



Alternative heating for heritage buildings



e:energycarbon
ultimate energy efficiency and comfort



THE DILEMNA

There are over 460,000 listed properties in the UK, most of which either use gas or oil central heating

These buildings suffer from mould and damp due to the warm air system and need to switch to a low carbon alternative

Heat pumps will not always suit as siting can be difficult and emitters need to be placed where space is difficult

Current and proposed heating systems give little priority to occupant health and comfort nor to building protection

Older buildings may have protected floors and wall make up (wattle and daub) and may have restricted space for large radiators

Space for plant rooms may be problematic

What is Far Infrared?



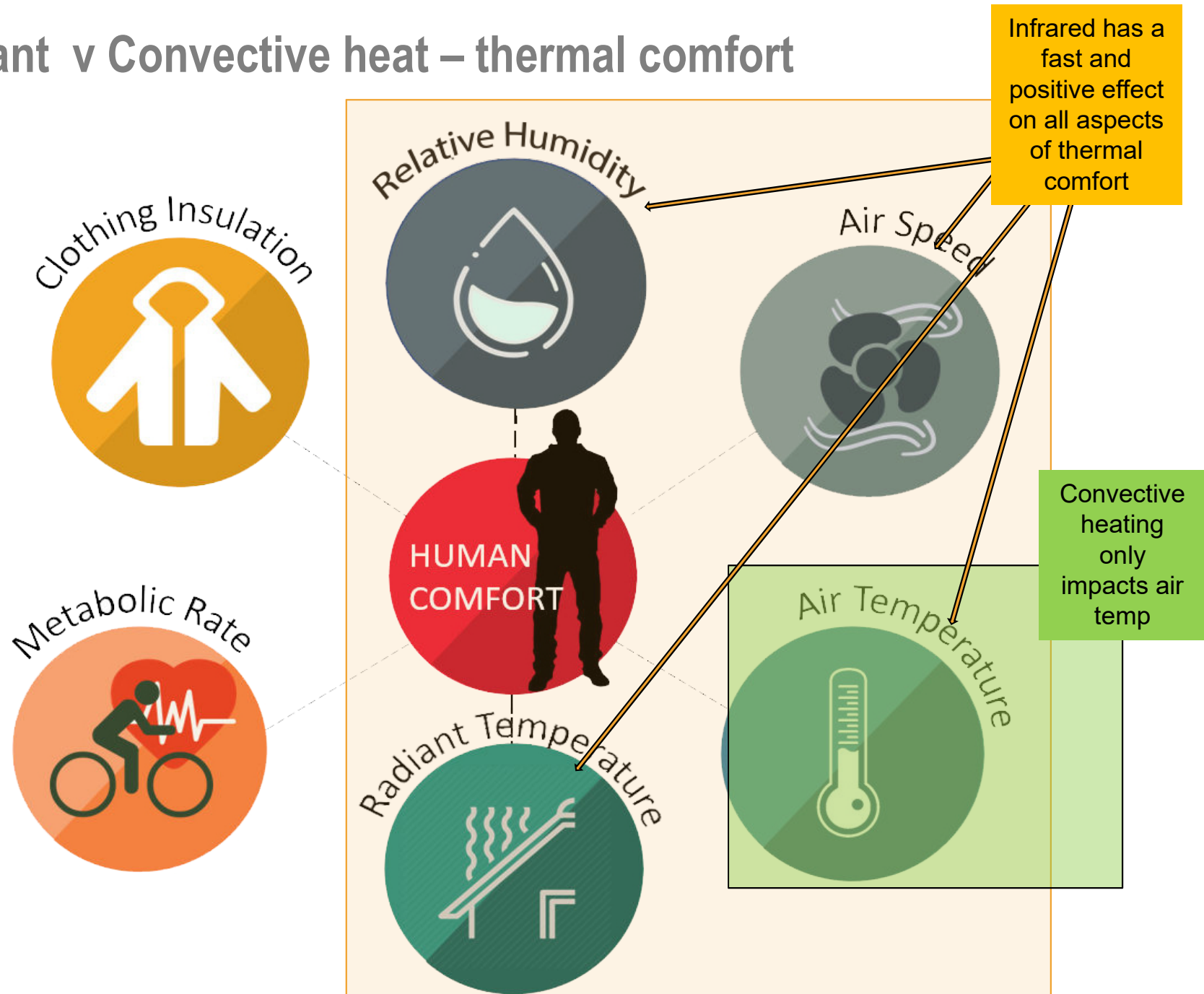
**THE MOST NATURAL AND
HEALTHY FORM OF WARMTH**

“Go out on a sunny day
and put your hand on the
pavement and you will feel
the warmth.

