CITB GUIDE

Net Zero Toolkit

Contents

Introduction to net zero

WHO IS THIS TOOLKIT FOR?

This toolkit has been created for all professionals in the construction industry.

It is designed to make information about skills, training, regulations and future requirements surrounding net zero accessible, easy to understand and in a single location.

The toolkit tackles new build as well as the retrofit of existing buildings. So whatever your project, you will find relevant information here.

WHAT IS NET ZERO?

Net zero means any carbon emissions we create are balanced (cancelled out) by taking the same amount out of the atmosphere. We'll reach net zero when the amount of carbon emissions we add is no more than the amount taken away.

The best way to achieve net zero is by reducing emissions as much as possible. Greenhouse gases like carbon dioxide (CO_2) are released when we burn oil, gas and coal for our homes, factories and transport. These gases cause rising temperatures and changing climates by trapping the sun's energy in our atmosphere so we need to reduce our reliance on them. However, not all emissions can be reduced to zero. We can balance out those that remain by removing an equivalent amount.

This allows for sectors where it would be difficult to reach net zero emissions, such as construction, to operate while being offset by other sectors where it's easier to reduce emissions or find alternatives for energy consumption.

Find out more

WHAT NET ZERO MEANS FOR CONSTRUCTION

The UK is firmly on the road to becoming a net zero nation by 2050. Becoming net zero by this deadline is now enshrined in law.

Construction and the built environment is a major source of carbon emissions, representing around 40% of the UK's total output.

This means the construction industry has a big role to play in helping the UK become net zero.

The UK Green Building Council estimates that up to 95% of emissions from the built environment over the next 30 years could come from existing buildings. Much of the industry's efforts to decarbonise will be on retrofitting existing building stock.

New buildings will also need to be highly energy efficient. How they're constructed is important, too. Modern methods of construction, and the skills required to achieve this, will become increasingly common and important.

WHY GOING NET ZERO IS GOOD FOR BUSINESS

- **Meeting regulatory requirements:** With most new build and retrofit projects now requiring compliance with certain environmental standards, and local and national Governments prioritising sustainable developments, being green can lead to more work and money
- **Cost savings:** Sustainable building practices often result in long-term cost savings. Energy-efficient buildings, for example, have lower operational costs, which can benefit both you and your customers
- **New business opportunities:** As the drive towards net zero increases, businesses that invest in sustainable skills and technologies can tap into new markets, such as green building projects, renewable energy and sustainable development
- **Long-term planning:** Sustainable practices and skills future-proof a construction business. As awareness grows, companies that adapt new practices and technologies will succeed
- **Recruitment and retention:** Companies investing in sustainable skills may attract and retain a more skilled and motivated workforce, as employees increasingly seek employers that align with their values and career aspirations.

Frameworks, certifications and regulations

This section guides you through the mandatory and non-mandatory compliance requirements surrounding net zero and sustainable construction.

By getting ahead of the curve and gaining accreditations, you can win contracts, work on public projects and beat the rest of the competition.

PAS 2030 EXPLAINED

PAS (Publicly Available Specification) 2030 is the industry specification for which all energy efficiency installers must be certified to, and compliant with, when carrying out energy efficiency measures under Government initiatives such as ECO.

PAS 2030 sets out the requirements for competence, technical ability, and overall requirements for quality that all installers will follow to ensure work carried out has met the required standard.

PAS 2030 works together with PAS 2035 to create a single approach to domestic retrofit. They lay down the steps all domestic retrofit projects should follow to gain compliance and ensure customer satisfaction.

PAS 2030 CERTIFICATION

Becoming PAS 2030 certified proves your business complies with the specified standards for installation.

Being PAS 2030 certified can help homeowners gain funding for domestic retrofit, help you win tenders, and work on energy efficiency schemes offered by Local Authorities who often require PAS 2030 compliance.

PAS 2030 covers three main types of installations:

- **Building Fabric Measures (BFM):** Including insulation, glazing, and doors
- **Building Services Electrical (BSE):** Including lighting and lighting controls

- **Building Services Mechanical (BSM):** Including boilers and heating systems.

