



PASSIVHAUS **in practice**

final reporting

‘Human influence has warmed the climate’
-United Nations

It is now time for human influence to take
action







Introduction

Passivhaus in Practice (PiP), is part of the National Transition Training Fund (NTTF), funded by the Scottish Funding Council, which provides upskilling and reskilling in Passivhaus standards. This supports the Scottish Government's 2045 net-zero carbon target in tackling climate emergency.

Decarbonising our built environment is representing both challenges and opportunities to the construction industry. The PiP programme is designed to ensure we have a skilled, competent, and resilient workforce that can deliver on our ambitious national net zero plans.

Methodology

Passivhaus in Practice's main focus is to safeguard and create green jobs within the construction sector by developing green skills and working towards a net-zero built environment. Achieving these goals through Passivhaus Standards at a variety of levels from awareness to certified Passivhaus training for contractors, educators and anyone who wants to transition into low carbon skills within the sector.

The training covers a variety of topics; ventilation, air tightness, construction techniques, materials and software application (the 5 pillars of Passivhaus) and more.

The training was delivered with tailored pedagogy for the participants through blended learning. An innovative approach was taken covering online interactive live training sessions, online immersive learning, practical face to face training and augmented reality demonstrating Passivhaus construction, moisture and heat movement.

AT A GLANCE



5 RIGS

Design and manufacture of 5 travelling Passivhaus rigs which can be made available to colleges and universities for use within curriculum delivery.



100+ INTRODUCED

Building Research Establishment (BRE): Introduction to Passivhaus.



120 WORKING TOWARDS ACCREDITATION

Association for Environmental Conscious Building (AECB) Carbon Lite Contractor Training.



600 TRAINED

A webinar series in Passivhaus running from April to July.



100 HANDS-ON

Practical hands-on training in Passivhaus at CSIC's innovation factory to educators and industry.



BUILDING DIVERSITY

Collaborating with Equate Scotland we have a dedicated 3-day course at the end of July for women working on Passivhaus projects.



3 ONLINE MODULES + AUGMENTED REALITY

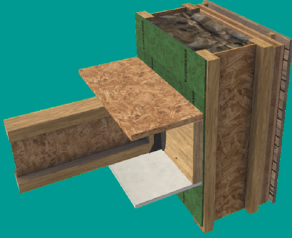
Creation of 3 interactive online learning modules in Passivhaus Standards and an Augmented Reality learning experience in Passivhaus.



IN COLLABORATION WITH

- Edinburgh Napier University
- Robert Gordon University
- Ecological Building Systems UK
- Oberlanders Architects
- John Gilbert Architects
- Glasgow City Council
- BRE
- Stewart and Shields Ltd
- Paul Heat Recovery Scotland

Successes & Benefits



The programme reached over 800 online participants and practical training was delivered to 100 participants in the Construction Scotland Innovation Centre (CSIC) factory.

The project upskilled 70 educators.

From a survey of 222 people – 119 (54%) stated that their job had been created or safeguarded due to participating the Passivhaus in Practice programme.

60% of people surveyed said that their awareness in Passivhaus had increased from no knowledge or awareness to general understanding or confident.

The project reached a much wider audience than anticipated, attracting a broad range of disciplines within the industry.

Challenges, observations



The ongoing COVID-19 pandemic restrictions limited face to face training, resulting in changes to programme delivery and delegate participation.

Demand was greater than anticipated. As a project working within pandemic restrictions, opportunities to upscale were limited.

The demand for the programme is across the full construction industry and not just for a specific discipline or skill set. Upskilling at scale within a short timeframe has been a challenge, but one which has been met by the delivery team. Our collective ability to respond to rapidly changing industry practices in this way is positioned as vital to supporting Scotland's green recovery and 2045 Net Zero carbon targets.

Next steps

The need for further training and formal accreditation is evident. Participant feedback has shown there is a demand for the programme to be expanded to include the retrofit of existing building stock and to include other construction types, as well as timber frame.

We are working with Morrison Construction on a live testing steel frame rig that will be part of the Passivhaus learning journey going forward, with a approximate project value of £75k. This will look at what is currently being constructed, how to meet the Passivhaus Standard and more. This will help to break down the barriers around Passivhaus Standards being achieved on commercial buildings. The project will be used to test and carry out training on live rigs for the construction industry. The project is developed in line with:

- Skills Development Scotland Climate Emergency Skills Action Plan 2020-25
- Construction Industry Training Board (CITB) – Building Skills for Net-ZERO,
- Construction Leadership Forum – construction recovery plan,
- Sustainable Development Goals and policies working towards Net-zero
- National Performance Framework

These policies and guidelines will form the National Transition Training Funding (NTTF) Phase 2 - Low Carbon Skills project, which aims to develop Passivhaus in Practice accreditation along with developing a retrofit standards skills programme with industry experts and academia.