This is infrared radiant
heat from the sun.”

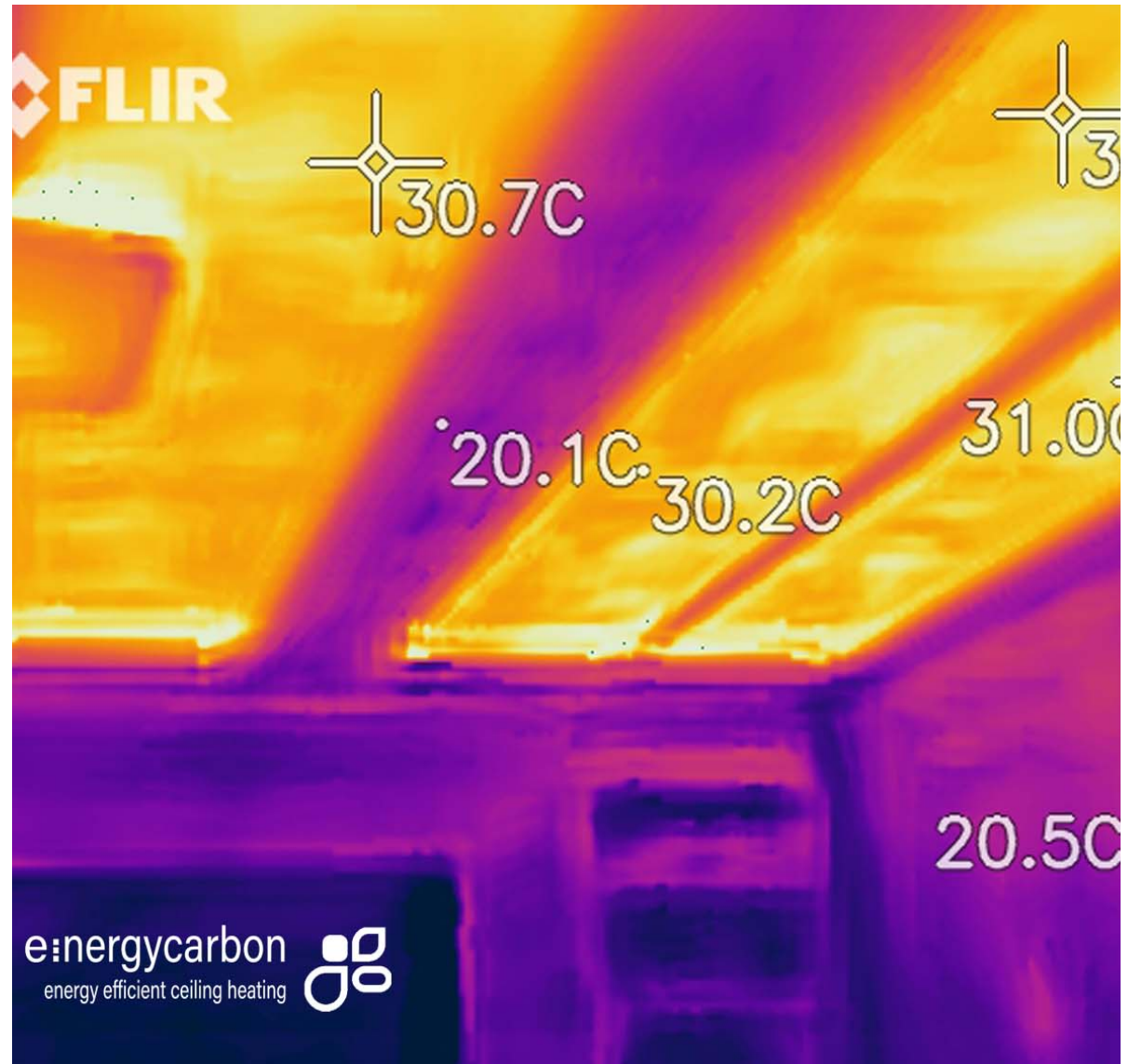
The Renewable Energy Hub

Radiant v Convective heat – thermal comfort



How do we reduce energy and costs?

