



## Qualification Specification for:

### OCN NI Level 5 Award in Retrofitting Domestic Properties

➤ Qualification No: 610/0597/6

### OCN NI Level 5 Certificate in Retrofitting Domestic Properties

➤ Qualification No: 610/0596/4

### OCN NI Level 5 Extended Certificate in Retrofitting Domestic Properties

➤ Qualification No: 610/0595/2

## Qualification Regulation Information

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### **OCN NI Level 5 Award in Retrofitting Domestic Properties**

Qualification Number: 610/0597/6

### **OCN NI Level 5 Certificate in Retrofitting Domestic Properties**

Qualification Number: 610/0596/4

### **OCN NI Level 5 Extended Certificate in Retrofitting Domestic Properties**

Qualification Number: 610/0595/2

Operational start date: 15 March 2022  
Operational end date: 28 February 2027  
Certification end date: 28 February 2032

Qualification operational start and end dates indicate the lifecycle of a regulated qualification. The operational end date is the last date by which learners can be registered on a qualification and the certification end date is the last date by which learners can claim their certificate.

All OCN NI regulated qualifications are published to the Register of Regulated Qualifications (<http://register.ofqual.gov.uk/>). This site shows the qualifications and awarding organisations regulated by CCEA Regulation and Ofqual.

### **OCN NI Contact Details**

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## Foreword

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This document explains OCN NI's requirements for the delivery and assessment of the following regulated qualifications:

- **OCN NI Level 5 Award in Retrofitting Domestic Properties**
- **OCN NI Level 5 Certificate in Retrofitting Domestic Properties**
- **OCN NI Level 5 Extended Certificate in Retrofitting Domestic Properties**

This specification sets out:

- Qualification features
- Centre requirements for delivering and assessing the qualification
- The structure and content of the qualification
- Unit details
- Assessment requirements for the qualification
- OCN NI's quality assurance arrangements for the qualification
- Administration

OCN NI will notify centres in writing of any major changes to this specification. We will also publish changes on our website at [www.ocnni.org.uk](http://www.ocnni.org.uk)

This specification is provided online, so the version available on our website is the most up to date publication. It is important to note that copies of the specification that have been downloaded and printed may be different from this authoritative online version.

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## About Regulation

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### OCN NI

Open College Network Northern Ireland (OCN NI) is a regulated Awarding Organisation based in Northern Ireland. OCN NI is regulated by CCEA Regulation to develop and award professional and technical (vocational) qualifications from Entry Level up to and including Level 5 across all sector areas. In addition, OCN NI is regulated by Ofqual to award similar qualification types in England.

### The Regulated Qualifications Framework: an overview

The Regulated Qualifications Framework (RQF) was introduced on 1<sup>st</sup> October 2015: the RQF provides a single framework for all regulated qualifications.

#### Qualification Level

The level indicates the difficulty and complexity of the knowledge and skills associated with any qualification. There are eight levels (Levels 1-8) supported by three 'entry' levels (Entry 1-3).

#### Qualification Size

Size refers to the estimated total amount of time it could typically take to study and be assessed for a qualification. Size is expressed in terms of Total Qualification Time (TQT), and the part of that time typically spent being taught or supervised, rather than studying alone, is known as Guided Learning Hours (GLH).

## Qualification Features

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### Sector Subject Area

5.2 Building and construction

### NOS - Retrofitting

### Qualification Aim

The aim of the OCN NI Level 5 Award, Certificate and Extended Certificate in Retrofitting Domestic Properties is to provide the learner with an understanding of the application of retrofit technologies.

### Qualification Objectives

The objectives of the OCN NI Level 5 Award, Certificate and Extended Certificate in Retrofitting Domestic Properties are to enable learner to gain the skills and knowledge in the following areas:

- evaluating domestic buildings for retrofitting
- thermal efficiency and moisture risks within retrofit buildings
- improvement options for retrofit buildings
- air tightness and ventilation in retrofit buildings
- upgrading insulation of roofs and floors as part of a retrofit project
- reducing the thermal transmittance of walls and windows for retrofit projects
- upgrading mechanical and electrical services as part of a retrofit project
- implementing renewable energy systems and storage within retrofit projects
- quality assurance and post retrofit monitoring

### Grading

Grading for these qualifications is pass/fail.

### Qualification Target Group

The OCN NI Level 5 Award, Certificate and Extended Certificate in Retrofitting Domestic Properties are targeted at learners who wish to develop skills and knowledge in the retrofitting of domestic properties.

Learners would be expected to have experience within the construction industry and be interested in improving the carbon footprint of buildings.

