AECB

Carbon Lite

RETROFIT COORDINATOR PLUS

THE RETROFIT ACADEMY

ACCREDITED PROFESSIONAL

AECB CarbonLite Retrofit

Gain an expert-level technical understanding of domestic retrofit

Become an Advanced Level Retrofit Coordinator

Learn from the comfort of your own home

Earn 35 Passivhaus Institut (PHI) credit points

Expert tutorials and project feedback

ADVANCED LEVEL RETROFIT E-LEARNING PROGRAMME

Scheme Operator

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University of Salford MANCHESTER

THE RETROFIT ACADEMY

AECB building knowledge

Introduction to CarbonLite Retrofit

CLR – Your Gateway to Expertise in Domestic Retrofit

CarbonLite Retrofit (CLR) is the leading advanced level e-learning course for domestic building retrofit.

CLR consists of eight in-depth modules, all taught online as part of a structured, 130-hour learning programme. It features in depth learning materials, resources, quizzes and live webinars with expert tutors. No other online course prepares built environment professions as thoroughly for the technical challenges of retrofitting existing buildings to an excellent standard.

The programme equips professionals with the skills and knowledge to:

- Develop effective retrofit strategies
- Deliver projects that operate as designed
- Understand the movement of heat and moisture in buildings
- Reduce the financial risks that clients and professionals carry when projects fail
- Understand how different construction types and local variations impact upon retrofit
- Learn about and discuss ways to avoid or manage unintended consequences
- Evaluate the financial viability of projects and how to advise clients appropriately

Domestic Retrofit – Why Study?

To achieve the 2050 targets for reducing CO_2 emissions, it is often said that 27 million UK-homes need to be retrofitted at a rate of one per minute. This assumes that a deep retrofit is installed, and works effectively for at least 25 years. The reality is that shallow-retrofit is the norm, and measures are not only piecemeal, but also often counter-productive.

Two government reports have now highlighted the scale of the retrofit challenge. The Hansford Report (2015) on the Solid Wall Insulation sector identified poor workmanship, little design input and inappropriate detailing amongst many other shortcomings of projects he looked at. The Each Home Counts Review (2016) called for urgent action to improve quality and raise standards. Both reports highlighted the need for knowledgeable experts capable of leading successful projects. There is an opportunity for retrofit-literate design professionals and consultants to meet this need, as well as delivering homes that are happier and healthier for clients who are able to pay.

Who Should Study?

As an advanced level training course, equivalent to postgraduate learning, CLR is aimed primarily at construction professionals whose role involves decision making around retrofit.

To get the most out of taking the full course you will already have good professional knowledge within the construction sector. You will have a serious interest in how to do advanced energy efficient retrofit and be wanting to deepen your understanding of building physics and the risks associated with measures, to enable you to make informed decisions.

Homeowners with a desire to drive their own retrofit projects will also find this course useful. While only the more technically minded will be interested in all the detail, there is much useful knowledge even for those who are less technical.

The course is especially aimed at:

- Architects
- Architectural Technologists
- Passivhaus Designers
- Building Services Engineers
- Construction Managers
- Energy Assessors
- Energy Managers
- Self-Retrofitters
- Sustainability Managers
- Surveyors and Valuation Professionals

"I wish this course had been available at the start of my career"

