

apprenticeship FRAMEWORK

Refrigeration & Air Conditioning (non-statutory) (Wales)

Latest framework version?

Please use this link to see if this is the latest issued version of this framework:

afo.sscalliance.org/frameworkslibrary/index.cfm?id=FR01377

Issue date: 02 May 2012

Published by
Instructus

apprenticeship
FRAMEWORKS ONLINE
www.afo.sscalliance.org

Refrigeration & Air Conditioning (non-statutory) (Wales)

Contents

Framework summary	3
Framework information	5
Contact information	7
Revising a framework	8
Purpose of the framework	9
Entry conditions	10
Level 2: Foundation (Level 2) Apprenticeships in Refrigeration and Air Conditioning	11
Pathway 1: Refrigeration	12
Pathway 2: Air Conditioning	21
Level 3: Apprenticeships (Level 3) in Refrigeration & Air Conditioning	30
Pathway 1: Refrigeration	31
Pathway 2: Refrigeration Service and Maintenance	40
Pathway 3: Air Conditioning	50
Pathway 4: Air Conditioning Service and Maintenance	60
Equality and diversity	70
On and off the job training	71
Essential employability skills	76

Framework summary

Refrigeration & Air Conditioning (non-statutory)

Foundation (Level 2) Apprenticeships in Refrigeration and Air Conditioning

Pathways for this framework at level 2 include:

Pathway 1: Refrigeration

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

B1 - Level 2 NVQ Diploma in Installing and Maintaining Refrigeration Systems

This pathway also contains information on:

- Employee rights and responsibilities
- Essential skills

Pathway 2: Air Conditioning

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

B1 - Level 2 NVQ Diploma in Installing, Testing and Maintaining Air Conditioning and Heat Pump Systems

This pathway also contains information on:

- Employee rights and responsibilities
- Essential skills

Refrigeration & Air Conditioning (non-statutory)

Apprenticeships (Level 3) in Refrigeration & Air Conditioning

Pathways for this framework at level 3 include:

Pathway 1: Refrigeration

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

B1 - Level 3 NVQ Certificate in Installing and Commissioning Refrigeration Systems

This pathway also contains information on:

- Employee rights and responsibilities
- Essential skills

Pathway 2: Refrigeration Service and Maintenance

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

B1 - Level 3 NVQ Certificate in Servicing and Maintaining Refrigeration Systems

This pathway also contains information on:

- Employee rights and responsibilities
- Essential skills

Pathway 3: Air Conditioning

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

B1 - Level 3 NVQ Certificate in Installing and Commissioning Air Conditioning and Heat Pump Systems

This pathway also contains information on:

- Employee rights and responsibilities
- Essential skills

Pathway 4: Air Conditioning Service and Maintenance

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

B1 - Level 3 NVQ Certificate in Servicing and Maintaining Air Conditioning and Heat Pump Systems

This pathway also contains information on:

- Employee rights and responsibilities
- Essential skills

Framework information

Information on the Publishing Authority for this framework:

Instructus

The Apprenticeship sector for occupations in air conditioning, building services engineering, business and administration, cleaning, customer service, digital/information technology, electro technical, electrical and electronic servicing, enterprise and business support, facilities management, heating and ventilating, housing, human resources and recruitment, industrial relations, leadership and management, marketing and sales (also includes contact centres and third sector), plumbing, property and refrigeration.

Issue number: 2	This framework includes:
Framework ID: FR01377	Level 2 Level 3
Date this framework is to be reviewed by: 01/04/2016	This framework is for use in: Wales

Short description

Apprenticeships for occupations in the Refrigeration and Air Conditioning Industry are designed to meet the competence requirements of the industry.

This Apprenticeship Framework document contains six occupation framework pathways at two different levels:

Foundation (Level 2) -

- Refrigeration
- Air Conditioning

Whichever occupation framework pathway is chosen at Foundation (Level 2), it will provide an opportunity for individuals to gain the skills and knowledge necessary for a career in an established industry and for employers and apprentices to benefit from the associated structured learning and assessment programme.

Successful completion of a Foundation (Level 2) framework will reflect the ability to select and use relevant knowledge, ideas, skills and procedures to complete well defined tasks and address straightforward problems. They include taking responsibility for completing tasks and procedures and exercising autonomy and judgement subject to overall direction or guidance.

The apprentice also has the competencies to progress to an associated Apprenticeship (Level 3) framework

These Foundation (Level 2) frameworks can be completed within 24 months.