- » Uses the thermal mass of the building & night time tariffs - like a storage radiator
- » We cover around 40% of the ceiling, requiring less energy than other electrical systems (85% underfloor)
- » Bypassing the air reduces energy use
- » Range of energy outputs means we can precisely match the energy requirements for a building
- » Utilising precise zoning, scheduling and occupancy sensors reduces energy used
- » No maintenance costs
- » No replacement costs for 50+ years
- » Easy fit using plasterer and electrician with minimal skill uplift.
- » Reduction of damp and mould due to warm air circulation



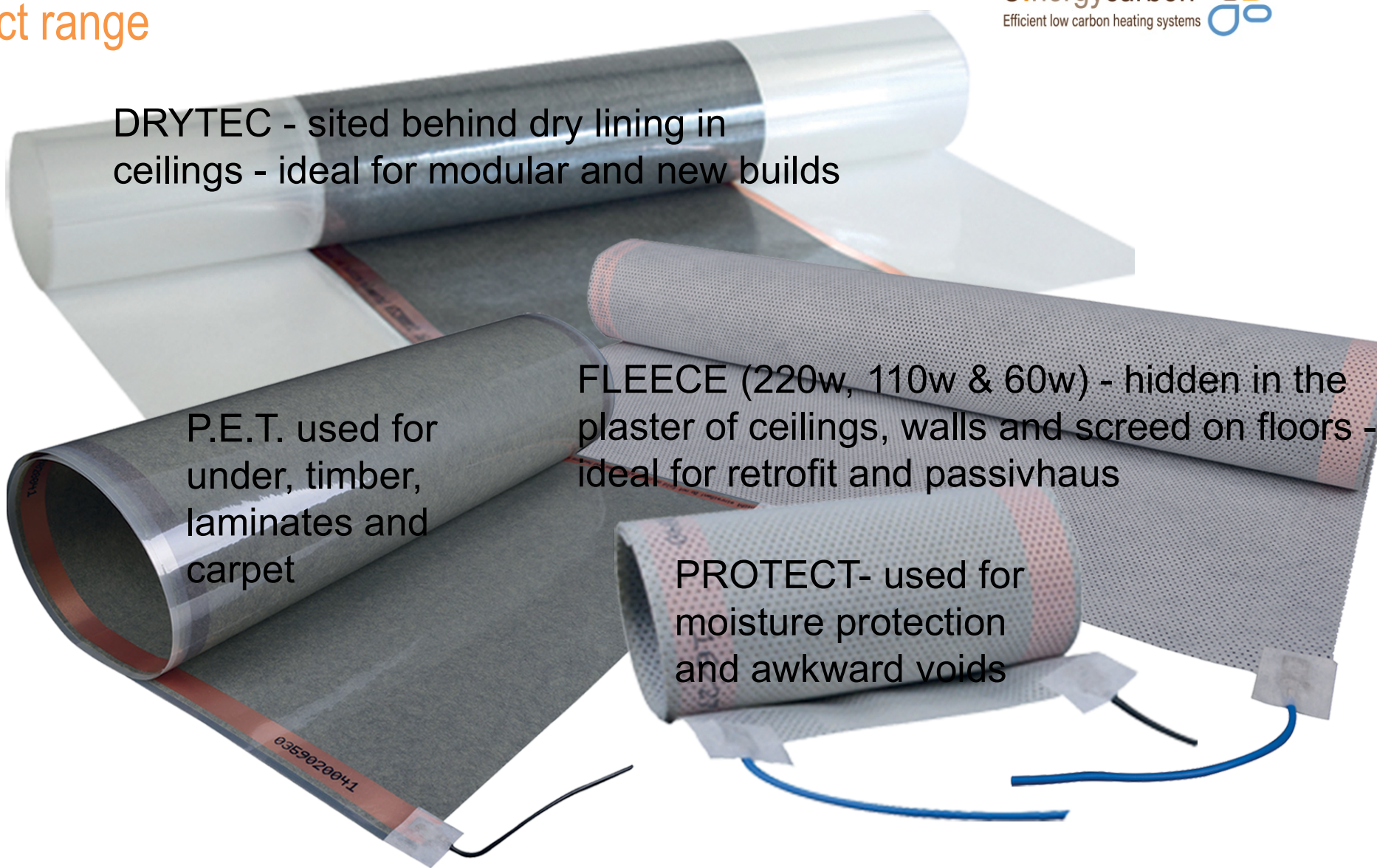
What makes our product unique?

