Lewes Eco Open Houses

The weekends of 14/15 and 21/22 September 2013

Visit inspiring newbuild and renovated houses that have drastically cut their energy and water bills

Entry is free, but visitors are encouraged to make a donation to contribute towards costs

www.lewesecoopenhouses.org.uk

Lewes Eco Open Houses 2013

The weekends of **14/15th** and **21/22nd** September

Welcome to the 2013 event, which includes 16 houses, 9 of which are opening for the first time.

Lewes Eco Open Houses is happening over two weekends. The first weekend is based on Lewes itself and will run on 14th-15th September 2013.

The second focuses on properties in the surrounding countryside with exciting off grid measures such as air, ground and water source heat pumps. This will run on 21st–22nd September.

Reasons to visit

See houses achieving up to **80/90% energy savings**.

Lessons: what succeeded /what could have been done better.

Ingenious and often **cheap ideas** for cutting energy use.

Recommendations for local architects/professionals/ contractors.

See **Green technology** at first hand.

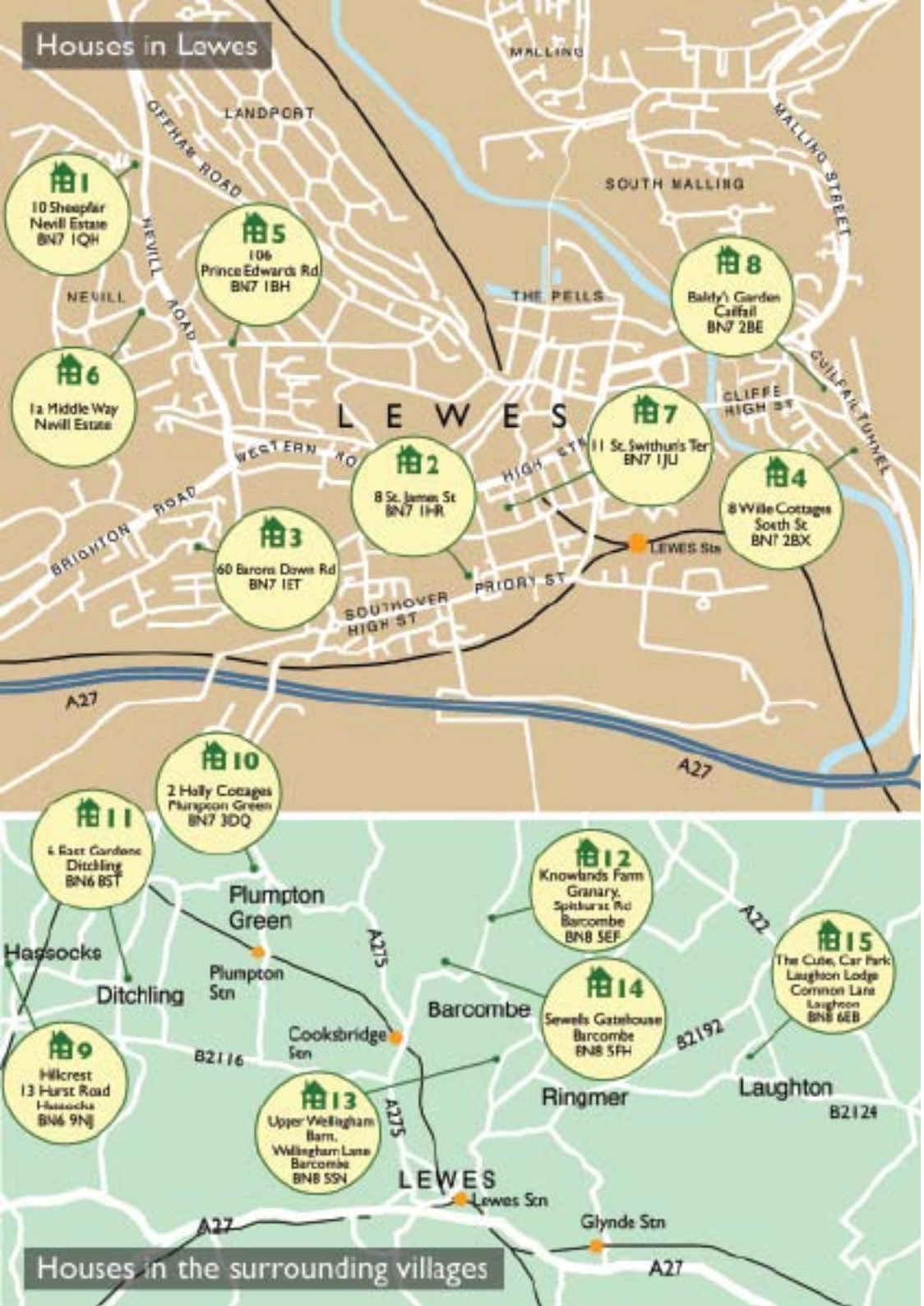
Get ideas for **sustainable lifestyles** – vegetable growing, rainwater harvesting, natural materials.