Job roles covered are:

- Refrigeration Operative
- Air Conditioning Operative

Apprenticeship (Level 3) -

- Refrigeration
- Refrigeration Service and Maintenance
- Air Conditioning
- Air Conditioning Service and Maintenance

Whichever occupation framework pathway is chosen at Apprenticeship (Level 3), it will provide an opportunity to further develop the skills, knowledge and competence to the level required by job roles such as:

- Refrigeration Technician
- Air Conditioning Technician
- Refrigeration Service and Maintenance Technician
- Air Conditioning Service and Maintenance Technician

Normally entry to Apprenticeship (Level 3) occupation framework would be through completion of the relevant Foundation (Level 2) framework or alternatively proven knowledge/experience to an equivalent level.

Successful completion of an Apprenticeship (Level 3) framework reflects the ability to identify and use relevant understanding, methods and skills to complete tasks and address problems that, while well defined, have a measure of complexity. This includes taking responsibility for initiating and completing tasks and procedures as well as exercising autonomy and judgement within parameters. They also reflect awareness of different perspectives or approaches within an area of study or work.

These Apprentice (Level 3) frameworks can be completed within 24 months.

Contact information

Proposer of this framework

N/A

Developer of this framework

Name: Trevor Hill
Organisation: SummitSkills
Organisation type: Sector Skills Council
Job title: Development Manager
Phone: 07834868945
Email: trevor.hill@summitskills.org.uk
Postal address: SummitSkills
Vega House
Opal Drive
Fox Milne
Milton Keynes
MK15 0DF
Website: www.summitskills.org.uk

Issuing Authority's contact details

Issued by:
Issuer contact name:
Issuer phone:
Issuer email:

Revising a framework

Contact details

Who is making this revision: Trevor Hill
Your organisation: SummitSkills
Your email address: trevor.hill@summitskills.org.uk

Why this framework is being revised

One unit within the qualification has been amended by the Awarding Organisation. This doesn't affect the qualification number, credit value or number of GLH but for a short time will mean that either unit is acceptable to achieve the qualification demanded within all 6 frameworks within this document.

Summary of changes made to this framework

The additional unit has been added to the qualification section in each framework.

Qualifications removed

N/A

Qualifications added

N/A

Qualifications that have been extended

N/A

Purpose of this framework

Summary of the purpose of the framework

The occupation frameworks in this document are designed to provide new entrants and those seeking career progression, with the opportunity to develop competencies needed to carry out job roles and responsibilities associated with the installation, maintenance and commissioning of refrigeration and air conditioning systems, including relevant:

- Environmental technologies
- Technological requirements and changes
- Statutory and non-statutory regulations and requirements

The following job roles will be covered by the Foundation (Level 2) occupation pathways:

- Refrigeration Operative
- Air Conditioning Operative

The following job roles will be covered by the Apprenticeship (Level 3) occupation pathways:

- Refrigeration Technician
- Air Conditioning Technician
- Refrigeration Service and Maintenance Technician
- Air Conditioning Service and Maintenance Technician

Aims and objectives of this framework (Wales)

The aim of the occupation frameworks is to ensure that the Foundation (Level 2) and Apprenticeship (Level 3) programmes deliver:

- The skills and knowledge required by the industry to achieve competence
- Job-related skills that will be used in the working environment
- Transferable skills
- Career progression

Employers have endorsed this programme as it delivers qualified competent employees and improves productivity and retention.

Further information can be found at www.summitskills.org.uk

Entry conditions for this framework

Although there are generally no nationally laid-down minimum entry or previous experience requirements to undertake the Foundation (Level 2) and Apprenticeship (Level 3) frameworks in the Refrigeration and Air Conditioning Industry, the following selection criteria may be used as guidance.

- The programme is likely to be suitable for individuals who:
- Have an aptitude for technical subjects and/or are practically minded
- Have an interest in technology
- Can demonstrate an ability to solve practical problems

A career in the Refrigeration and Air Conditioning Industry will not only reward an apprentice's potential, but also offer opportunities to enhance their technical capability. The industry always needs individuals of appropriate ability, and in return offers a varied and rewarding career in a challenging working environment.