HOW TO BECOME CERTIFIED

To gain accreditation, you'll need to demonstrate that you use a compliant Quality Management System (QMS), hold the relevant qualifications and competencies, and have up-to-date health and safety certifications.

This will then be assessed by a certification body accredited by UKAS.

You can find a full list of certification bodies here

The path to certification can be broken down into six simple steps:

1. Complete application forms
2. Prepare supporting documentation
3. Submit QMS login details
4. Initial assessment
5. Site inspections
6. Follow-up assessment

Find out more

PAS 2035 EXPLAINED

PAS 2035 is the UK's first retrofit standard for a 'whole house' or 'whole building' retrofit. It is concerned with assessing domestic dwellings for energy retrofit. This involves identifying areas where improvements can be made and specifying and designing the relevant improvement measures. It is also concerned with the monitoring of domestic retrofit projects.

PAS 2035 is a specification for what is called 'whole house' or 'whole building' retrofit. This takes into account every aspect of the home's energy efficiency, as well as the needs of the occupants.

It sets out clear and complete specifications for the energy retrofit of domestic buildings. This includes identifying improvement options, design and specific Energy Efficiency

Measures (EEM), and the effective monitoring of retrofit projects.

PAS 2035 RETROFIT

A PAS 2035 retrofit is an energy retrofit (on an existing domestic building) that complies with this new framework.

PAS 2035 outlines a number of professional roles to carry out retrofit, including Retrofit Advisor, Retrofit Assessor, Retrofit Coordinator, Retrofit Designer and Retrofit Evaluator.

Find out the qualification requirements for retrofit role here

Retrofit Coordinators ensure all elements of domestic retrofit are properly managed, and a cohesive plan is designed and implemented.

They are responsible for overseeing the project from inception to completion. This includes the dwelling assessment, retrofit design, installation, through to post-completion evaluation.

Retrofit Assessors survey, inspect and assess a building to collate information for a retrofit design.

Retrofit Designers are responsible for reviewing and using the information included in the retrofit assessment and other documentation to prepare a design and specification for the retrofit work.

Find out more

WHAT'S THE DIFFERENCE BETWEEN PAS 2023 AND PAS 2035?

In a nutshell, PAS 2030 is the certification that confirms you can claim your funding, whereas PAS 2035 are the latest specifications to refer to as your retrofit guidelines.

Compliance with PAS 2035 and PAS 2030 is now mandatory for all companies installing EEMs under Government-funded schemes.

PAS 2038

Looking to retrofit commercial buildings? Then PAS 2038 is relevant for you. The standard is exactly the same as PAS 2035, except it applies to non-domestic retrofit activity. This includes student housing, hotels, warehouses and offices.

Find out more

PASSIVE HOUSE

Passive House (also known as Passivhaus) is a rigorous building standard that focuses on creating highly energy efficient, comfortable and sustainable buildings.

The goal of a Passive House is to create a building that requires minimal external heating and cooling, resulting in consuming up to 90% less heating and cooling energy than conventional buildings. This not only helps reduce the environmental impact but also lowers energy bills for the occupants.

Passive Houses are known for their superior indoor air quality, thermal comfort, and quiet living spaces due to the high-quality construction and ventilation systems.

To achieve the Passive House standard, you need to meet five main principles:

- **High-quality insulation:** To minimise heat loss and gain, Passive Houses are built with a highly insulated building envelope. This means using a thick layer of insulation in walls, roofs, and floors to create a barrier that prevents the transfer of heat between the interior and exterior of the building
- **Airtight construction:** That means no draughts coming in and no leaks coming out. It should be carefully considered at the design stage, as the air barrier of the home will need to be continuous and clear
- **Thermal bridge free design:** Thermal bridges are pathways through which heat can easily transfer between the inside and outside of a building. Passive Houses are designed and constructed to minimise or eliminate thermal bridges, ensuring that heat is not lost through structural elements
- **High-performance windows and doors:** Passive Houses feature high-quality, triple-glazed windows and well-insulated doors that minimise heat transfer and contribute to the overall energy efficiency of the building

- **Heat recovery ventilation (HRV):** A HRV system supplies fresh outdoor air while simultaneously recovering and reusing heat from the exhaust air.