Above all, **Inspiration**!

Visit our website **www.lewesecoopenhouses.org.uk** for more information on

- Houses, plus more photos and factsheets
- local professionals
- funding and grants

Organised by the Energy Group of Transition Town Lewes in collaboration with Barcombe Energy Group and Hassocks, Keymer, Ditchling Transition



Visiting the Houses

This event is free and everyone is welcome. However, please remember that householders are generously opening up to the public and please respect their homes. For guidance here are a few basic rules.

- Opening days and times can vary from house to house, so please check before turning up.
- Morning opening is normally from 10am–1pm and afternoons from 2–5pm, but do check individual house details, as some vary.
- Please do not call between 1–2 pm, to give the householders a break for lunch. Also remember that by 5pm householders will be tired and would probably like to close on time.
- At some houses you may be asked to remove shoes
- Normally the visit and discussions take place in the reception rooms of the house, with the householder accompanying groups to see any equipment elsewhere. Please do not wander throughout the private areas of the house.
- Children will need to be supervised during the visit.
- Sorry, no dogs. It would be much easier if they were left at home.
- Please try and walk/cycle/use public transport to visit homes, although we appreciate that cars may be necessary for the outlying ones.
- Parking can be very restricted at some locations, so see individual house directions for information.

www.lewesecoopenhouses.org.uk

1

10 Sheepfair, Nevill,
Lewes BN7 1QH

Type
1950s 3 bed semi-detached house, refurbished 2009

Owners
Ann Link and Richard Hudson

Features
Condensing boiler
Cavity wall insulation
High performance double glazing
Solar PV (1.5 kWp)
Solar thermal
Solid wall Insulation
Sunpipes
Woodburning stove with back boiler

CO2 emissions
1.1 tonnes p.a., 80% less than average household

Open
Saturday 14th September
10–1, 2–5
Sunday 15th September
2–5 only

In 2008, Ann and Richard moved to this 1950s house which was smaller than their previous Victorian terraced home. The house was high on the Downs, where it can be windy and cold, and had solid floors, double-glazing and insulated cavity walls, but little other insulation or draught-proofing. The existing bedroom and bathroom in the roof space were particularly difficult to insulate effectively.

Under the advice of consultants Maria Hawton Mead, and Ken Neal, they embarked on a total refurbishment including super insulation, solar PV and thermal, and a wrap around conservatory to trap heat in winter.

Gas use is also extremely low because the bulk of space heating comes from the powerful centralised wood burning stove.

Electricity has also been minimised by using low energy lamps and installing two sunpipes for natural lighting.

The end result has been greatly reduced consumption, which has qualified this house for inclusion as a Superhome, which demonstrates a minimum 60% energy reduction.

2

8 St. James St
Lewes, BN7 1HR

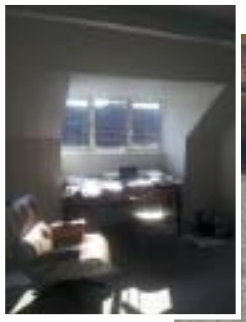
Type
2 bed brick end-of-terrace, built 1789 (very thin walls)