### **Progression Opportunities**

The OCN NI Level 5 Award in Retrofitting Domestic Properties will allow learners to progress to the OCN NI Level 5 Certificate and Extended Certificate in Retrofitting Domestic Properties. From there learners may progress to higher level qualifications in the area of environmental conservation and retrofitting domestic properties or into employment.

### **Entry Requirements**

Learners must be at least 18 years of age and have a level 3 qualification or at least five years' experience in the construction or related industries. Learners must also meet all regulatory and statutory licensing and standards where appropriate in order to perform practical activities governed by the regulations within the qualifications.

### **Qualification Support**

A Qualification Support pack is available for OCN NI centres within the login area of the OCN NI website (<https://www.ocnni.org.uk/my-account/>), which includes additional support for teachers, eg planning and assessment templates, guides to best practice, etc.

### **Delivery Languages**

These qualifications are available in English only at this time. If you wish to offer these qualifications in Welsh or Irish (Gaeilge) then please contact OCN NI who will review demand and provide as appropriate.

## Centre Requirements for Delivering the Qualification

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### Centre Recognition and Qualification Approval

New and existing OCN NI recognised centres must apply for and be granted approval to deliver the qualification prior to the commencement of delivery.

### Equipment Requirements

Centres offering these qualifications must provide learners with access to industry standard equipment and technologies including buildings in order to demonstrate practical elements within each of the units.

### Centre Staffing

Centres are required to have the following roles in place as a minimum, although a member of staff may hold more than one role\*:

- Centre contact
- Programme Co-ordinator
- Tutor
- Assessor
- Internal Verifier

\*Note: A person cannot be an internal verifier for their own assessments.

### Tutors

Tutors delivering these qualifications should be qualified to at least one level higher than the qualification and have at least three years' industry experience in the specific retrofitting area they are teaching.

### Assessors

The qualifications are assessed within the centre and is subject to OCN NI's quality assurance processes. Units are achieved through internally set, internally assessed, and internally verified evidence.

#### **Assessors must:**

- qualified to at least one level higher than the qualification and have at least three years' industry experience in the specific retrofitting area they are teaching
- have a relevant assessor qualification
- have direct or related relevant experience in assessment
- assess all assessment tasks and activities

### **Internal Verification**

OCN NI qualifications must be scrutinised through the centre's internal quality assurance processes as part of the recognised centre agreement with OCN NI. The centre must appoint an experienced and trained centre internal verifier whose responsibility is to act as the internal quality monitor for the verification of the delivery and assessment of the qualifications.

The centre must agree a working model for internal verification with OCN NI prior to delivery of the qualifications.

#### ***Internal Verifiers must:***

- qualified to at least one level higher than the qualification and have at least three years' industry experience in the specific retrofitting area they are teaching
- attend OCN NI's internal verifier training if not already completed or have relevant internal verification qualifications

Internal verifiers are required to:

- support tutors and assessors
- sample assessments according to the centre's sampling strategy
- ensure tasks are appropriate to the level being assessed
- maintain up-to-date records supporting the verification of assessment and learner achievement

## Structure and Content

### OCN NI Level 5 Award in Retrofitting Domestic Properties

In order to achieve this qualification learners must complete 5 credits.

Total Qualification Time (TQT) for this qualification:	50 hours
Minimum Guided Learning Hours (GLH) for this qualification:	21 hours

### OCN NI Level 5 Certificate in Retrofitting Domestic Properties

In order to achieve this qualification learners must successfully complete 13 credits.

Total Qualification Time (TQT) for this qualification:	130 hours
Minimum Guided Learning Hours (GLH) for this qualification:	57 hours

### OCN NI Level 5 Extended Certificate in Retrofitting Domestic Properties

In order to achieve this qualification learners must complete all units - 33 credits.

Total Qualification Time (TQT) for this qualification:	330 hours
Minimum Guided Learning Hours (GLH) for this qualification:	165 hours

Unit Reference Number	OCN NI Unit Code	Unit Title	Credit Value	GLH	Level
<a href="#">T/650/1562</a>	CBF761	Domestic Deep Energy Retrofit	1	5	Five
<a href="#">Y/650/1563</a>	CBF762	Evaluating Domestic Buildings for Retrofitting	3	15	Five
<a href="#">A/650/1564</a>	CBF763	Thermal Efficiency and Moisture Risks Within Retrofit Buildings	6	30	Five
<a href="#">D/650/1565</a>	CBF764	Improvement Options for Retrofit Buildings	3	15	Five
<a href="#">F/650/1566</a>	CBF765	Air Tightness and Ventilation in Retrofit Buildings	3	15	Five
<a href="#">H/650/1567</a>	CBF767	Upgrading Insulation of Roofs and Floors as Part of a Retrofit Project	5	21	Five