Daren, Architectural Technologist

Become an Advanced Retrofit Coordinator through CLR

RETROFIT COORDINATOR PLUS

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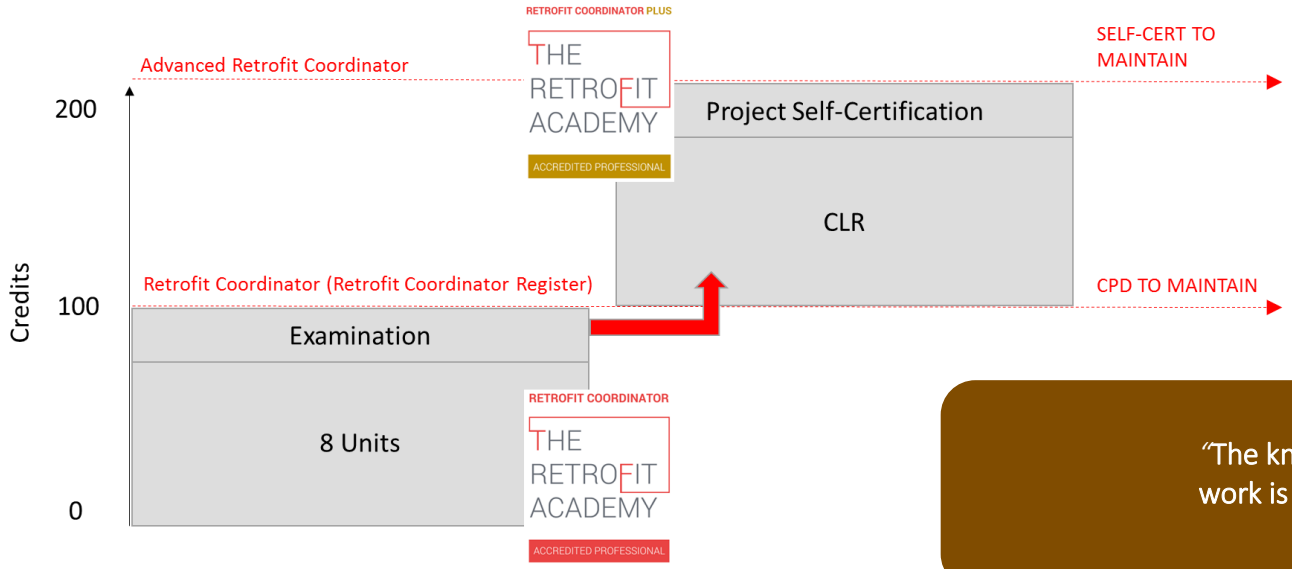
Since 2013, more than 150 professionals have graduated from the Academy to become Retrofit Coordinators. This intermediate-level course provides people with the skills and knowledge to manage, coordinate and quality assure retrofit projects. CLR provides a far deeper understanding of the technical challenges, and how to overcome them. As such, The Academy has agreed that CarbonLite Retrofit is a gateway to become an Advanced Retrofit Coordinator.



CLR Self Certification

Only graduates from CLR will be able to upload projects on to the AECB's new Retrofit Self Certification Scheme.

"The knowledge gained from this course and how it will assist me in my work is well worth the time and very reasonable cost at the outset"

Richard, Passivhaus Designer

Course Content

CarbonLite Retrofit (CLR) features eight modules, each taking an in-depth look at the following:

Module 1: Introduction to CarbonLite Retrofit

This module introduces learners to the key themes and principles underpinning the programme.

1.1 Introduction to CarbonLite Retrofit

1.2 Overview of the course modules

1.3 Benefits of a Successful Retrofit

1.4 Comfort and Health

1.5 Ventilation and air quality

1.6 National and International Context

Module 2: Buildings in the UK Climate

This module explains the variations in the UK's climate and the impact this has on retrofit projects.

2.1 Buildings in the UK Climate – Climate and Weather

2.2 Buildings in the UK Climate – Climate Change

2.3 UK Climates and Microclimates

Module 3: UK Construction

This module examines the UK housing stock, the most common features of their construction and how variations should change specifications and approaches.

3.1 Introduction to UK housing stock

3.2 Traditional Construction

3.3 Non-Traditional Construction

3.4 Retrofitted examples of traditional and non-traditional buildings

3.5 Walls – regional and local variation

3.6 Floors – regional and local variation

3.7 Devising Retrofit Strategy with Existing Defects in Mind

Module 4: Energy in Buildings

This module examines how energy is saved through retrofit and how the performance gap can be eliminated through appropriate design and specification.