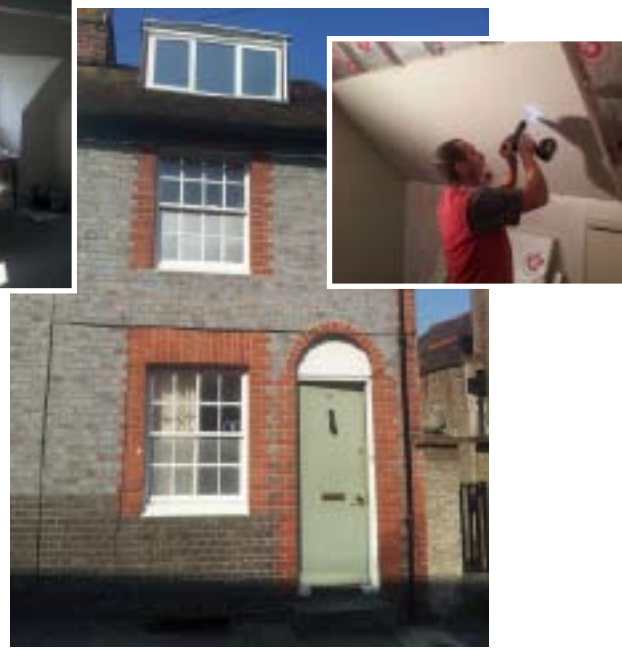
Owner
Neil Williams

Features
Attic insulation
Condensing boiler
LED lighting
Low energy appliances
Secondary double glazing (magnetic)
Solid wall insulation (internal)
Underfloor insulation
Woodburning stove

CO2 emissions
3.2 tonnes p.a., 41% less than average household

Open
Saturday 14th September
10–1, 2–5
Sunday 15th September
10–1, 2–5





In August 2012 Neil bought this house, which had little or no insulation and very thin brick walls. In a rather hectic four week period prior to moving in, the lath and plaster attic was stripped and solid wall insulation was fitted internally in the two reception rooms.

Subsequently, the attic was rebuilt using high levels of insulation, to put a snug cap on the house.

A woodburning stove was added to the front sitting room, with the floor insulated from below.

All lights were replaced with LED and CFL and new appliances were A to A+++. Cheap and near invisible magnetic secondary double glazing has been fitted where possible.

This is a work in progress, done to apply in practice principles learned from an MSc in Sustainable Architecture from CAT in Wales.

The overriding aim has been to go for the most cost-effective and carbon reducing measures, and exploring DIY solid wall insulation.

3

60 Barons Down
Lewes BN7 1ET

Type
1960s 3 bed timber frame terraced house

Owners
Ian and Magali McKay

Features
Airtightness
Double glazing
Gas condensing boiler
LED lighting
Low energy appliances
Natural materials
Passive solar gain
Perimeter floor insulation
Solar PV (3kWp south facing)
Timber frame

CO2 emissions
0.6 tonnes p.a., 89% less than an average household

Open
Saturday 14th September
CLOSED
Sunday 15th September
10–1, 2–5
N.B. Entry only on the hour for tour at 10, 11, 12, 2, 3, and 4. *Please arrive a little early to ensure getting in, as there will be no admittance between tours.*

This house was very rundown when architects Magali and Ian McKay bought it in September 2011. The idea was to blitz the building work over three months, to allow the couple and their two small children to move in as soon as possible.

When built in the 1960s, the Barons Down estate pioneered well designed and economical timber framed housing. The priority was to therefore to retain the useful layout, whilst upgrading the virtually non-existent insulation and providing a modern kitchen. This involved stripping the upper ceilings to spray insulation between the ceiling joists and inserting sheep's wool insulation in the timber framed walls, whilst battening out to allow room for services.

For a relatively modest build cost of £70,000, a smart modern home has been created, with extraordinarily low carbon emissions. The south facing glazed screen wall enables excellent solar gain and well detailed insulation means the house is close to being both carbon neutral and energy cost neutral.

4

8 Wille Cottages, South St,
Lewes BN7 2BX

Type
2 bed terraced brick house, built 1898

Owner
Jill Goulder

Features
Cavity wall insulation (part)
Draughtproofing
Landshare veg. patch
Loft Insulation (Warmcell)
Low energy lighting LED & CFL
Secondary Double glazing
Solar PV
Sun Tube
Underfloor heating (part)
Underfloor insulation

CO2 emissions
1.9 tonnes p.a., 65% less than average household

Open
Saturday 14th September
10–1, 2–4
Sunday 15th September
10–1, 2–4

8 Wille Cottages is a model of what can be done to an old house, taking advantage of renovation works to install some of the more disruptive measures, such as underfloor heating and insulation. The front cavity wall and the loft have also been insulated. Jill has come up with many ingenious methods for very effective reductions, such as magnetic strip secondary double glazing (very cheap and near invisible), creative use of LED lighting (she can advise on choosing low energy light bulbs too) and simple solutions to cut waste from cooker fans and TV aerial amplifiers. Her commitment has qualified the house as a "Superhome", with emissions reduction > 60%.

