

Welsh Apprenticeship Pathway in Refrigeration, Air Conditioning and Heat Pumps

Draft version for consultation

The content of this Pathway has been agreed by the expert Steering Group, and approved for use in Wales and is eligible for Medr funding.



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Learning programme content

The Learning Programme provision shall comprise of four mandatory elements:

- Qualifications
- Essential Skills
- On/off the job training
- Additional Employer Requirements (Digital Skills Level 2)

The total minimum credit value required for the Level 3 Pathway (Refrigeration, air conditioning and heat pumps) is 128 credits.

Entry requirements

This Apprenticeship is suitable for learners who are aged 16+ and have achieved one of the following;

- City & Guilds Foundation in Construction and Building Services Engineering (Level 2)
- EAL Progression qualification in Building Services Engineering (Level 2)
- have verifiable 3 years or more employment in the trade in which the apprenticeship is to be undertaken.
- Essential Skills Wales or Key Skills in Communication and Application of Number at level 1 or above.
- GCSE grade A*- D in any two of the following: - English, maths and either a science or technical-based subject.
- A*- D grade in The WJEC Built Environment GCSE.
- WJEC Level 1/2 Awards in Constructing the Built Environment
- Level 2 Pass WJEC Level 1/2 Vocational Award in Designing the Built Environment.
- WJEC Level 3 Advanced Subsidiary GCE in Built Environment
- WJEC Level 3 Advanced GCE in Built Environment
- Pass, Pearson BTEC Level 1/Level 2 Tech Award in Construction and the Built Environment
- WJEC Foundation/National Skills Challenge Certificate (Welsh Baccalaureate)

Will require verification from the employer that the learner has the necessary trade employment experience.

Experienced learners as defined in list a, may also have qualities or achievements beyond qualification attainment which should be considered. They will not have to attain one of the qualifications in list b.

Apprenticeship Pathway Learning Programme(s)

Learners must have achieved one of the entry requirements in list a and will need to have achieved at least one of the requirements from list b for entry.

Level 3: Refrigeration, air conditioning and heat pumps

Qualifications

BES (Level 3) - Refrigeration, air conditioning and heat pumps					
Awarding Body	Qualification No.	Credit Value	Total Qualification Time	Competence/ Knowledge/ Combined	Qualification Assessment Language(s)
EAL	C00/5331/4	128	1278	Combined	English or Welsh

Please see [Annex 1](#) for the relationship between the competence and knowledge units within the combined qualification.

Essential Skills Wales (ESW)

Essential Skills Wales qualifications assessment languages are English-Welsh.

Level 3: Refrigeration, air conditioning and heat pumps	Level	Minimum Credit Value
Communication	2	6
Application of Number	2	6

Proxies for Essential Skills Wales can be found on the [SASW framework document](#), point 24.

On/Off the Job Training

Pathway	Minimum On the Job Training Hours	Minimum Off the Job Training Hours
Level 3: Refrigeration, air conditioning and heat pumps	2304	725

The anticipated duration of the Refrigeration, air conditioning and heat pumps Apprenticeship will be 3 years.

The above figures are **for guidance only** and may be different for experienced/older workers depending on the amount/nature of relevant experience.

Other additional requirements

Additional Requirement Detail (Minimum Credit and Hours)

The Apprentice, depending on their specialist areas of work, may be required to achieve a number of other certificates/certifications (or their recognised equivalents) as shown below.

Additional Employer Requirements

Qualification Title	Qualification No	Level	Minimum Credit Value
Digital Skills for Construction	C00/4688/1	2	4

Certificate	Certification Body (example)	Refrigeration	Air Conditioning
Brazing	BESA	Optional	Optional
F Gas	DEFRA	Mandatory	Mandatory
Wiring Regulations (BS7671) or equivalent	ECA/NET	Optional	Optional
Flammable Refrigerants	BESA	Optional	Optional
Install, Test, Commission and Handover Heat Pump Systems	BPEC	Optional	Optional
Working Principles, Installation Options And Regulatory Requirements For Micro-Renewable Technologies, Water Harvesting And Recycling Technologies	BPEC	Optional	Optional
Heat Pumps Inspect, Service And Maintenance Heat Pump Systems Requires Completion	BPEC	Optional	Optional
CO2	BESA/C&G	Optional	Optional

Note that the optional requirements are considered part of the Apprenticeship and are covered by Medr funding.

Job Roles

This Framework specifies the standards and criteria for the Level 3 Apprenticeship in Refrigeration, air conditioning and heat pumps . Successful achievement of all the components of this Framework will lead to the award of a Level 3 qualification and

recognition as a qualified Refrigeration, air conditioning and heat pumps engineer within the sector. The Award of this Qualifications will enable the learner to apply for a BESA Gold SKILLcard.

This Framework has a single pathway:

- **Refrigeration, air conditioning and heat pumps**

The EAL Building Services Engineering (Level 3) – Refrigeration, Air Conditioning and Heat Pumps qualification has been developed to allow those in work-based learning to demonstrate and enhance their occupational knowledge, skills and understanding within their Building Services and Engineering (BSE) trade.

Learners will develop their knowledge, skills and understanding of the trade, as contained in the recognised standards.

The qualification will allow learners to plan and perform projects in their trade, against recognised standards, before reviewing and evaluating the quality of the project outputs. The qualification will be portable throughout the UK and is aimed to develop learners' ability to meet the demands of the BSE sector in Wales.