4.1 Retrofit Performance Gaps

4.2 Power and Energy in buildings

4.3 Heat Load and Annual Degree Hours

4.4 Useful Energy, Delivered Energy and Primary Energy

4.5 Energy Performance – applying the physics

4.6 The Five Factors of Thermal Performance – New Build

4.7 The Five Factors of Thermal Performance – in retrofit

4.8 Introduction to 3 CLR Modelled House Types

4.9 The CLR Model – UK house types

4.10 Form Factors, Heat Loss and Thermal Bridges

4.11 Embodied Energy in Retrofit

4.12 CLR Certification

Module 5: Moisture in Buildings

This module examines the causes and impacts of moisture within buildings and how to avoid unintended consequences that this often leads to in sub-optimal installation.

5.1 Moisture in Buildings – Biological Decay

5.2 Moisture in Buildings – The Moisture Performance Gap

5.3 Moisture Physics – Relative and Absolute Humidity

5.4 Moisture physics – Diffusion and Bulk Air Movement

5.5 Evaporation and condensation in building materials

5.6 Liquid water and building materials

5.7 Moisture in Materials – Wood Moisture Equivalent

5.8 Moisture Movement – Magnitude and Direction

5.9 Moisture in Buildings – Problems and Solutions

5.10 Heat sources and microclimates

5.11 Moisture Reservoirs, Bulk Air Flow and Diffusion Flow

5.12 Moisture movement – Liquid Water Flows

5.13 Rising Damp and Hygroscopic Moisture

5.14 Suspended floors

5.15 Hygrothermal modelling, surveying, monitoring and analysis

5.16 Introduction to the CLR Case Studies

5.17 Moisture in Buildings – How to look at your retrofit

Module 6: Case Studies

This module provides case study data based upon monitored retrofit projects covering a wide range of building types and materials, employing different insulation and ventilation strategies.

Module 7: Building Services for Retrofit

This module examines the best strategy for retrofitting building services, including the specification of heating, electrical, ventilation and renewables.

7.1 Heating – gas, LPG and oil

7.2 Heating – Electricity and Biomass

7.3 Heating – controls

7.4 Hot water

7.5 Airtightness and Ventilation – extract fans and passive stack

7.6 Airtightness and Ventilation – MEV and MVHR

7.7 Electricity – lighting and appliances

7.8 Renewables – solar thermal and PV

Module 8: Retrofit Investment Appraisals and CLR Cost Modelling

This moduleequips learners with a detailed understanding of how to forecast and model project costs and payback.

8.1 The Costs of Retrofit

8.2 Different Financial Viewpoints and the Decision-Making Process

8.3 A global overview of climate change

8.4 Overview of the UK housing stock

8.5 Financial Concepts and Methods of Appraisal (a)

8.6 Financial Concepts and Methods of Appraisal (b)

8.7 The CarbonLite Retrofit Model – assumptions

8.8 The CarbonLite Retrofit Model – further information

8.9 Investment appraisal in practice

Course Information

Tutors

Andy Simmonds.

Andy has been working on this material for the last three years and brings together his experience as a low energy building designer with research into moisture and energy issues. Andy's own house was the first certified (and monitored) domestic EnerPHit refrofit in the UK.

Eric Parks.

Eric is an experienced Passivhaus architect and building physics trainer on the CarbonLite Certified Passivhaus Designer course, he has co-written a number of the sections of this material.

Bill Butcher.

Bill is an experienced Passivhaus builder, with years of low energy building retrofit experience. Bill is a trainer on the Construction Module of the Carbonlite Certified Passivhaus Designer course and a Certified Passivhaus Consultant and Tradesperson.

Tim Martel

Tim is a freelance Chartered Architectural Technologist and Passivhaus Designer with a background in calculations through commercial R&D. He uses BIM with Simmonds.Mills Architects and others in new build and retrofit projects and is at the forefront of the AECB's retrofit research in moisture monitoring/hygrothermal behaviour and economics. Tim reads widely to expand knowledge of these areas. He uses computer programming in AECB spreadsheets to overcome the calculational challenges in moisture monitoring and economics for the Carbonlite Retrofit course.