- » Invisible – no need for radiators or digging up floors
- » No plant room needed
- » Low surface temperature –no plaster damage
- » Recycled - low embodied carbon
- » 36v AC using our intelligent transformer
- » Ceiling, floor or wall installation
- » Cut holes for lighting/fixings. Safe to screw through
- » Zero maintenance
- » 50+ year design life
- » 3 minute warm up time
- » 8 minutes to start warming floors from ceiling
- » Can heat a room to up to 28
- » Reduction in moisture and humidity levels°

e:nergycarbon 
Efficient low carbon heating systems



Product range



DRYTEC - sited behind dry lining in ceilings - ideal for modular and new builds

P.E.T. used for under, timber, laminates and carpet

FLEECE (220w, 110w & 60w) - hidden in the plaster of ceilings, walls and screed on floors - ideal for retrofit and passivhaus

PROTECT- used for moisture protection and awkward voids

Perfect, easy fit solutions to suit all low energy heating requirements in most property types

The 36v Intelligent transformer (psu)

Our transformers range from the 400w unit running 1 zone through to our 3.2kw psu running up to 10 zones. Each unit has external signalling indicating 'live', 'heat call' and 'fault' as well as blade fusing and easy push connectors.



Installation

Once bonded into the surface, all products run on the same 36v AC system utilising a relevant transformer

FLEECE



36v transformer





Approved installer network

Recognising the need for trained installers, Energy Carbon are working alongside prestigious colleges around the UK and have developed an NOCN accredited qualification for our approved installers.

In addition, we have a large library of training videos and also offer on-site training.



PART OF **nocn** GROUP



Gain the skills to become an Approved Installer for the latest, easy fit, eco friendly heating system



e:energycarbon
energy efficient ceiling heating
Approved Installer



- + Up to 30% savings as compared to other electrical systems
- + Installed by plasterers and /or electricians
- + Easily fits into the ceilings, walls or floors
- + The most comfortable form of heating
- + Dust and mould prohibiting
- + Safe low surface temperature
- + Zone controllable
- + Safe low voltage
- + Fast reaction time
- + Healthy heat



Entry requirements
Plasterers - Level 2 qual.
Electricians- Part P qual

Studying in our new Green Skills Centre, become part of the future of the construction industry



Register for your place via the college website at
www.cnwl.ac.uk
or call
020 8208 5051

**United
Colleges
Group**

ROADMAP TO OUR PART IN TACKLING NET ZERO

Our journey so far and a view into our future

2020

UK Product Launch

Following 10 years of development and trials in Germany our core 'FLEECE' product is launched in UK.

Testing with BSRIA

2023

Trials with social housing providers. CPD launched to architects. NOCN accredited training course for installers developed.

Joined UKRI 'Net Zero Heat' Cohort to drive change.

Won Smart Grant to collaborate with Brunel on new Autoclave

2024

SMARTFLEX launched for commercial sector. Innovate Smart Grant won for integration into SAP.

Trade counters launched across 400+ sites.

Partnership agreement with 350+ installers nationwide.

Trialled in 2 major house builders

2020-2022

New products come online including DRYTEC, PRO-TT and AIRUNIT.

Trials carried out with housebuilders, self builders to build case studies.

2025

UK university testing complete. SAP accreditation gained.