Other selection criteria may include:

- Motivation to succeed
- Willingness to learn and apply that learning in the workplace/job role
- Enthusiasm and attitude to work
- Ability to demonstrate that they have the potential to achieve the qualifications which are part of the Foundation (Level 2) and/or Apprenticeship (Level 3) programmes
- Ability to communicate effectively with a range of people
- Being numerate and literate
- Good colour vision to recognise colour-coded wires and components
- Ability to work at heights or in confined spaces
- Willingness to work outside
- Willingness to work unsociable hours
- Willingness to undergo a Criminal Records Bureau (CRB) check when required

Examples of formal qualifications that can be used as an indication that an applicant has the potential to progress into and complete either the Foundation (Level 2) or Apprenticeship (Level 3) can be found in the individual occupation pathways.

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer.

Level 2

Title for this framework at level 2

Foundation (Level 2) Apprenticeships in Refrigeration and Air Conditioning

Pathways for this framework at level 2

- | | |
|------------|------------------|
| Pathway 1: | Refrigeration |
| Pathway 2: | Air Conditioning |

Level 2, Pathway 1: Refrigeration

Description of this pathway

Refrigeration - Installation and maintenance of refrigeration systems - 84 credits in total

Entry requirements for this pathway in addition to the framework entry requirements

Examples of formal qualifications that can be used as an indication that an applicant has the potential to progress into and complete the Foundation (Level 2) framework in Refrigeration are:

- Welsh Baccalaureate Foundation Diploma
- Completion of a 'Pathway to Apprenticeship' in Engineering
- GCSE grade A-D in each of the following:- a communication subject, maths and either a science or technical-based subject
- Level 1 GNVQs in relevant vocational/technical subjects
- A Level 1 'Access to Building Services Engineering' qualification

Job title(s)	Job role(s)
Refrigeration Operative	Works under minimal supervision to complete the installation, assembly, fitting, testing and de-commissioning of refrigeration systems

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 - Level 2 NVQ Diploma in Installing and Maintaining Refrigeration Systems						
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value	Total qualification time
B1a	600/0913/5	City & Guilds	66	540	N/A	

Relationship between competence and knowledge qualifications

This framework requires the completion of the combined qualification B1a identified in the combined qualifications section B1 above.

Qualification Title - Level 2 NVQ Diploma in Installing and Maintaining Refrigeration Systems which has:

Knowledge Units

- Understand how to communicate with others within Building Services Engineering J/602/2482 **Unit Credit Value 3**
- Understand how to apply environmental protection measures within BSE D/602/2486 **Unit Credit Value 4**
- Understand how to apply scientific principles within MES J/602/2496 **Unit Credit Value 7**
- Understand refrigeration system installation, testing and maintenance techniques M/602/4999 **Unit Credit Value 7**

Knowledge Element = 21 credits

Competence Units

- Understand and carry out safe working practices in building services engineering J/602/2479 **Unit Credit Value 10**
- Apply safe working practices in building services engineering working environments T/602/2493 **Unit Credit Value 2**
- Install, test and maintain refrigeration systems J/502/7932 **Unit Credit Value 4**
- Handling fluorinated gases and ozone-depleting substances - category 1 personnel D/502/0629 **Unit Credit Value 3**
- Understand and carry out site preparation and pipework fabrication techniques for RAC systems R/602/4994 **Unit Credit Value 14**

plus either -

- Understand and carry out electrical work on RAC systems and components K/602/4998
Unit Credit Value 12

or

- Understand and carry out electrical work on RAC systems and components T/504/0305
Unit Credit Value 12

Competence Element = 45 credits

Total Qualification = 66 credits

For further qualification details refer to: www.register.ofqual.gov.uk/Qualifications and search by the relevant qualifications or unit number

Transferable skills (Wales)

Essential skills (Wales)

Subject	Minimum Level
Communication	N/A
Application of numbers	N/A
ICT/Digital literacy	N/A

For a full list of available proxies for starts on or after 14th October 2016 please see section 24 of the current [SASW](#).

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Welsh Baccalaureate Foundation Diploma
- Completion of a 'Pathway to Apprenticeship' in Engineering
- Work or work experience
- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-D in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Essential Skills or Wider KeySkills
- Level 1 GNVQs in relevant vocational/technical subjects
- A Level 1 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer

Progression routes out of this pathway:

On successful completion of the Intermediate Level Apprenticeship in Refrigeration , an apprentice will have the skills, knowledge and qualifications to:

- Register on an appropriate Certification Scheme
- Progress to learning and assessment programmes that lead to relevant Level 3 qualifications and/or an Apprenticeship (Level 3) in Refrigeration or Refrigeration Service and Maintenance

- Progress in their career into such job roles such as Technician, Designer Estimator, Project Manager, Site/Workshop Supervisor/Manager, Chartered Engineer, Sales Engineer

Further career guidance can be found at: www.summitskills.org.uk/careers

Employee rights and responsibilities

The Employee Rights and Responsibilities (ERR) elements identified below are likely to be achieved through an induction programme, in combination with the City & Guilds (600/0913/5) Level 2 NVQ Diploma in Installing and Maintaining Refrigeration Systems qualification into which they are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate plus a completed checklist which must be signed by the assessor and apprentice confirming all nine ERR elements have been achieved.