Alan Clarke.

Alan is one of the UK's most knowledgeable energy consultants and building services engineers, specialising in Passivhaus design, building on long experience of low energy and ecological construction. His Passivhaus projects include individual and group housing, schools, community centres and offices. In addition to design work he is involved in detailed monitoring of several of these projects which are now completed and occupied, learning invaluable lessons about the real life performance of low energy buildings.

Dr Tina Holt.

Tina trained as an earth scientist with particular focus on the causes and impacts of climate change. She has worked in education, IT and editing technical information for a broader audience. In 2011-12 she retrofitted her own home close to the EnerPHit standard and consults on domestic energy efficiency.

Learner Commitment

What commitment do I have to give to the learning?

In order to fully comprehend the content and benefit from the programme, the AECB advises that each learner spends 130 hours over the course of six months completing the course. This equates to five hours per week, excluding module homework assignments.

- 5 webinars
- 130 hours of self-guided reading and interactive quizzes
- 5 homework tasks based on your own projects

Weekly Webinars

These provide an opportunity for candidates to talk to tutors who will use these webinars to give feedback on homework. Tutors and candidates will discuss retrofit projects they have experience of and work through difficulties and issues arising. If you are not available for the webinars, they are available to watch online after they have taken place.

Start Dates & Prices

"A superb course"
Lois, Environmental scientist and currently retrofitting own home

When can I start?

The next course will run from the 24th April 2017 and is staged to allow prior commitments for holidays and work. Live webinars will take place from 12.00am until 2.00pm on five days during the course.

How much does it cost and how do I book?

For existing AECB members:	£410 +VAT
Non-members:	£446 +VAT (including 1 year individual membership of the AECB)

What does my booking pay for?

- Full access to all online course materials for a period of 12 months
- Access to webinars, tutors and forums
- Learner resource materials

Visit our online shop and select the relevant cohort of 'CarbonLite Retrofit Training' to add to your basket.

Frequently Asked Questions

What if I can't commit to completing within 6 months?
Whilst we encourage candidates to complete the course within the 6 month time frame, once you have joined the course, you have access to the materials for one year, after which point a renewal fee will apply.

If I miss webinars, can I join onto the ones in the next cohort?
Yes, but this requires a transfer fee, so we encourage you to join as many as you can, and watch the recorded versions if you miss them.

Is there guidance available if I get stuck on a module?
Yes. You can either email our team, or discuss your issues with the tutor during the webinar.

Will I be able to access the CLR course lessons after completing the course?
Yes, you will have access to the course material for 12 months after starting the course. After that, you will have the option to retain access on an annual basis (for a modest fee, TBC). This means that as the course is updated or improved over time, you will have access to the latest, most up to date version.

What is the deadline for joining the course?
You need to be signed up and paid by 17th April 2017 to start the course on 24th April 2017.

What elements of the course do I need to do at a fixed time? Or are they all flexible?
In order to get the most from the course, each Module should be completed within the time frame suggested in order to get the most benefit from the on-line tutorial. We estimate that you will need around 5 hours per week to commit to the course but in some modules and around homework/tutorials, slightly more may be needed. Much of this depends on your current knowledge, reading speed etc. The on-line tutorials are fixed dates and times. Although they can be accessed afterwards as a recording, this means you won't be involved in the discussion and your homework is unlikely to be chosen as a case study as you will not be there to present it.

Do you think I can realistically do this course while working full time?
Yes. The course is spread over a 6-month period so that a wide range of busy people can manage it.

"The course has exceeded my expectations"
Jon, Property Manager

Contact

www.aecb.net/carbonlite

As an e-learning provider, we take all of our bookings online.