During the event local artist Serena Thirkell will be exhibiting her found-object sculptures in the front garden, among the Landshare vegetables.

Links to Jill's website, her Superhome webpage and downloads for information sheets on the house, secondary double glazing and LEDs are available on the main Lewes Eco Open House website.

5

106 Prince Edwards Rd
Lewes BN7 1BH

Type
Newly built 4 bed detached house

Owners
Peter and Louise Wingate-Saul

Features
Integrated solar roof
LED lighting
Low energy appliances
Mechanical ventilation with heat recovery (MVHR)
Passive solar gain
Thermal mass (polished concrete floors)
Solar PV (3.41 kWp)
Solar thermal
Superinsulation
Underfloor heating

CO2 emissions
Estimated to be below 2.0 tonnes p.a., 60/80% less than average

Open
Saturday 14th September
10–1, 2–5
N.B. Entry only on the hour for tour at 10, 11, 12, 2, 3, and 4.
Please arrive a little early to ensure getting in, as there will be no admittance between tours.
Sunday 15th September
CLOSED

This modern house replaces an old bungalow which previously stood on the site. When Peter and Louise acquired the property they decided to hand the design and build to local architects, BBM, and well regarded builders Brian Huntley Ltd of Seaford.

To maximise space, they dug out 300m3 of chalk to create a new open plan garden level. The design is structurally lightweight, being largely timber framed, but with solid floors to give enough mass to stabilise temperatures. Walls, floors and ceilings were all superinsulated with u-values for roof 0.09 // floor 0.16 // walls 0.14. This is coupled with airtightness, plus MVHR, to provide energy efficient ventilation.

The roof is particularly interesting with integrated Solar Thermal and PV panels, coupled with opening skylights which fill the upper rooms with light. These renewables have Bluetooth output to give fascinatingly detailed data on performance.

The exterior is handsomely finished in slate at the front, with timber cladding wrapping round the sides and back.

6

1a Middle Way, Nevill
Lewes BN7 1NH

Type
5 bed detached house, brick cavity, 1930s

Owners
Tony and Wilma Rowell

Features
Solar PV
Woodburning stove
Loft Insulation
Cavity wall insulation
Double glazing
Vegetable garden
5 waterbutts

CO2 emissions
3.3 tonnes p.a., 40% less than an average house (despite being much larger)

Open
Saturday 14th September
CLOSED
Sunday 15th September
10–1, 2–5

1a Middle Way is an unusual bungalow, located in an isolated plot, up a roadway leading off Middle Way. Tony and Wilma bought the house in 2010 and immediately undertook modernising and renovation works, including expansion into the roof. The cavity walls had been insulated but the roof has gone from no insulation to maximum. Existing double glazing has been retained and 2.3kW of solar PV is now generating electricity. In the sitting room a woodburning stove has been installed, which is heavily used in winter, greatly reducing gas consumption. By undertaking relatively simple and cost effective measures, emissions have been cut substantially.

Tony and Wilma are particularly committed to all aspects of sustainability and have fitted five water butts around the house and also pump bath water to the garden, rather than waste it. Composting is done using a Green Johanna hot composter and they have also planted fruit trees and established a corner for vegetable production.

7

11 St. Swithun's Terrace
Lewes BN7 1JU

Type
3 bed brick terraced house, built 1900

Owners
Liz Mandeville and Mike Jones

Features
Draughtproofing
Loft Insulation (250mm)
Low energy lighting
Secondary Double glazing
Solar PV (1kW, West facing)
Solar Thermal hot water
Underfloor insulation (200mm)
Wood burning stove (3.3 kW)

CO2 emissions
1.0 tonnes p.a., 82% less than the average household

Open
Saturday 14th September
10–1, 2–5
Sunday 15th September
CLOSED

This building demonstrates how far emissions can be reduced for a simple house, by employing the most cost-effective measures. Solar panels for hot water were installed several years ago, along with a highly insulated hot water tank.

Recently a 1.05 kW PV array was added to help offset the already frugal electricity use. Window heat losses, always a problem with sash windows, were sensibly managed by relatively inexpensive secondary glazing, which also cuts out draughts.

The ground floor has been insulated from below, thereby cutting heat losses and, again, draughts. Liz and Mike further minimise emissions by using a woodburning stove in the sitting room as the main evening heat source, which displaces gas with near carbon-neutral fuel.