Unit Reference Number	OCN NI Unit Code	Unit Title	Credit Value	GLH	Level
<a href="#">J/650/1568</a>	CBF768	Reducing the Thermal Transmittance of Walls and Windows for Retrofit Projects	5	21	Five
<a href="#">K/650/1569</a>	CBF769	Upgrading Mechanical and Electrical Services as Part of a Retrofit Project	3	19	Five
<a href="#">R/650/1570</a>	CBF770	Implementing Renewable Energy Systems and Storage within Retrofit Projects	3	19	Five
<a href="#">T/650/1571</a>	CBF771	Quality Assurance and Post Retrofit Monitoring	1	5	Five

## Unit Details

Title	Domestic Deep Energy Retrofit
Level	Five
Credit Value	1
Guided Learning Hours (GLH)	5
OCN NI Unit Code	CBF761
Unit Reference No	T/650/1562
<i>Unit purpose and aim(s):</i> This unit will enable the learner to understand the retrofitting of domestic buildings including energy performance targets and different options which may be implemented to demonstrate energy savings.	
Learning Outcomes	Assessment Criteria
1. Understand the impact of domestic energy use within the political and economic context.	1.1. Explain how the UK and Northern Ireland governments and local administrations intend to meet relevant carbon reduction targets. 1.2. Research and analyse price fluctuations of carbon-based fuels for home energy and heating and their impact on fuel poverty for domestic occupants and homeowners. 1.3. Analyse which greenhouse gases are a product of energy use in domestic buildings.
2. Understand domestic energy use and how it differs between domestic properties.	2.1. Critically compare and contrast energy use in typical domestic properties and why this may vary between buildings. 2.2. Analyse with examples thermal losses from a given building envelope and associated environmental issues on thermal losses.
3. Be able to explain the benefits of deep retrofitting in domestic properties.	3.1. Explain how improvements to domestic buildings may enhance an occupant's health and living standard. 3.2. Explain the benefits of domestic retrofit to: a) tenants b) homeowners
4. Understand current deep retrofit standards and how they can reduce carbon emissions from existing property stocks.	4.1. Explain current retrofit standards. 4.2. Critically evaluate how current retrofit standards may be improved to promote greater reduction in carbon emissions from existing domestic property stocks.
5. Understand issues to be considered when selecting retrofit options.	5.1. Summarise the main current retrofit measures in use. 5.2. Explain what is meant by the following in relation to retrofit: a) simple payback b) carbon cost effectiveness c) balance of costs against improved energy losses 5.3. Summarise possible restrictions to retrofit that may come from local authorities and planning offices.

<p>6. Understand retrofit principles and associated trigger points.</p>	<p>6.1. Explain the need for a whole house approach to retrofit.</p> <p>6.2. Explain the key trigger points for retrofit and how they may impact on the design.</p> <p>6.3. Explain what is meant by a fabric first approach to deep retrofit.</p> <p>6.4. Explain why air tightness relies on the quality of the installation of the insulation and drawing details in order to omit thermal bridges.</p> <p>6.5. Explain how the role of ventilation and heating systems are interconnected in order to improve the heating efficiency and carbon reductions of a property.</p>
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#### Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Evaluating Domestic Buildings for Retrofitting
Level	Five
Credit Value	3
Guided Learning Hours (GLH)	15
OCN NI Unit Code	CBF762
Unit Reference No	Y/650/1563
<i>Unit purpose and aim(s):</i> This unit will enable the learner to understand the assessment of energy efficiency in domestic buildings including British Research Establishment Domestic Energy Model (BREDEM), implementation of Standard Assessment Procedure (SAP), Passive House Planning Package (PHPP) and carbon emissions from domestic properties.	
Learning Outcomes	Assessment Criteria
1. Understand the application of BREDEM in the assessment of energy use.	1.1. Explain how heat loss, heat gain and heat balance are estimated in BREDEM. 1.2. Explain how BREDEM distinguishes models of air leakage into buildings, permeability, and air tightness. 1.3. Explain the sources of internal heat gains from all sources as determined by BREDEM. 1.4. Explain how the heating efficiency is calculated in BREDEM. 1.5. Explain how the domestic demands for appliances, lighting and hot water are implemented within BREDEM.
2. Understand different methods used in assessing building efficiency.	2.1. Explain the reasons for the introduction of Reduced Data SAP (RDSAP). 2.2. Critically compare and contrast full SAP and RDSAP. 2.3. Justify when using RDSAP why differences and variations of occupancy are necessary. 2.4. Determine the appropriate assessment process for a dwelling, built post 2007 which does not have a Building Energy Rating (BER) produced by SAP.
3. Understand different methods and processes used to conduct an energy survey.	3.1. Evaluate the process of how a given energy survey is assessed and issues that may impact on the survey being carried out effectively. 3.2. Determine the most effective methods of carrying out a given energy survey and assessment of a given domestic building.
4. Understand the role of Domestic Energy Assessors (DEAs) and associated standards.	4.1. Explain the role of a DEA including: a) training b) registration c) quality assurance procedures 4.2. Explain the UK and local authority standards relating to domestic retrofit co-ordination.
5. Understand PHPP, SAP and energy assessment.	5.1. Explain how PHPP and SAP have developed into methods of determining the energy efficiency of buildings. 5.2. Critically compare and contrast different UK methods of assessment for the energy efficiency of domestic properties, incorporating the use of PHPP and SAP.