Church trials launch.

Acceptance into Warm Homes Grant for social housing.

Launch to UK Housebuilders and FHS alternative.

2026

COMFOSTAT launched.

Roll out to House Builders.

Installer network grown.

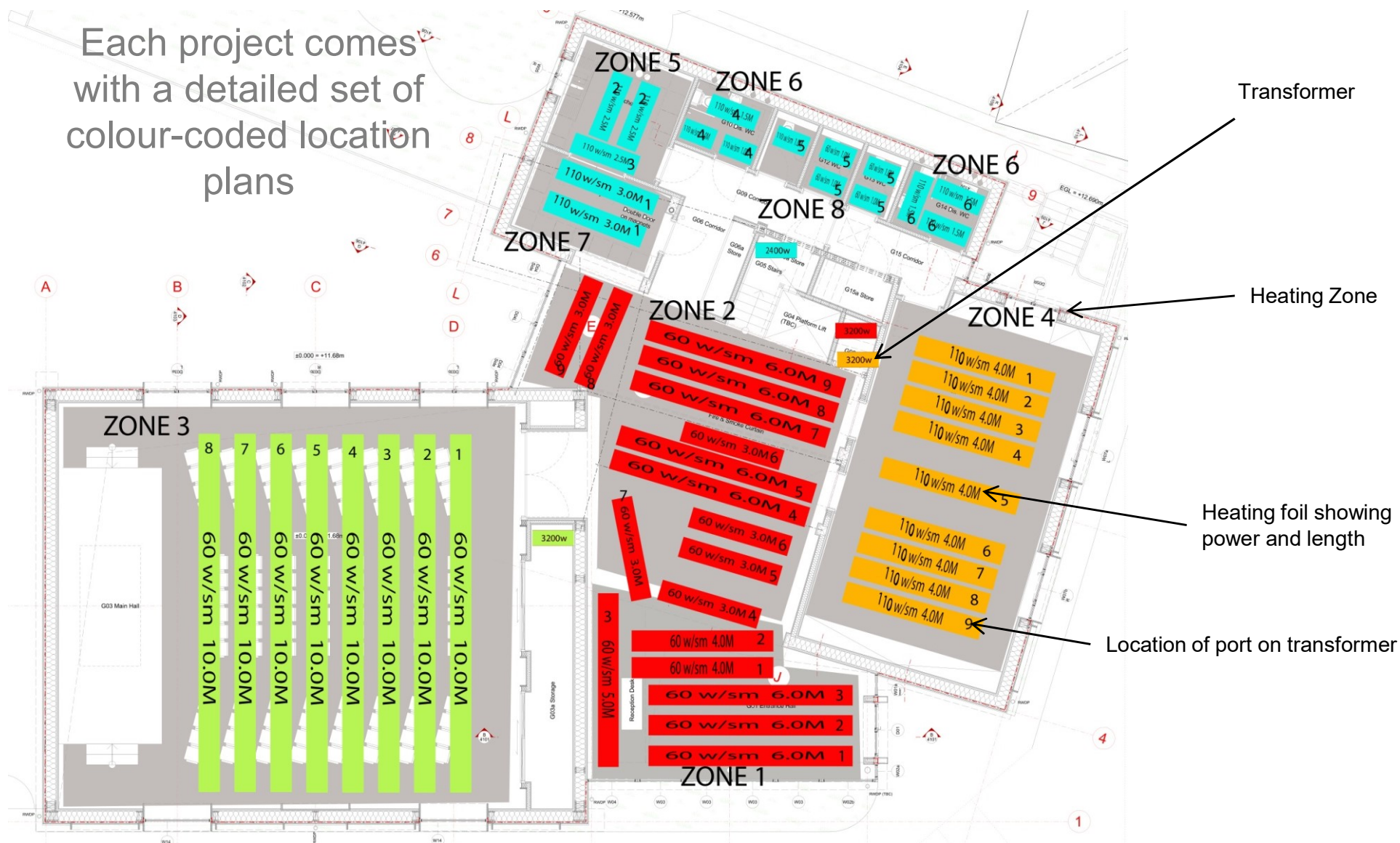
2027

onwards

Launch of UK manufacturing and distribution

Layouts

Each project comes with a detailed set of colour-coded location plans



Case Studies