Setting the internal thermostat to modest levels, and good insulation and renewables, result in a building with CO2 emissions that are an impressive 82% below the norm.

8

Baldy's Garden, Cuilfail
Lewes BN7 2BE

Type
5 bed detached, timber frame, built 2006

Owners
Paul and Louise Bellack

Features
Airtightness
Natural materials, locally sourced
Passive solar gain
Rainwater harvesting
Solar thermal hot water
Solar PV (3.6kW, South facing)
Superinsulation
Timber frame construction

CO2 Emissions
2.6 tonnes pa, 52% less than an average house
50% Water reduction (versus average)

Open
Saturday 14th September
CLOSED
Sunday 15th September
10–1, 2–5

The ugly and inefficient bungalow originally occupying this site was demolished to make way for the beautiful superinsulated structure designed by local architects, BBM.

Owners Paul and Louise went for the most sustainable specification, building off the foundations of the original building and using locally sourced timber and natural materials throughout.

Underfloor heating coupled with thermal mass in the ground floor helps stabilise temperatures, whilst maximising solar gain in winter. Both solar thermal hot water and PV greatly reduce energy consumption, as well as rainwater harvesting.

Overall the building performs excellently, with only 11kgCO2 emissions/m2 and about 50% less mains water use.

N.B. Entry only on the hour for tours at 10, 11, 12, 2, 3, and 4. Please arrive a little early to ensure getting in, as there will be no admittance between tours.

No parking at the house, please use car park below and walk up

9

Hillcrest, 13 Hurst Rd
Hassocks BN6 9NJ

Type
Largely rebuilt 1930's detached 4 bed house

Owners
Chris and Hilary Handel

Features
Condensing boiler
Cavity wall insulation
LED lighting
Solar PV (3kWp)
Solar thermal (East/West)
Triple glazing
Underfloor heating
Underfloor insulation
Woodburning stove

CO2 emissions
2.0 tonnes p.a., 63% less than average household

Open
Saturday 21st September
10–1, 2–5
Sunday 22nd September
10–1, 2–5

Chris and Hilary Handel have totally transformed this former 1920's chalet bungalow by removing the roof, gutting the interior and building up a new timber framed first floor. At the same time, they used the opportunity to improve the environmental credentials by superinsulating the new storey and installing both solar PV and solar thermal panels. On the ground floor, underfloor insulation was also fitted between the floor joists. Much of the original uPVC double glazing was retained and triple glazed skylights were used on the top floor, which is particularly energy efficient.

In the lounge there is now a woodburning stove, which helps keeps gas consumption down and creates a cosy space.

Outside, the garden is also managed sustainably, with extensive vegetable and fruit growing areas, as well as chickens running free.

The house now performs so well it has been accepted as a 'Superhome' demonstrating at least 60% energy reduction.

10

2 Holly Cottages
St Helena Lane
Plumpton Green
BN7 3DQ

Type
2 bed end of terrace cottage, of solid brick/timber frame, built 1865

Owners
Nick and Janet Rouse

Features
Ground sourced heat pump
High performance secondary double glazing
Insulated front door
Solar PV (5.9kWp)
Solar thermal
Solid wall insulation
Underfloor insulation
Underfloor heating

CO2 emissions
2.7 tonnes, 50% less than an average household

Open
Saturday 21st September
10–1, 2–5
Sunday 22nd September
10–1, 2–5

Holly Cottages demonstrates the kind of problems faced in conservation areas. Nick was obliged to keep the very leaky lattice glazed windows, but greatly reduced heat losses by fitting high performance double glazed secondary panels.

The front door, although thin and leaky, also had to be kept for conservation reasons. A replica of the inside of the door out of reclaimed Victorian pine was fixed to the original with insulation between. The solid walls were insulated internally using foam backed plasterboard.

As the house is off gas grid, it was originally heated by high emission coal, but now has a ground sourced heat pump, which runs an underfloor heating system. To offset the fairly high electricity demands of this system, Nick has two solar PV arrays totalling 5.9 kW. Around 50% of hot water also comes from solar panels.