<p>6. Be able to carry out an evaluation of domestic buildings for retrofitting and determine what information should be included in evaluation.</p>	<p>6.1. Explain how site constraints can be assessed.</p> <p>6.2. Analyse construction and building condition issues which should be considered when evaluating domestic buildings for retrofit.</p> <p>6.3. Explain how the following impacts on the evaluation of domestic buildings:</p> <ul style="list-style-type: none"> <li>a) objectives of the owner or occupier</li> <li>b) constraints</li> <li>c) budgets</li> </ul> <p>6.4. Carry out an evaluation of a domestic building for retrofit to include localised factors that should be considered.</p>
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#### Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	<p>A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes</p> <p>OR</p> <p>A collection of documents containing work that shows the learner's progression through the course</p>	<p>Learner notes/written work</p> <p>Learner log/diary</p> <p>Peer notes</p> <p>Record of observation</p> <p>Record of discussion</p>
Practical demonstration/assignment	<p>A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practice and apply skills and knowledge</p>	<p>Record of observation</p> <p>Learner notes/written work</p> <p>Learner log</p>
Coursework	<p>Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course</p>	<p>Record of observation</p> <p>Learner notes/written work</p> <p>Tutor notes/record</p> <p>Learner log/diary</p>
E-assessment	<p>The use of information technology to assess learners' work</p>	<p>Electronic portfolio</p> <p>E-tests</p>

Title	Thermal Efficiency and Moisture Risks Within Retrofit Buildings
Level	Five
Credit Value	6
Guided Learning Hours (GLH)	30
OCN NI Unit Code	CBF763
Unit Reference No	A/650/1564
<i>Unit purpose and aim(s):</i> This unit will enable the learner to understand the effects of the combination of moisture and heat in building physics, how to prevent and control moisture risks and understand the sources of heat gains and losses in domestic properties.	
Learning Outcomes	Assessment Criteria
1. Understand different modes of moisture transfer in buildings.	1.1. Explain the processes of moisture transfer in buildings including: a) condensation b) penetrating damp c) leakage d) rising damp e) moisture transfer due to lack of ventilation f) indoor moisture sources
2. Be able to adapt control measures to address moisture when retrofitting buildings.	2.1. Explain why it is necessary to control moisture levels in dwellings for building components and occupant welfare. 2.2. Summarise key aspects of current guidance for moisture control in building regulations and British standards. 2.3. Research various methods of moisture control in dwellings. 2.4. Demonstrate how to adapt control measures to address moisture when retrofitting buildings.
3. Be able to apply methods of moisture control and interpret results from hygrothermal simulations.	3.1. Select with justification and apply a method for controlling moisture activity in dwellings. 3.2. Critically compare the results analysis undertaken in AC 3.1 with results from hygrothermal simulations.
4. Understand heat loss from buildings.	4.1. Explain the mechanisms of heat loss through conduction, convection, and radiation. 4.2. Explain heat loss through thermal bridging, thermal by-pass and ventilation.
5. Understand heat gains from different sources in dwellings.	5.1. Explain heat gains from different sources including: a) insulation b) solar gains c) internal heat gains from equipment and people 5.2. Evaluate the occupant impact from heat gains due to solar gains.