Testimonials



"Brilliant course and now have a greater understanding of passive house construction."
David Graham, Head of Surveying
Online AECB CarbonLite Contractor Training



"As an architect who used to be site-based in Cambridge before the pandemic . . . It's good to hear thoughts about Passivehaus from other professionals working in the construction industry."
Thierry Lye, Chartered Architect
Online AECB CarbonLite Contractor Training



"Fascinating day at the Construction Scotland Innovation Centre for their 'Passivhaus in Practice' session."
Robert McQueen, Project Director
CSIC's Hands-on Practical Training

I found the presentation very informative and interesting in the first session. Marks passion for the subject was evident, engaging and professional. The test was useful the next day to build upon knowledge. Hands on experience on the last session was vital and hugely beneficial. Working in pairs gave the opportunity to problem solve and learn together in a constructive way.

The team providing the in person training were all fantastic and it was great to have a go at installing and taping insulation and membranes ourselves. Nothing quite like developing appreciation for how hard these 'simple' things can be, and such good fun! Really nice to understand material properties first-hand, too.

– Students from 'Women in Construction' Training



The stats



104
BRE Intro



603
online webinars



136
AECB CarbonLite
Online



43
CSIC practical



48
AECB practical



11
Equate practical



843
online overall



102
face to face overall



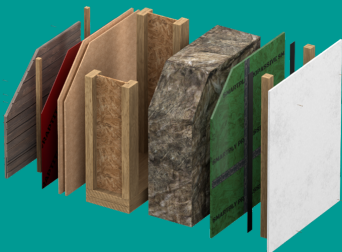
945
trained live overall

The following graphical information highlights the learning journey of participants. The information demonstrates the increase in awareness of Passivhaus knowledge within participants and the effect the training has had on their current role in the industry.

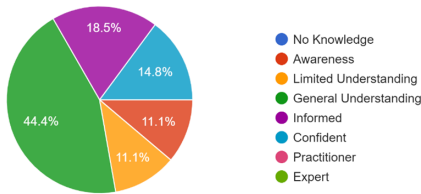
AECEB Carbon Lite Contract or Training Online:



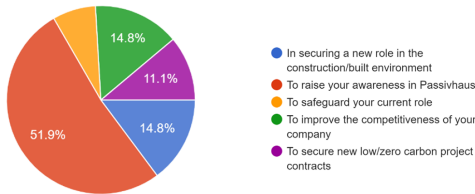
BRE Training:



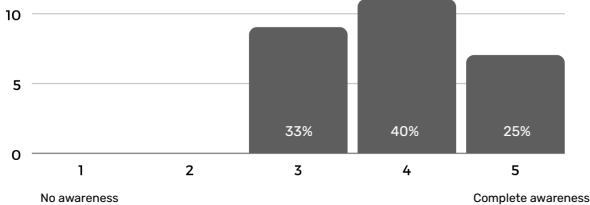
What is your level of knowledge of Passivhaus standards?



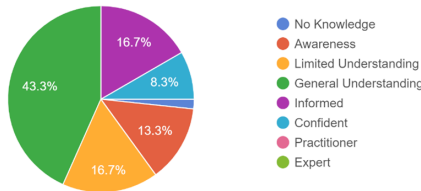
What benefits can you see in undertaking this training in Passivhaus?



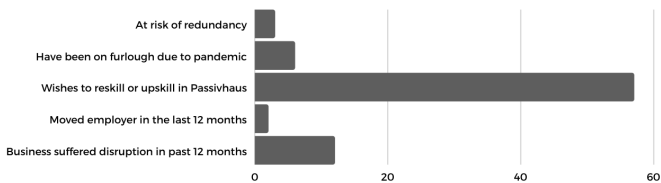
How much has your awareness in Passivhaus standards increased having taken the training?



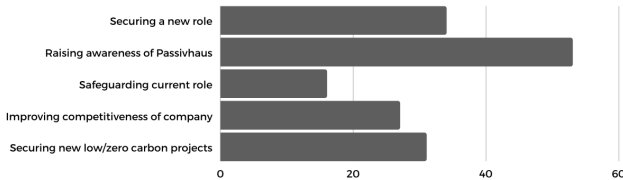
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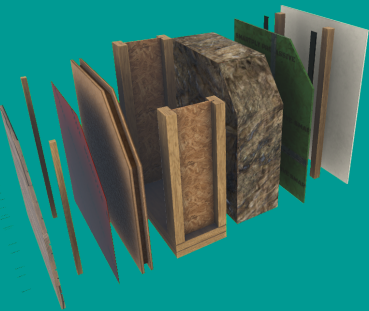
Within your current role, what best describes your situation?



