

Zero Carbon Yorkshire

Installing 3.5kW Aircon to heat open plan living

29/7/21

HD9

Jackson Bridge, Holmfirth

Aim: We wanted to stop using the oil central heating, and so installed an efficient and quiet air conditioning unit to heat the kitchen / dining / living room. We also improved insulation to keep the heat in.

What done: A thermal image camera was used to look for cold spots before the retrofit started, then a quick evaluation of U values and areas to see where the best improvements could be made. It was decided to insulate the ceiling (as the bedrooms above are not heated) and one of the walls. Mostly used 75mm PUR foam for insulation with Tescon Vana to make the joints airtight. The first floor joists were exposed by locally removing plasterboard and made airtight with tape – there were a lot of gaps with wind passing through the house. Air conditioning was installed mostly for heating, although it was used in cooling mode for 5 days in summer 2022.

Resources used: Plasterboard lifter £170 <https://www.diy.com/search?term=Drywall+lifter> 75mm Celotex PUR. Mitsubishi Heavy Industries SRK35ZCS-W air conditioner £2.2k incl installation and VAT, COP 5.4. Track lighting to replace downlighters (hard to airtight seal). Lots of insulation fixings at <https://www.ejot.co.uk/search?text=insulation+fixing>

Carbon Outcome:

24T in 20 years

Tons of CO2 saved per year,

Other Outcome: Room holds heat better; halved the drafts, always warm and uniform heat from a/c. Very quiet heating (hard to tell it's on if 'low' fan speed selected), using free PV solar to warm the room; often generating more than the 0.6kW it takes to run. Don't use wood stove as much so wood store lasts longer. Less dust in room.

Contact email:

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Supplier: Bradley Refrigeration, Sheffield. www.bradleyref.com



Plasterboard lifter for ceiling



Air Con unit is above 3 pictures

Zero Carbon Yorkshire

Roof eaves and top of wall insulation

20/2/22

SO24

Brockenhurst

Aim: We wanted to stop the cold bridge at the top of the walls on a dormer bungalow

What done: Roof was being repaired anyway (new felt and battens on 1960's house). In stripping the roof it exposed the top of the walls, this showed no insulation on the inner leaf of the wall. Below the soffits the cavity walls are insulated, but they are not above the soffit, or above windows. Around 30cm high of single brick in ventilated eaves loses lots of heat. 75mm PUR added to brickwork and cavity. Lots of cutting to make it fit in a tight space. Now it joins to the PUR insulation in the roof space (previously fitted from inside the house). Spray foam to fill the joins – should have been taped as well but rain stopped play.

Resources used: Scaffolding from roofing work. Roofers also stripped the battens and roofing felt to expose the eaves. The insulation was installed while the roofers were working on the other side. Used Cellotex 75mm PUR, Stanley knife, saw and battery circular saw (to get clean cuts at 90 degrees to face of insulation). Spray foam for gaps. 10 hours work.

Carbon Outcome:

1.4T CO₂/20 yrs

100W heat saving @ 10Cx24hrx150 days/yr. 0.2kgCO₂/kWh gas

Other Outcome: Less chance of cold spots and mould at top of walls, fewer drafts. Not yet checked with thermal image camera. Original builders debris cleared from inside the soffits. Air gap over roof maintained, although a breathable membrane was used for timber and roof health

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Sponsor: None



Eaves before insulation – none!



Insul'n and felt support tray after

Zero Carbon Hedingley

Project title 40 characters.aaaaaaaa aaaaaaa aa

01/01/2019

HD9

Location 25 characters

Aim: aaa aaaaa 3 lines of text to give objective of project / change aaaaaa aaaaa aaaaa aaaaa aaaaaaaa aaa aaaaaaaa
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Carbon Outcome:

1234.5T

Tons of CO2 saved per year,

Other Outcome: aaaa aa 5 lines of text giving other benefits of change, eg
better environment, get to know other local people, cost or time saving 5
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Contact email:

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Sponsor: box for sponsor to use for text or images



Text Picture 1 (before, or team)



Text Picture 2 (after?)