<p>6. Be able to calculate heat balance in buildings.</p>	<p>6.1. Explain what is meant by:  a) thermal conductivity  b) thermal transmittance  c) thermal bridging</p> <p>6.2. Explain the heat balance of a dwelling and how it is calculated.</p> <p>6.3. Summarise with examples how external conditions and occupants' activities affect the heat balance in a typical dwelling.</p> <p>6.4. Explain with examples how U values and <math>\Psi</math> values are calculated for a given wall.</p> <p>6.5. Calculate the heat balance for a given building.</p>
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#### Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practice and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Improvement Options for Retrofit Buildings
Level	Five
Credit Value	3
Guided Learning Hours (GLH)	15
OCN NI Unit Code	CBF764
Unit Reference No	D/650/1565
<i>Unit purpose and aim(s):</i> This unit will enable the learner to understand the environmental and economic drivers for domestic retrofit. The learner will be able to evaluate different options for retrofit and understand the differences between whole house and incremental retrofits.	
Learning Outcomes	Assessment Criteria
1. Understand the environmental, financial, and social drivers of domestic retrofit.	1.1. Explain the environmental, financial, and social drivers of domestic retrofit.
2. Understand the financial and carbon dioxide savings associated with domestic retrofit.	2.1. Summarise the key economic aspects of domestic retrofit. 2.2. Explain the connection between capital costs, fuel costs and savings in fuel use. 2.3. Explain the connection between savings in fuel use, fuel costs and carbon emissions. 2.4. Explain why savings achieved by a package of retrofit measures are not the sum of the savings achieved by the individual measures. 2.5. Determine why savings associated with each measure in a package of retrofit measures depends on the order in which they are implemented, and how this problem may be addressed.
3. Understand incentives and funding schemes available for domestic retrofit.	3.1. Summarise the main current schemes for funding domestic retrofit projects to include: a) eligibility b) funding exclusions and limitations c) management of installation quality
4. Be able to calculate available funding for retrofit projects under the current funding scheme.	4.1. Calculate the funding available for a given domestic retrofit project under the current funding scheme.
5. Understand how to plan retrofits.	5.1. Critically compare and contrast one-off and incremental retrofit. 5.2. Explain the benefits of a whole house retrofit plan. 5.3. Prepare a whole house retrofit plan for a given retrofit project. 5.4. Identify appropriate presentation formats to present retrofit plans to prospective clients.

### Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

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Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practice and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Air Tightness and Ventilation in Retrofit Buildings
Level	Five
Credit Value	3
Guided Learning Hours (GLH)	15
OCN NI Unit Code	CBF765
Unit Reference No	F/650/1566
<i>Unit purpose and aim(s):</i> This unit will enable the learner to understand the fundamental roles of air tightness and proper ventilation in retrofitted buildings. The learner will understand current technologies in mechanical air movement and ventilation, the stages involved in preventing buildings overheating during summer months and the importance of air quality for occupants.	
Learning Outcomes	Assessment Criteria
1. Understand air tightness and ventilation design for retrofit projects.	1.1. Summarise factors that contribute to internal air quality and how they occur within domestic buildings. 1.2. Explain what is meant by the term Build Tight and Ventilate Right in respect of retrofitting domestic buildings. 1.3. Explain how improved air tightness affects the overall ventilation requirements of the building. 1.4. Explain how the Publicly Available Specification from British Standards Institute (BSI), PAS2035 impacts on how buildings are ventilated.
2. Understand how the internal air condition of domestic buildings is affected by the air tightness of a retrofit.	2.1. Explain how air tightness of a building impacts on the ventilation design. 2.2. Explain factors affecting the building fabric airtightness. 2.3. Explain the balance of effective air tightness with correct ventilation design. 2.4. Summarise the benefits of good ventilation design and installation to the occupant. 2.5. Explain the benefits of improving building fabric airtightness. 2.6. Explain the internal and external considerations affecting a retrofit ventilation strategy including: a) factors contributing to overheating b) risks from overheating
3. Understand different options available for ventilation systems in domestic retrofit projects.	3.1. Critically evaluate the advantages and possible disadvantages of available ventilation systems. 3.2. Explain how air tightness of the building fabric may impact on the choice of ventilation systems. 3.3. Summarise the possible issues involved in using mechanical ventilation heat recovery (MVHR) in retrofitted buildings. 3.4. Analyse how techniques for improving user demand control ventilation (DCV) systems are being incorporated in buildings to adapt to fluctuating occupancy.