Client – Bron Afon Housing Association

Project type – 1960's whole house deep retrofit

Heat loss – 60wm2

Size – 83m2

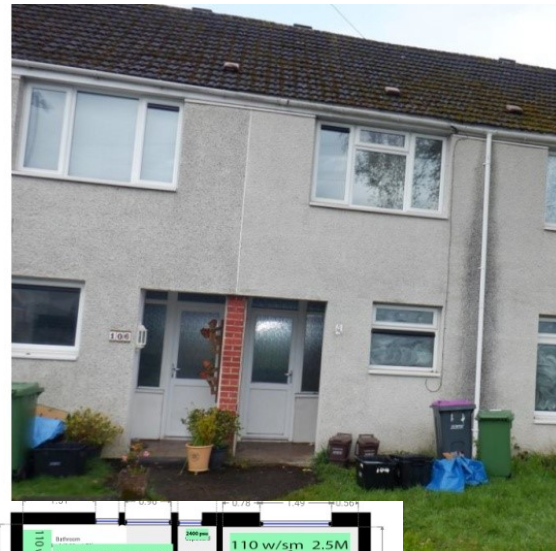
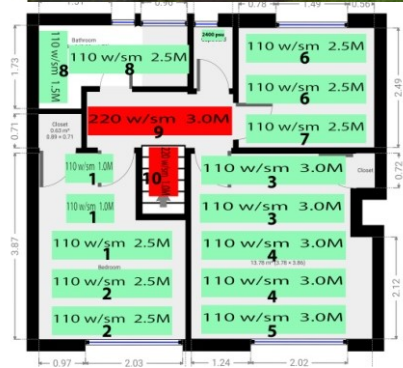
Total heat load - 5.3 kws **Cost** - £5,900

Product used - FLEECE. 110w placed in ceilings

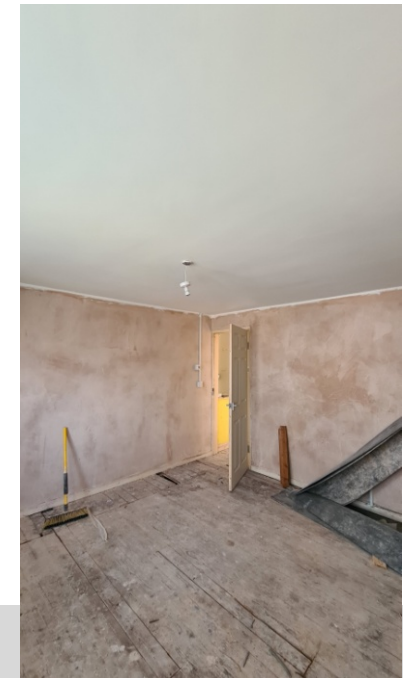
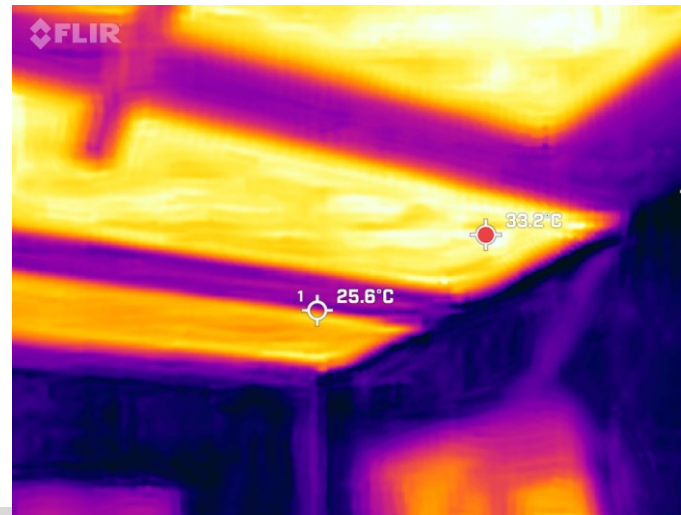
Control system – Energy Carbon

Brief:

3 Bedroom Void property owned by Welsh HA. EWI/IWI throughout, double glazed with trickle vents 4kw PV array, 10kwh battery and inverter, HEATA hot water



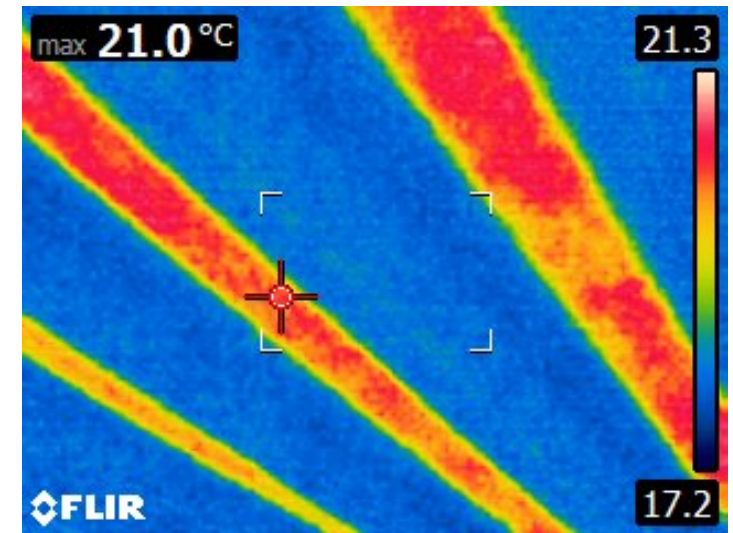
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Efficient low carbon heating systems



Case Studies

➤ **Client** – Kingston Cottage

- **Project type** – 19th century hillside farm workers cottage – full restoration.
- **Heat loss** – 45wm2
- **Size** – 204m2
- **Total heat load** - 9.1kws
- **Cost** - £13,000
- **Product used** - FLEECE. 220w & placed into ceilings and FLEECE COMFORT between beams
- **Control system** – Energy Carbon
- **Brief:** Full refurb including siting of ceiling heating between revealed beams



Case Studies

- **Client** – Charlie Luxton Architects – The Moors
- **Project type** – 1960's whole house deep retrofit
- **Heat loss** – 24wm2
- **Size** – 430m2
- **Total heat load** - 18.2 kws
- **Cost** - £28,000
- **Product used** - FLEECE. 110w & 60w, FLEECE PROTECT placed in ceilings.
FLEECE 110wm2 in floor
- **Control system** – Energy Carbon
- **Brief:**
5 bedroom renovation of existing farm house circa 18th century to modern living standards.



Case Studies

- **Client** – Warksburn Church
- **Project type** – 1875 Presbyterian Church deep retrofit to Passive Standard
- **Heat loss** – 8wm2
- **Size** – 174m2
- **Total heat load** - 4.8kws
- **Cost** - £7,500
- **Product used** - FLEECE. 110w & 60w, placed in ceilings.
FLEECE 110wm2 in floor
- **Control system** – Energy Carbon
- **Brief:**
Abandoned church converted for use as Airbnb – featured on TV.



Case Studies

- **Client** – Pastor Hus
- **Project type** – 1535, half timbered house renovation.
- **Heat loss** – 120wm2
- **Size** – 50m2
- **Total heat load** - 6.0kws
- **Cost** - £11,000
- **Product used** - FLEECE. 110w & placed in boards screwed to walls and ceilings
- And plastered with clay plaster.
- **Control system** – Energy Carbon
- **Brief:**
The oldest 'one room, Pastor House' in the region, relocated and repurposed as a museum and visitor centre



Case Studies

➤ **Client** – St. Nicolai Winter Church- Bavaria

➤ **Project type** – 1438, restored to remove 50 year old boiler.