11

6 East Gardens
Ditchling BN6 8ST

Type
Detached 4 bed timber framed house built 2007

Owners
Sally Williams and David Browne

Features
Condensing boiler
Green Sedum roof
High performance double glazing
Individual room thermostats
Solar PV (4kWp)
Solar thermal
Timber frame
Timber cladding
Underfloor heating throughout
Underfloor insulation
Warmcell wall insulation

CO2 emissions
1.1tonnes, 80% less than an average house

Open
Saturday 21st September
10–1, 2–5
Sunday 22nd September
10–1, 2–5

Originally a thirties bungalow stood on this site until 2005, when Sally and David decided that renovation was impractical and that it would need to be demolished and rebuilt to meet their family's needs.

This provided the opportunity for as many green construction methods as possible, whilst also planning for flexibility and changing needs in a modern contemporary design.

Standing on soft clay, the foundations needed to be piled, with a suspended concrete structural deck. From this base a timber framed house was built, partly with red cedar cladding and partly with self coloured render. This structure was heavily insulated and has solar thermal and more recently solar PV, yet retaining space for a large area of sedum roof to support wildlife.

Large areas of glazing have been created to both maximise solar gain in winter and give as much natural illumination as possible. Underfloor heating has been employed both upstairs and downstairs, with the ground floor slab being heavily insulated.

12

Knowlands Farm Granary
Spithurst Rd, Barcombe
BN8 5EF

Type
3 bed Barn conversion done in 2002

Owners
Nick and Harriet Lear

Features
Water source heat pump
Underfloor heating
Double glazing
Underfloor insulation
Solar PV (10 kWp)

CO2 emissions
CO2 emissions are still quite high, but the effect of the PV and the Heat pump will be a massive 7 tonnes per annum reduction. Nevertheless, the AGA is a big limiting factor...

Open
Saturday 21st September
10–1, 2–5
Sunday 22nd September
2–5 only

Nick and Harriet have lived at Knowlands Farm for more than 40 years and downsized from the main farm house to the barn conversion in 2002.

This conversion included solid wall insulation, insulation between the rafters, double glazing and even underfloor insulation with underfloor heating. However, although the farmhouse had a biomass boiler, the Granary has had oil fired central heating and an oil fired Aga right up until this summer. This has now changed, with the installation of a water source heat pump, extracting heat from the lake to provide space heating and hot water. At the same time, the AGA is being converted to electricity, to exploit the Solar PV generation.

The couple have long pursued a sustainable lifestyle, having lived sustainably off 10 acres of farmland up until 15 years ago. Nick has also continued to carefully husband the 70 acre wood as a nature reserve, particularly for local butterfly species, and harvests timber and firewood, which they sell.

13

Upper Wellingham Barn,
Wellingham Lane BN8 5SN

Owners
Jane and Mike Johanssen

Type
Barn Conversion
Age: conversion 2006
Beds: 3
Walls: timber frame
Residents: 2 adults, 2 children

Features
Air source heat pump (ASHP)
Double glazing
Solid wall insulation
Underfloor heating
Underfloor insulation
Woodburning stove

CO2 emissions
Likely to be around 25% below an average household and well below a typical oil fired rural property.
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Open
Saturday 21st September
10–1, 2–5
Sunday 22nd September
10–1, 2–5

In 2012, Jane and Mike bought this barn conversion which had been carried out in 2006. Although the house was well insulated and had underfloor heating pipes, the heat source was a large woodburning stove which was simply not up to the job. This prompted them to install an air source heat pump in March 2013, which now comfortably heats the house and supplies hot water.
Because the conversion was completed in 2006, it was subject to the strict building regulations at that time, which ensured that it was adequately insulated, with solid wall insulation, high performance insulation in the roof and floor, plus double glazing of all windows.

14

Sewells Gatehouse,
Barcombe BN8 5FH

Type
3/4 bed detached ScandiaHus, built 1985, refurbished 2012

Owners
Jason and Mel Lundin

Features
Ground source heat pump (GSHP)
Solar PV (3.2 kWp)
Triple glazing
Underfloor heating
Underfloor insulation

CO2 emissions
2.9 tonnes p.a., 48% less than an average household

Open
Saturday 21st September
10–1, 2–5
Sunday 22nd September
10–1, 2–5

Sewells Gatehouse was built in 1985 by Jason's mother's construction company to a ScandiaHus design, which at the time was cutting edge with high levels of insulation and triple glazing. Following construction, this was rented out continuously until very recently.
When Jason and his family decided to move in a couple of years ago, they felt it was time for a major upgrade, with improved insulation, a ground source heat pump and solar PV panels on the roof to help balance the additional electric load. This replaced expensive electric convector heating. Energy use is now nearly 50% below average and more than 60% lower than the former building.
The work took over a year and involved stripping out all flooring and plastered wall surfaces to gain access to the underlying structure. At the same time, the kitchen was switched from the south side, where it tended to overheat, to the north side, with its lovely views across the fields.