### Assessment Guidance

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Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Upgrading Insulation of Roofs and Floors as Part of a Retrofit Project
Level	Five
Credit Value	5
Guided Learning Hours (GLH)	21
OCN NI Unit Code	CBF767
Unit Reference No	H/650/1567
<i>Unit purpose and aim(s):</i> This unit will enable the learner to understand how thermal bridging affects heat transfer and compare the effectiveness of different insulation methods to reduce heat loss. The learner will also be able to install insulation products in floors and roofs to improve insulation.	
Learning Outcomes	Assessment Criteria
1. Understand current standards for improving insulation of roofs and floors in a retrofit project.	1.1. Explain how the combination of insulation and airtightness is effective within retrofit projects. 1.2. Explain how the management of moisture is critical within buildings. 1.3. Summarise the minimum standards for the insulation of roofs and floors for retrofit projects. 1.4. Explain the difference between water vapour, moisture, and humidity.
2. Be able to install natural and alternative materials for floor and roof insulation.	2.1. Summarise the properties, vapour permeability and thermal performance of different floor and roof insulation products. 2.2. Evaluate and select appropriate insulation materials to reduce thermal transmission. 2.3. Demonstrate correct methods of improving insulation of floors and roofs using natural and alternative materials for different retrofit projects. 2.4. Calculate the thermal transmittance heat loss before and after floor and roof insulation improvements carried out in AC 2.3.
3. Understand how thermal bridging occurs around roofs and floors, how it can be identified and corrected.	3.1. Explain what is meant by the term thermal bridge. 3.2. Explain with examples the most common occurrences of thermal bridging around floors and roofs. 3.3. Explain how to mitigate thermal bridging at junctions around floors and roofs. 3.4. Identify in different buildings poor installation of roof and floor structures and junctions which enables thermal bridging and how it may be eliminated.
4. Understand best practice in insulating exposed floors and roofs.	4.1. Evaluate best practice options for insulating exposed floors and roofs, including floors of solid and suspended construction. 4.2. Summarise common features of key interfaces between insulated floors and roofs and other building elements, to ensure continuity of the insulated envelope and air barrier.

### Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

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Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
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Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Reducing the Thermal Transmittance of Walls and Windows for Retrofit Projects
Level	Five
Credit Value	5
Guided Learning Hours (GLH)	21
OCN NI Unit Code	CBF768
Unit Reference No	J/650/1568
<i>Unit purpose and aim(s):</i> This unit will enable the learner to understand how to reduce thermal transmittance in solid walls and cavity unfilled walls in retrofit properties. The learner will also demonstrate how to mitigate thermal bridging in window installations and apply best practice in replacement or secondary glazing of windows.	
Learning Outcomes	Assessment Criteria
1. Be able to apply industry best practice in the implementation of Cavity Wall Insulation (CWI).	1.1. Explain cavity walls, when it is appropriate for insulation to be installed and best practice in installation. 1.2. Explain the technical options for insulating cavity walls and what is meant by hard-to-treat cavity walls. 1.3. Carry out an initial inspection of unfilled cavity walls using appropriate equipment. 1.4. Carry out the implementation of cavity wall insulation to a given section of wall to reduce heat loss in line with industry best practice. 1.5. Inspect cavity wall post insulation to evaluate the quality of installation.
2. Be able to check the integrity of damp-proof courses (DPC) and be aware of issues associated with insulating solid walls.	2.1. Explain the key issues associated with insulating solid walls. 2.2. Examine a given solid uninsulated wall and identify the factors to be considered when determining whether to insulate a solid wall internally or externally. 2.3. Carry out checks on the integrity of a given existing DPC.
3. Be able to apply industry best practice in the use of internal wall insulation (IWI) for solid walls.	3.1. Explain the constraints on the use of IWI in relation to vapour control and addressing damp issues. 3.2. Explain how to overcome thermal bridges at reveals and intermediate floor junctions. 3.3. Evaluate how plumbing and electrical installations and other detailing affect the use of IWI. 3.4. Demonstrate industry best practice when using appropriate IWI fixings and insulation to reduce heat loss through solid walls. 3.5. Explain the common features of key interfaces between IWI and other building elements ensuring the continuity of the insulated envelope and the air barrier.

<p>4. Be able to apply industry best practice in the use of external wall insulation (EWI) for solid walls.</p>	<p>4.1. Explain how to overcome thermal bridges at reveals and intermediate floor junctions. 4.2. Demonstrate the use of appropriate EWI fixings and insulation to reduce heat loss through solid walls. 4.3. Explain common details for key interfaces between EWI and other building elements ensuring the continuity of the insulated envelope. 4.4. Explain problems with EWI at junctions with external services, roofs, windows and external doors, gas and electric meters, gutters and property boundaries. 4.5. Summarise key interface details between EWI and other building elements ensuring the continuity of the insulated envelope.</p>
<p>5. Be able to apply industry best practice in installation of double-glazed units.</p>	<p>5.1. Identify constraints on the improvement and replacement of windows in different buildings. 5.2. Carry out the installation of a double-glazed unit into an insulated solid wall in line with industry best practice. 5.3. Explain the importance of insulating sills, reveals and soffits of openings to minimise thermal bridging.</p>

#### Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	<p>A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course</p>	<p>Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion</p>
Practical demonstration/assignment	<p>A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge</p>	<p>Record of observation Learner notes/written work Learner log</p>
Coursework	<p>Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course</p>	<p>Record of observation Learner notes/written work Tutor notes/record Learner log/diary</p>
E-assessment	<p>The use of information technology to assess learners' work</p>	<p>Electronic portfolio E-tests</p>

Title	Upgrading Mechanical and Electrical Services as Part of a Retrofit Project
Level	Five
Credit Value	3
Guided Learning Hours (GLH)	19
OCN NI Unit Code	CBF769
Unit Reference No	K/650/1569
<p><i>Unit purpose and aim(s):</i> This unit will enable the learner to understand the main issues impacting on the improvement of electrical and mechanical services during a retrofit project. The learner will also understand alternative fuel options for off-grid customers, cost comparison and fuel poverty for occupants.</p>	
Learning Outcomes	Assessment Criteria
1. Understand opportunities, impact and benefits of improving building services in domestic retrofit projects.	<p>1.1. Explain the opportunities and impact of improvement of building services in domestic retrofit projects.</p> <p>1.2. Explain what is meant by the terms, simple payback and carbon cost effectiveness</p>
2. Understand how mains grid gas supplies can provide options for heating and hot water in domestic retrofit projects.	<p>2.1. Explain how mains gas provides benefits for heating systems.</p> <p>2.2. Explain the factors to be considered if a heating only boiler or a combination boiler should be installed.</p> <p>2.3. Evaluate what areas of energy improvements and insulations, impact on the hot water and heating demand for domestic retrofit projects.</p> <p>2.4. Calculate the heating and hot water demand for a specific domestic retrofit project, including recommendations for boiler options and Kilowatt (KW) outputs.</p>
3. Understand heating options for areas without mains gas grid provision.	<p>3.1. Analyse the carbon emissions and annual costs for possible alternative fuel options, other than mains gas.</p> <p>3.2. Critically compare the advantages and disadvantages of different heating options including issues relating to different heating fuel choices.</p>
4. Understand issues associated with the supply of hot and cold water in domestic retrofit projects.	<p>4.1. Explain how to reduce water usage and costs.</p> <p>4.2. Explain hot water use in dwellings and amount used.</p> <p>4.3. Explain current legislation regarding pipe insulation for hot water in domestic buildings.</p> <p>4.4. Explain the issues involved with solar hot water systems.</p> <p>4.5. Explain alternative hot water solutions available for retrofit projects other than solar thermal hot water systems.</p>
5. Understand how the efficiency of electrical use in domestic retrofit projects can be improved.	<p>5.1. Explain how the use of electricity can be reduced in domestic retrofit projects.</p> <p>5.2. Summarise the options available for efficient lighting.</p> <p>5.3. Explain the impact of appliance use on electricity demand.</p> <p>5.4. Summarise alternative electric power supply and storage options.</p>

### Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Implementing Renewable Energy Systems and Storage within Retrofit Projects
Level	Five
Credit Value	3
Guided Learning Hours (GLH)	19
OCN NI Unit Code	CBF770
Unit Reference No	R/650/1570
<i>Unit purpose and aim(s):</i> This unit will enable the learner to understand the role of renewable energy systems in domestic retrofit projects, including the principles of battery storage systems, thermal heat stores, solar photovoltaic (PV) electricity generation and solar thermal hot water generation.	
Learning Outcomes	Assessment Criteria
1. Understand the impact and role of renewable energy systems on reducing carbon emissions.	1.1. Explain the impact of renewable energy in reducing carbon emissions. 1.2. Explain the role of renewable energy systems in adding to the energy performance under the fabric first approach.
2. Understand solar photovoltaic (PV) electricity generation.	2.1. Explain the different options available for types of solar PV panels. 2.2. Explain how solar PV systems work including location, depreciation of unit performance, orientation, tilt and shading. 2.3. Calculate average costs for the installation of a PV system of given wattage, including incentives and payback periods. 2.4. Explain using examples possible issues that may arise from the installation of PV panels. 2.5. Illustrate how a solar PV can provide electricity via direct current (DC) inverter equipment.
3. Be able to commission a solar thermal hot water system in a domestic property.	3.1. Summarise the legislative and statutory regulations for individuals carrying out the commissioning of solar thermal hot water systems. 3.2. Explain the different types of solar thermal hot water systems available. 3.3. Explain how you would determine the type, location, and size of solar thermal hot water systems. 3.4. Carry out the commissioning of a solar thermal hot water system under supervision in a controlled environment for a given domestic property.
4. Understand different storage methods used in retrofit projects for generated electricity.	4.1. Summarise the types of domestic battery storage options available and how they can enhance a retrofit project. 4.2. Explain how to calculate a cost benefit analysis for installation of battery storage systems including payback period. 4.3. Explain the principles of a thermal heat store or heat stone, and how they could be used in a retrofit project.

### Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

**Please be advised that learners undertaking the practical elements of this unit must do so in a controlled environment under supervision. Prior to any practical activity being undertaken learners must have demonstrated an understanding of the health and safety requirements before undertaking practical demonstrations.**

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log
Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

Title	Quality Assurance and Post Retrofit Monitoring	
Level	Five	
Credit Value	1	
Guided Learning Hours (GLH)	5	
OCN NI Unit Code	CBF771	
Unit Reference No	T/650/1571	
<i>Unit purpose and aim(s):</i> This unit will enable the learner to understand risk management, roles and responsibilities, monitoring progress and quality assurance within retrofit projects.		
<b>Learning Outcomes</b>		<b>Assessment Criteria</b>
1. Understand the risks associated with domestic retrofit and the roles of those involved in risk management and project quality.	1.1. Explain the risks associated with domestic retrofit and their potential impact and consequences. 1.2. Explain the roles within a retrofit team and how each can contribute to ensuring quality and reducing risk within a retrofit project.	
2. Understand how risks can be avoided during the key stages of retrofit.	2.1. Explain how an integrated approach to retrofit design including building fabric, building services and renewable energy systems can improve performance and reduce risk. 2.2. Summarise the appropriate materials, products and systems commonly used in a retrofit project. 2.3. Explain the need for appropriate sequencing of the installation of measures and how it can minimise risk.	
3. Understand how post retrofit monitoring, evaluation and feedback can improve future projects.	3.1. Explain the importance of monitoring, evaluation and feedback to the improvement of domestic retrofit processes, techniques and risk management. 3.2. Explain how post retrofit monitoring should be carried out and how this can benefit future projects.	
<b>Assessment Guidance</b>		
The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.		
<b>Assessment Method</b>	<b>Definition</b>	<b>Possible Content</b>
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log

Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

## Quality Assurance of Centre Performance

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### External Verification

All OCN NI recognised centres are subject to External Verification. External verification visits and monitoring activities will be conducted annually to confirm continued compliance with the conditions of recognition, review the centre's risk rating for the qualifications and to assure OCN NI of the maintenance of the integrity of the qualifications.

The External Verifier will review the delivery and assessment of the qualifications. This will include the review of a sample of assessment evidence and evidence of the internal verification of assessment and assessment decisions. This will form the basis of the EV report and will inform OCN NI's annual assessment of centre compliance and risk. The External Verifier is appointed by OCN NI.

### Standardisation

As a process, standardisation is designed to ensure consistency and promote good practice in understanding and application of standards. Standardisation events:

- make qualified statements about the level of consistency in assessment across centres delivering a qualification
- make statements on the standard of evidence that is required to meet the assessment criteria for units in a qualification
- make recommendations on assessment practice
- produce advice and guidance for the assessment of units
- identify good practice in assessment and internal verification

Centres offering units of an OCN NI qualification must attend and contribute assessment materials and learner evidence for standardisation events if requested.

OCN NI will notify centres of the nature of sample evidence required for standardisation events (this will include assessment materials, learner evidence and relevant assessor and internal verifier documentation). OCN NI will make standardisation summary reports available and correspond directly with centres regarding event outcomes.

## Administration

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### Registration

A centre must register learners within 20 working days of commencement of a qualification.

### Certification

Certificates will be issued to centres within 20 working days of receipt of correctly completed results marksheets. It is the responsibility of the centre to ensure that certificates received from OCN NI are held securely and distributed to learners promptly and securely.

### Charges

OCN NI publishes all up to date qualification fees in its Fees and Invoicing Policy document. Further information can be found on the centre login area of the OCN NI website.

### Equality, Fairness and Inclusion

OCN NI has considered the requirements of equalities legislation in developing the specification for these qualifications. For further information and guidance relating to access to fair assessment and the OCN NI Reasonable Adjustments and Special Considerations policies, centres should refer to the OCN NI website.

### Retention of Evidence

OCN NI has published guidance for centres on the retention of evidence. Details are provided in the OCN NI Centre Handbook and can be accessed via the OCN NI website.

**OCN NI Level 5 Award in Retrofitting Domestic Properties**  
**Qualification Number: 610/0597/6**

**OCN NI Level 5 Certificate in Retrofitting Domestic Properties**  
**Qualification Number: 610/0596/4**

**OCN NI Level 5 Extended Certificate in Retrofitting Domestic Properties**  
**Qualification Number: 610/0595/2**

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Operational start date: 15 March 2022  
Operational end date: 28 February 2027  
Certification end date: 28 February 2032

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