Use the Passivhaus Trust's guide to see how you can get certified.

Passivhaus Trust's guide

SCOTTISH PASSIVHAUS EQUIVALENT STANDARD

In December 2024, the Scottish Government laid amendments to the Building (Procedure) (Scotland) Regulations to enable the implementation of the Scottish equivalent to the Passivhaus standard. The Scottish Government aims to publish the revised standards in early 2026, but they will not become mandatory until 31 March 2028. Technical proposals are due to be consulted on in 2025.

Find out more

BREEAM EXPLAINED

Building Research Establishment Environmental Assessment Method (BREEAM) is a sustainability assessment method for master planning projects, infrastructure and buildings.

It provides a framework for assessing the environmental, social, and economic sustainability performance of buildings and infrastructure projects.

It assesses energy use, water consumption, materials selection, waste management, pollution, health and wellbeing, and management processes. It assigns credits based on the performance of the project against these criteria, leading to a final certification rating ranging from Pass to Outstanding.

It helps developers, designers, and building owners improve the sustainability performance of their projects and demonstrate their commitment to environmental responsibility.

Find out more

NET ZERO CARBON BUILDING STANDARD

The UK's first cross-industry Net Zero Carbon Buildings Standard that brings together net zero carbon requirements for all major building types, based on a 1.5°C trajectory.

Whilst significant progress has been made in defining what 'net zero' means for buildings in the UK, a process of market analysis showed a clear demand for a single, agreed methodology.

The UK Net Zero Carbon Buildings Standard enables industry to robustly prove their built assets are net zero carbon and in line with our nation's climate targets.

Find out more

WLCA FOR THE BUILT ENVIRONMENT

Using the Whole Life Carbon Assessment (WLCA) standard, assessors can estimate the amount of carbon emitted throughout the life cycle of a constructed asset, from the early stages of development through to the end of life. It gives visibility to embodied carbon, operational carbon, and user carbon – something that is vital to carbon calculations and a unique feature of the RICS standard.

By giving visibility to the carbon cost of different design choices, the standard aims to help manage carbon budgets, reduce lifetime emissions and deliver a net zero future for the built environment.

This standard can be used by a range of professionals, from quantity surveyors, cost consultants and building surveyors to designers, engineers and environmental, social and governance consultants, enabling them to meet client demand by measuring and managing carbon emissions in a reliable and consistent manner.

Contractors and developers can use WLCA for a consistent reporting approach that will help them to deliver against both Government and client demands for the measurement of embodied carbon, net zero buildings and infrastructure.

WLCA can also give financial decision-makers such as investors, lenders and others a long-term view of cost and carbon throughout the asset's life cycle, promoting sustainable and low-carbon building and infrastructure investments.

RICS have a dedicated hub which hosts a range of implementation guides and supporting documents.

Find out more

Upskill your workforce

This section covers the various net zero skills and training opportunities available.

Grouped by occupational areas and broken down by long-term qualifications (such as NVQs) and short duration training courses, they are all supported by CITB grants and funding.

INSULATION

Insulation installers fit insulation materials into buildings, such as damp proofing, thermal insulation and cavity wall insulation. Their work helps buildings to retain their heat and be more energy efficient.

QUALIFICATIONS

England and Wales:

- Level 2 and Level 3 NVQ Insulation and Building Treatments (Construction)
- Level 2 and Level 3 NVQ Thermal Insulation
- Level 3 NVQ Diploma Insulation and Building Treatments (Construction)
- Level 3 NVQ Diploma Thermal Insulation

Scotland:

- Level 5 and Level 6 SVQ Insulation and Building Treatments (Construction) SCQF
- Level 5 and Level 5 SVQ Thermal Insulation SCQF

All qualifications are set against the Insulation and Building Treatments National Occupational Standard (NOS).