15

The Cube, Sited in Car Park
Laughton Lodge, Common
Lane, Laughton BN8 6BY

Owner
Dr. Mike Page, Univ. Of Herts.

Type
Free standing living unit, 1 bed, timber framed

Features
Innovative modular living prototype
Air source heat pump
LED lighting
Low energy appliances
Solar PV
Timber frame with high insulation
Triple glazing
Underfloor insulation

CO2 emissions
The cube is designed to be carbon neutral.

Open
Saturday 21st September
10 - 1, 2 - 5
Sunday 22nd September
CLOSED

The Cube Project is an initiative of Dr Mike Page at the University of Hertfordshire who set out to build a compact home, no bigger than 3x3x3 metres on the inside, in which one person could live a comfortable, modern existence with a minimum impact on the environment.

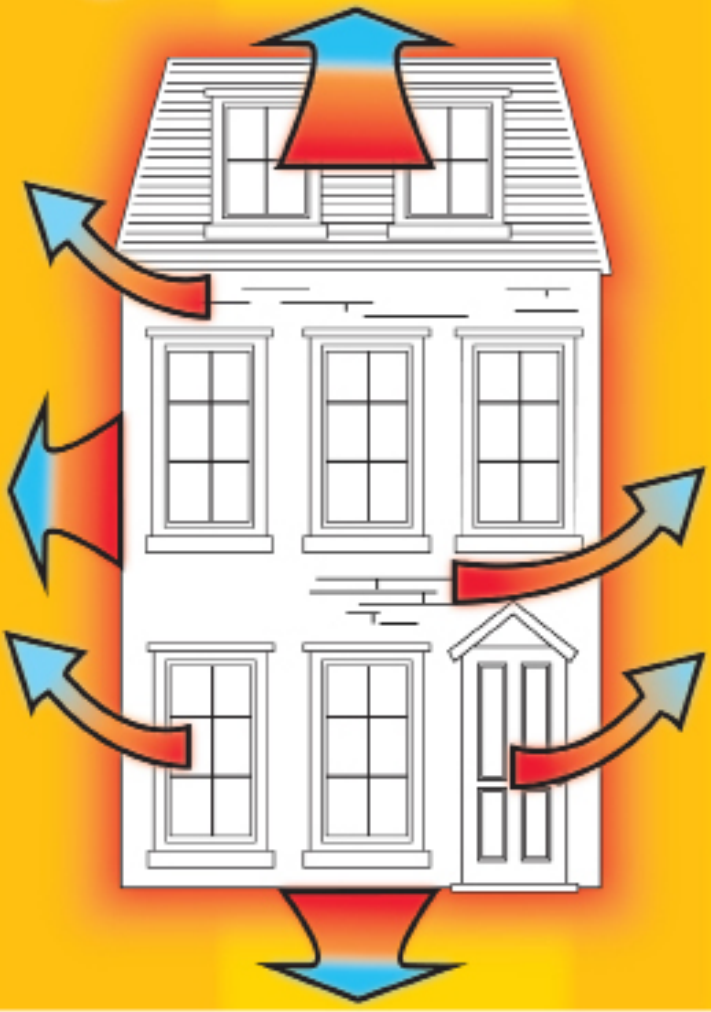
Constructed from a variety of sustainable materials, the Cube provides everything that a single person (or two friendly people) might need. Within its 27 cubic metres it includes a lounge, with a table and two custom-made chairs, a small double bed (120cm wide), a full-size shower, a kitchen (with energy-efficient fridge, induction hob, re-circulating cooker hood, sink/drainer, combination microwave oven and storage cupboards), a washing machine, and a composting toilet. Lighting is achieved by ultra-efficient LED lights, and the Cube is heated using an Ecodan air-source heat pump, with heat being recovered from extracted air. It has cork flooring and there is two-metre head height throughout.

www.lewesecoopenhouses.org.uk

Keeping the heat in and draughts out

working with

Lewes District Council



Simple thermal insulation

- Cavity wall
- Solid wall
- Roof / Floor
- Draught proofing

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