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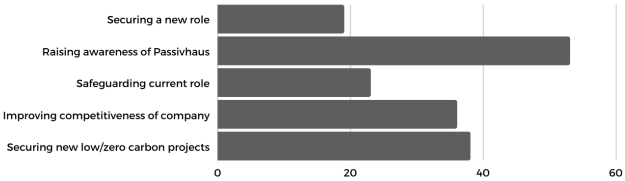
Mini series:



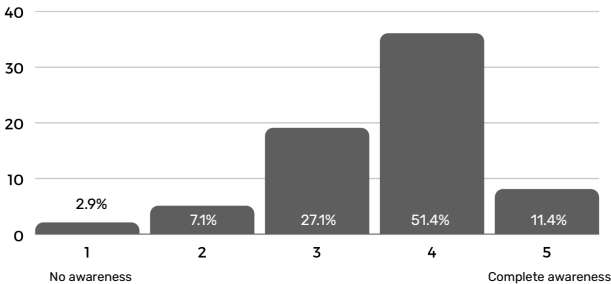
CSIC Practical Training:



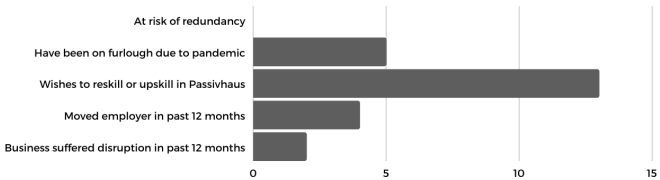
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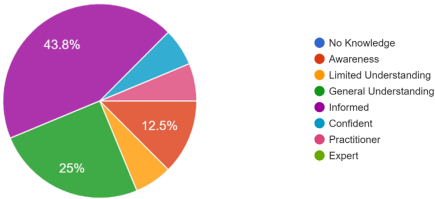
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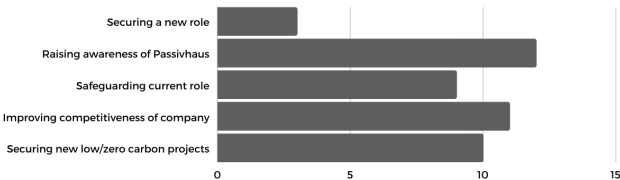
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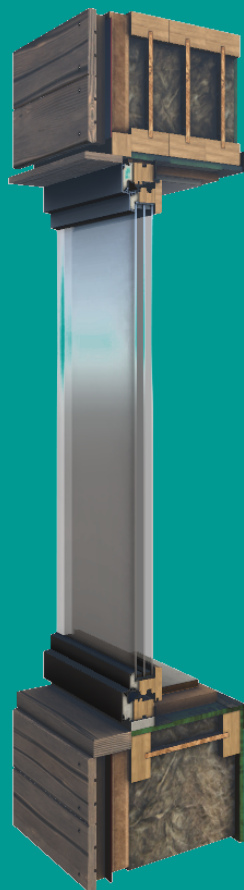
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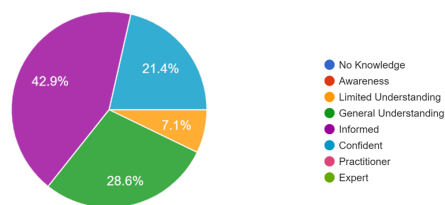
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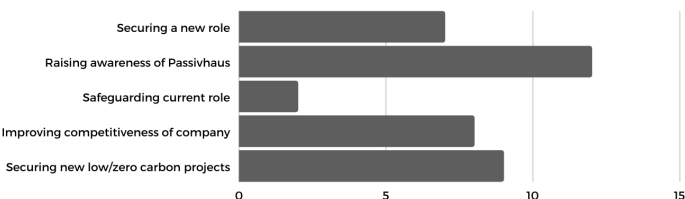
AECEB Carbon Lite Contractor Training:



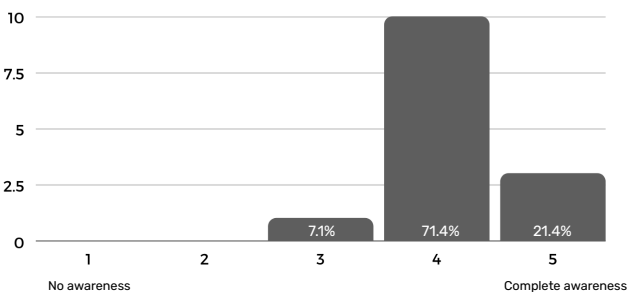
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How much has your awareness in Passivhaus standards increased having taken the training?





If you have any questions about this document, please get in touch.

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