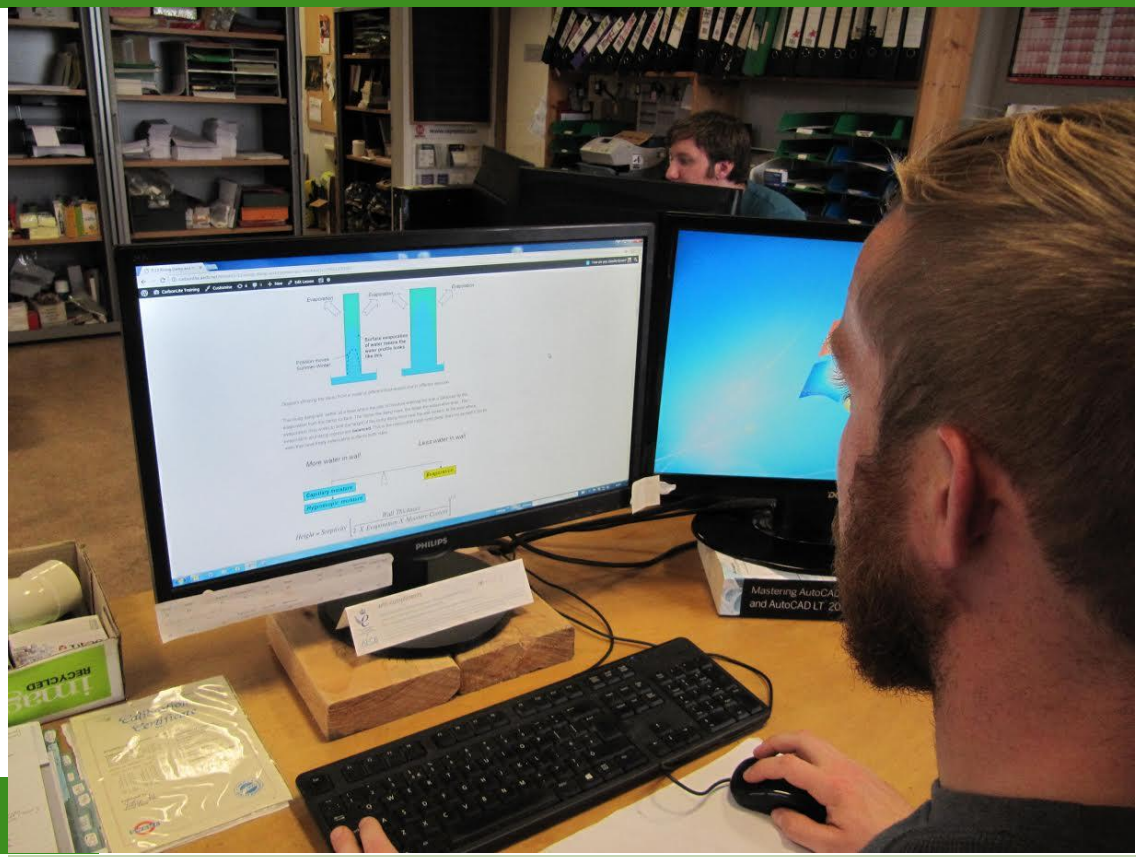
To book, visit our online shop and select relevant cohort of 'CarbonLite Retrofit Training' to add to your basket.

INTERESTED IN FINDING OUT MORE?

Visit: www.aecb.net/carbonlite

Email: emma@aecb.net *or* josie@osmosisconsult.com

Call us: +44 (0) 1785 711574



The AECB CarbonLite Retrofit Programme is supported by:

University of Salford MANCHESTER

EcoHouse Net

Eric Parks
ecological architect
sustainable building consultant

green building store

THE RETROFIT ACADEMY

Simmonds Mills

osmosis

AECB building knowledge

Passive House Institute

CarbonLite Retrofit is developed by the Association of Environment Conscious Building (AECB), and is licensed and operated by Osmosis Strategic Consultants.

FOR MORE INFORMATION:

Please contact the Osmosis Team:
contact@osmosisconsult.com

or visit the website for further information:
www.osmosisconsult.com
www.aecb.net/carbonlite

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