In addition, the Apprentice should:

- possess the ability to effectively plan work projects using the appropriate skills for their trade in a work environment
- possess the ability to effectively review and evaluate the quality of their completed work for their trade in the work environment
- possess knowledge and understanding of the tools, techniques, materials, and technologies used in their trade, and how they have changed over time
- possess employability skills and the ability to utilise them in a work environment
- have understanding of social, economic, and environmental sustainability
- have occupational knowledge and understanding of their trade
- have occupational performance of their trade in a work context
- possess the ability to apply professional judgement and support
- possess the ability to challenge unsafe behaviours/activities
- demonstrate innovation through the identification of areas for improvement and suggestion and/or development of innovative solutions
- identify and manage risks to self and others
- keep work area clean and tidy
- manage own time effectively
- think logically and accordance with the demands of the situation using clear and valid reasoning when making decisions to undertake the work instructions
- work effectively individually and in a team
- work in accordance with quality requirements
- work productively
- work safely and ensure the safety of others
- work within own level of competence and know when to seek advice from others

Throughout the Apprenticeship process the Apprentice should, as a minimum, develop and display the behaviours that show them to be consistently:

1. Assertive
2. Confident
3. Dressed appropriately
4. Empathetic
5. Fair
6. Honest
7. Proactive
8. Productive
9. Punctual
10. Reliable
11. Respectful (in terms of equality, diversity and inclusion)

Progression

On completion, the qualification will provide learners with the skills and knowledge required for the learner to be capable of working in their trade across the UK. These include but are not limited to

- The Skills and Knowledge required by the industry to achieve competence
- Job related skills that will be used in the working environment
- Knowledge and skills aligned to working practices, relevant statutory and non-statutory regulations
- Transferable and Core Skills
- The basis for career progression

When apprentices have completed this Framework, they have a number of progression options to them including:

- Vocational: develop self in the role and seek promotion
- Academic: use the qualifications gained as the basis for further study and entry to Further Education or Higher Education as appropriate (e.g. to undertake HNC and/or HND qualifications)
- Combination of Vocational and Academic: undertake part time study while still working. This may be as part of a structured Higher Level Apprenticeship (HLA) with a recognised Building Services pathway such as the Built Environment HLA which incorporates the HNC/HND qualifications

More specifically, on successful completion of this Apprenticeship in Refrigeration, air conditioning and heat pumps an apprentice will be furnished with the skills and knowledge, and have the qualifications to:

- Register as a Skilled worker via the BESA [SKILLcard](#)
- Progress to relevant Level 3/4/5 qualifications e.g. Building Services Engineering Technology & Project Management or Foundation Degree in Engineering
- Progress in their career with further training into such job roles as Designer, Estimator, Project Manager, Site/Workshop Supervisor/ Manager, Chartered Engineer, Sales Engineer or Commercial Manager.

Further career guidance can be found at <https://www.thebesa.com/>

Continuous learning will be expected of the qualified candidates in order to maintain awareness of the regulations impacting on the industry and technological changes/advances.

Equality and diversity

It is important that apprenticeship Pathways are inclusive and can demonstrate an active approach to identifying and removing barriers to entry and progression. Pathways should advance equality of opportunity between persons who share protected characteristics and those persons who do not as identified in the Equality Act 2010.

The protected characteristics identified in the Equality Act are age, disability, gender re-assignment, race, religion or belief, sex, sexual orientation, pregnancy and maternity. Marriage and civil partnership is also included although only in respect of the requirement to eliminate discrimination in employment.

Training providers and employers MUST also comply with the other duty under the Equality Act 2010 to ensure that applicants are not discriminated against in terms of entry to the industry based upon those nine protected characteristics.

Although the construction industry has not, historically, been a traditional career choice for women. This has now changed, and women are better supported and work successfully in the industry.

The sectoral bodies work at local, regional and national levels to identify and address issues around equality and diversity. This work is supported by local/national government, non-governmental bodies/agencies and relevant Unions.

It is a requirement that apprentice recruitment is open and fair to all who meet the selection criteria, regardless of gender, ethnic origin, religion/belief, sexual orientation or disability.

All partners involved in the delivery of the apprenticeship and employers must be committed to a policy of equal opportunities and must have a formal equal opportunities policy and procedure in place.

Employers/providers must be able to demonstrate that there are no overt or covert discriminatory practices in selection and employment. All promotional, selection and training activities must comply with relevant legislation such as the Equality Act 2010.

Providers will monitor equality of opportunity practice and procedures within their own organisation and take positive action when necessary. It is also recommended that employers/providers conduct an exit interview if the apprentice leaves the programme before completion.

Employment Responsibilities and Rights (ERR)

Employment Responsibilities and Rights (ERR) is no longer compulsory. But it is recommended that all apprentices (especially the 16 years -18 year group) receive a company induction programme.

Responsibilities

It is the responsibility of the Training Provider and Employer to ensure that the requirements of this pathway are delivered in accordance with the Welsh Government/Medr Apprenticeships Guidance.

Further information may be obtained from: [Medr](#)

Annex 1

Relationship between competence and knowledge qualifications

This is a combined qualification that delivers both the knowledge and competence requirements with minimum of 360 credits as set out in the construction apprenticeship learning and skills pathway outcomes specification.

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