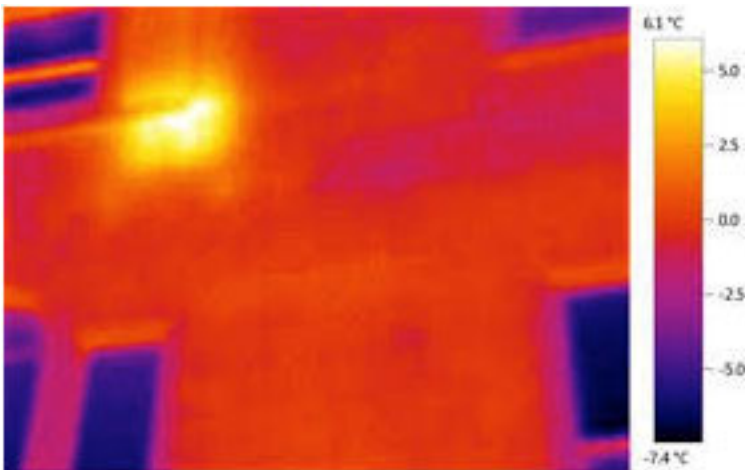


Here are areas of floor showing cold air coming through the floor boards from below. It would be worth sealing the gaps with draught excluding material such as the V shaped excluder. DraughtEx is a good solution, and specific for the job:

https://www.draughtex.co.uk/?fga=true&gclid=EAlaIQobCh-Mlqr7vhLWi3wIV1uJ3Ch2CgA6hEAAAYASAAEgK_L_D_BwE

But remember underfloor insulation will also cut out draughts!

Radiators on external walls



Traditionally radiators were fitted on external walls, typically under windows. Heat loss through the external wall is plain to see with the thermal image camera when looking from outside the house. It can be reduced simply by using a reflective foil behind your radiator. This will reflect the heat back into the room rather than it being lost through the wall. Reflectors are easily installed behind the radiator with no need to take the radiator off the wall. They can be bought cheaply on most DIY stores.

There is some useful information here:

<http://www.thegreenage.co.uk/do-radiator-reflectors-work/>

Condensation



A number of houses we visited were experiencing problems with condensation. The Energy Saving Trust has a useful troubleshoot-

ing guide and a good video on its website to help you reduce or eliminate condensation:

<http://www.energysavingtrust.org.uk/home-insulation/damp-and-condensation-solutions>

Unused open fireplaces



Your chimney works on the very simple principle that warm air rises and cold air sinks. This is great when you have a fire burning, enabling the smoke and fumes to escape into the atmosphere.

It's not so great when you don't have a fire burning however. The same principle is still working. Your warm room air is escaping up the chimney stack, sucking in draughts. Also cold outside air can descend down the chimney.

The solution is to block your chimney when you don't have a fire burning. Actually you can shove anything up that will block it – an old duvet, a bundle of newspapers.... But you can buy a chimney balloon which allows you to remove the blockage as and when you need the fire open again. Here's one version:

<https://www.chimneyballoon.co.uk>

One word of caution though: don't block the chimney off completely. Allow a small passage of air through to keep the chimney dry – otherwise there's a risk of dampness from condensation in there.