Learn more

Find a training course near you

FUNDING

Eligible for a £600 CITB qualification grant.

CITB qualification grant

TRAINING

There are a number of CITB-assured short duration training courses linked to insulation, including:

Applying surface finishes to external wall insulation introduction

IBT building construction, defects and interfaces

Internal fixing of cavity drainage membranes

Preparing to and installing external wall insulation introduction

Surface preparation and board installation for external wall insulation

Bonding, taping and positioning insulation board

- Install internal wall insulation (IWI) - direct bond
- Install internal wall insulation (IWI) - direct bond - refresher
- Install internal wall insulation (IWI) - framed systems (metal or timber) - refresher
- Installing double skin and insulation
- Insulation calculations, condensation risk and vapour control layers
- Thermal and acoustic insulation and underfloor heating
- Thermal and acoustic insulation and underfloor heating - refresher

FUNDING

Eligible for CITB short course grants, ranging from £60 to £140.

- CITB short course grants

WATERPROOFING

Waterproofing is a vital skill to ensure buildings and roofs remain airtight and waterproof. It includes specialised professions, such as Sealant Applicators and Waterproof Membranes Installers, or part of the role of Roofers and Builders.

QUALIFICATIONS

England and Wales:

- Level 2 NVQ in Waterproof Membrane Roofing Systems
- Level 2 NVQ in Sub-structure Work Occupations (Construction) - Structural Waterproofing.

Scotland:

- Level 5 SVQ in Waterproof Membrane Roofing Systems SCQF.

There's also a specialist applied-skills programme (SAP) in Structural Waterproofing (Below Ground) available across the UK.

Learn more

Find a training course near you

FUNDING

Eligible for a £600 CITB qualification grant

CITB qualification grant

TRAINING

There are a number of CITB-assured short duration training courses linked to waterproofing, including:

- Apply liquid, multi-pack, resin and mastic asphalt systems
- Certificated surveyor in structural waterproofing (CSSW) examination preparation
- Install cavity drainage membrane systems
- Install drains, sumps and pumping ancillaries
- Install sheet membrane systems
- Legal aspects; survey methodology and report writing for waterproofing
- PCA qualified technician training (structural waterproofing)
- Prepare surfaces for structural waterproofing
- Rooflights, maintenance and waterproofing
- Structural waterproofing update
- Surveyor in structural waterproofing
- Waterproofing introduction
- Waterproofing membranes

FUNDING

Eligible for CITB short course grants, ranging from £60 to £140.

- CITB short course grants

RETROFIT

Retrofitting our homes and buildings to become more efficient is potentially one of the most important aspects of the drive to become net zero. Retrofit encompasses trades such as plastering, joinery and carpentry, and professions such as Retrofit Advisor and Retrofit Assessor.

QUALIFICATIONS

The following retrofit courses are offered UK-wide and span from building knowledge in energy efficient building projects through to those looking to manage PAS 2035 compliant retrofit projects.

- Level 2 Award in Understanding Domestic Retrofit
- Level 3 Award in Retrofit Advisor Certificate
- Level 3 Award in Energy Efficiency for Older and Traditional Buildings
- Level 4 Award in Domestic Retrofit Assessment
- Level 5 Diploma in Retrofit Coordination & Risk Management

To find a training course near you please visit one of the following Awarding Bodies:

Retrofit ABBE
NOCN
City and Guilds
AIM Qualifications
GQA Qualifications
SQA
ProQual

England and Wales:

- Level 4 and Level 6 NVQ Diploma in Construction Site Supervision (Construction) – Retrofit
- Level 2 Green Ambassador within the Retrofit Sector.

Scotland:

- Level 7 Construction Site Supervision (Construction): Retrofit SCQF
- Level 10 Construction Site Management (Construction): Retrofit SCQF.

FUNDING

Eligible for a £600 CITB qualification grant. Please note that from September 2025 onwards, qualifications given as an "Award" will receive a £240 grant instead of the standard £600.

CITB qualification grant

The Level 5 Diploma is eligible for a £600 CITB qualification grant.