➤ **Heat loss** – 120wm2

➤ **Size** – 366m2

➤ **Total heat load** - 2.7kws

➤ **Cost** - £7000

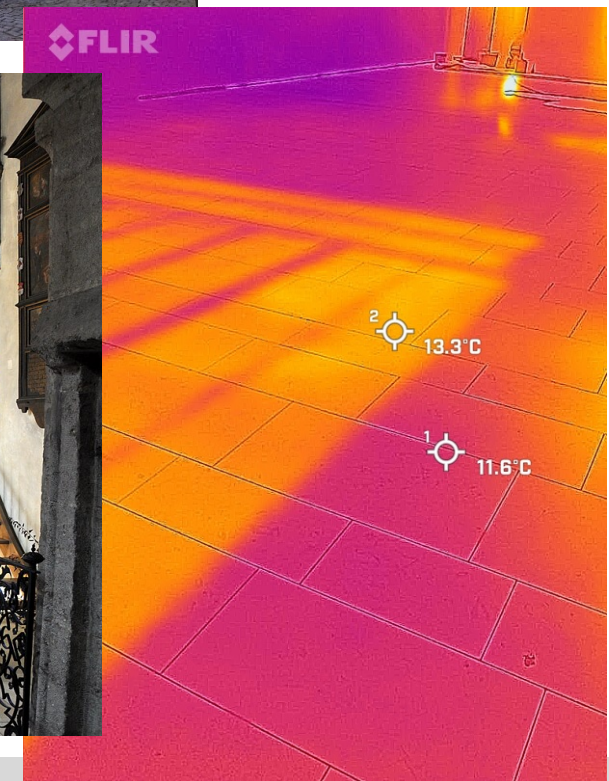
➤ **Product used** - FLEECE. 110w & placed under seating

Control system – Energy Carbon

➤ **Brief:**

Winter church originally built in 1438, heating upgraded to provide building protection and fast comfort heating during cold periods

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Efficient low carbon heating systems



Case Studies

➤ **Client** – Zweibrucker Castle, Germany

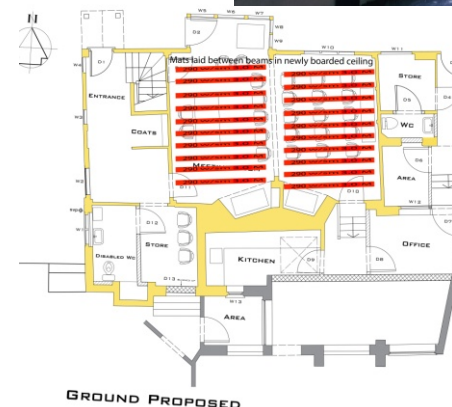
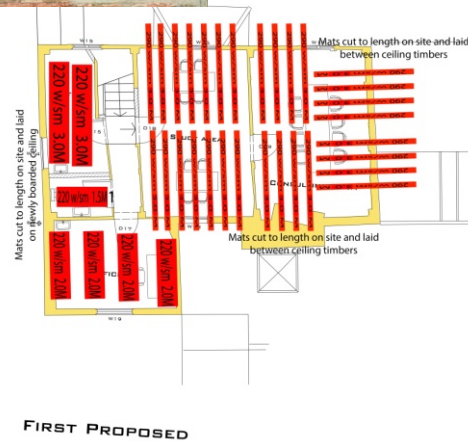
- **Project type** – 18th century stair tower.
- **Heat loss** – ?
- **Size** – 21m²
- **Total heat load** - n/k
- **Cost** - £nk
- **Product used** - FLEECE. 220w & placed into wall and triggered with dew point sensors
- **Control system** – Energy Carbon
- **Brief:** In the unheated stair tower, the warm and humid air from the apartments condensed on the cold walls and led to a mould problem



Case Studies

➤ Client – Cranleigh Cottage Hospital

- **Project type** – 15th Century hospital Monopolies Commission funded
- **Heat loss** – Currently estimated 170wm² – target 100wm²
- **Size** – 133m²
- **Total heat load** - 13kw's background / 6kws operational
- **Cost** – Ongoing – projected £19k
- **Product used** – FLEECE 110w fitted under floor for background and protection/
FLEECE. 220w & placed into walls and ceilings triggered by presence sensors
- **Control system** – Energy Carbon/KNX
- **Brief:** Englands first cottage hospital now abandoned. No heating.
- **Protect building envelope whilst empty. Fast reaction warm up when occupied**



Thank you for reading this presentation.

For further information please contact us below



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