CITB qualification grant

TRAINING

There are a number of CITB-assured short duration training courses linked to retrofitting, including:

- Residential ventilation masterclass
- Retrofit for older and traditional buildings
- Retrofit insulation masterclass
- Condensation and atmospheric moisture management

FUNDING

Eligible for CITB short course grants, ranging from £60 to £140.

- CITB short course grants

ROOFING

With the advent of green roofing and solar roofs, roofers are playing an integral role in sustainable construction, and there are plenty of upskilling opportunities to take advantage of. Please note that these are general roofing qualifications which have net zero related pathways such as solar collector.

QUALIFICATIONS

England and Wales:

- Level 2 and Level 3 NVQ Insulation and Building Treatments (Construction)
- Level 2 and Level 3 NVQ Thermal Insulation
- Level 3 NVQ Diploma Insulation and Building Treatments (Construction)

- Level 3 NVQ Diploma Thermal Insulation.

Scotland:

- Level 5 VQ in Roofing (Construction)
- Level 6 VQ in Roofing Occupations (Construction).

Find a training course near you 

FUNDING

Eligible for a £600 CITB qualification grant.

CITB qualification grant 

TRAINING

There are a number of CITB-assured short duration training courses linked to green roofing, including:

- Defect prevention - roofs
- Environmental and sustainability for liquid roofing
- Green roofs
- Roof structures terminology and types
- Tapered insulation systems
- Thermal insulation for single ply roofing
- Built up roofing (RBM) waterproof membrane roofing systems abutments

Built up roofing (RBM) waterproof membrane roofing systems protection inspection and testing

Insulation calculations, condensation risk and vapour control layers

Ventilating pitched roofing

FUNDING

Eligible for CITB short course grants, ranging from £60 to £140.

CITB short course grants

SUPERVISORY AND MANAGEMENT

Construction managers, environmental managers and project developers are in high demand as monitoring and implementing sustainability strategies becomes increasingly important.

QUALIFICATIONS

Short qualifications:

- Level 4 Diploma/VQ in Construction and Building Services Management and Supervision (Sustainability)
- Level 5 Diploma/VQ in Construction Management (Sustainability).

Long qualifications:

- Structural Design and Construction Management with Sustainability MSc.

FUNDING

Eligible for a £600 CITB qualification grant.

CITB qualification grant

Eligible for a long qualification grant, worth £1,125 per year of attendance, up to a maximum of six years, plus £1,875 on completion of the qualification.

CITB long qualification grant

TRAINING

There are a number of CITB-assured short duration training courses linked to supervisory and management, including:

Environmental management in construction

Environmental management in construction - refresher

Environmental management in construction - SSP

Environmental supervision in construction training - SSP

FUNDING

Eligible for CITB short course grants, ranging from £60 to £140.

CITB short course grants

Useful resources

TRAINING AND EDUCATION

- Retrofit Academy - Retrofit 101 free online introductory training
- CLC National Retrofit Hub – Knowledge hub, events page and list of training provision
- SCSS retrofit training resources and assessment – free to access for all employers
- SCSS sustainability training resources and assessment
- Heat Pump Association – Training for installersing provision
- MCS training directory – find training courses approved by the Microgeneration Certification Scheme

GUIDES AND TOOLKITS

- CONIAC low carbon homes RMI retrofit guide for small employers
- Energy Saving Trust insulation installer toolkit
- Future Homes Standard – Part O guidance
- MCS Heat Pump Guide
- EV charge points – Installer guidance

TOOLS AND CALCULATORS

- SCSS carbon calculator
- Biodiversity net gain

KNOWLEDGE AND INFORMATION HUBS

- Welsh Zero Carbon Hwb
- Sustainable Traditional Buildings Alliance – Responsible retrofit knowledge centre
- UKGBC Bitesize Explainer Guides
- Energy Systems Catapult
- Unlock Net Zero

ENVIRONMENTAL AND WASTE MANAGEMENT

- Water conservation – Water management planning
- Waste Management – CECA Waste Classification and Permitting
- Site Waste Reduction Protocol – Zero Waste Scotland