This checklist must accompany the claim for an Apprenticeship Framework completion certificate and can be downloaded from

www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers.
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety and Equality and Diversity training must be an integral part of the apprentice's learning programme;
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme
4. understands the role played by their occupation within their organisation and industry;
5. has an informed view of the types of career pathways that are open to them;
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities
7. knows where and how to get information and advice on their industry, occupation, training and career;
8. can describe and work within their organisations principles and codes of practice;
9. recognises and can form a view on issues of public concern that affect their organisation and industry

Additional employer requirements

(No requirement specified)

Level 2, Pathway 2: Air Conditioning

Description of this pathway

Air Conditioning - Installing, maintaining and repairing air conditioning and heat pump systems
- 84 credits in total

Entry requirements for this pathway in addition to the framework entry requirements

Examples of formal qualifications that can be used as an indication that an applicant has the potential to progress into and complete the Foundation (Level 2) framework in Air Conditioning are:

- Welsh Baccalaureate Foundation Diploma
- Completion of a 'Pathway to Apprenticeship' in Engineering
- GCSE grade A-D in each of the following:- a communication subject, maths and either a science or technical-based subject
- Level 1 GNVQs in relevant vocational/technical subjects
- A Level 1 'Access to Building Services Engineering' qualification

Job title(s)	Job role(s)
Air Conditioning Operative	Works under minimal supervision to complete the installation, assembly, fitting, testing and de-commissioning of air conditioning and heat pump systems

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 - Level 2 NVQ Diploma in Installing, Testing and Maintaining Air Conditioning and Heat Pump Systems						
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value	Total qualification time
B1a	600/0912/3	City & Guilds	66	540	N/A	

Relationship between competence and knowledge qualifications

This framework requires the completion of the combined qualification B1a identified in the combined qualifications section B1 above.

Qualification Title - Level 2 NVQ Diploma in Installing, Testing and Maintaining Air Conditioning and Heat Pump Systems which has:

Knowledge Units

- Understand how to communicate with others within building services engineering J/602/2482 **Unit Credit Value 3**
- Understand how to apply environmental protection measures within BSE D/602/2486 **Unit Credit Value 4**
- Understand how to apply scientific principles within MES J/602/2496 **Unit Credit Value 7**
- Understand air conditioning and heat pump system installation, testing and maintenance techniques A/602/4987 **Unit Credit Value 7**

Knowledge Element = 21 credits

Competence Units

- Understand and carry out safe working practices in building services engineering J/602/2479 **Unit Credit Value 10**
- Apply safe working practices in building services engineering working environments T/602/2493 **Unit Credit Value 2**
- Install, test and maintain air conditioning and heat pump systems D/602/5002 **Unit Credit Value 4**
- Understand and carry out site preparation and pipework fabrication techniques for RAC systems R/602/4994 **Unit Credit Value 14**
- Handling fluorinated gases and ozone-depleting substances - category I personnel

D/502/0629 *Unit Credit Value 3*

plus either -

- Understand and carry out electrical work on RAC systems and components K/602/4998
Unit Credit Value 12

or

- Understand and carry out electrical work on RAC systems and components T/504/0305
Unit Credit Value 12

Competence Element = 45 credits

Total Qualification = 66 credits

For further qualification details refer to: www.register.ofqual.gov.uk/Qualification and search by the relevant qualification or unit number.

Transferable skills (Wales)

Essential skills (Wales)

Subject	Minimum Level
Communication	N/A
Application of numbers	N/A
ICT/Digital literacy	N/A

For a full list of available proxies for starts on or after 14th October 2016 please see section 24 of the current [SASW](#).

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Welsh Baccalaureate Foundation Diploma
- Completion of a 'Pathway to Apprenticeship' in Engineering
- Work or work experience
- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-D in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Essential Skills or Wider KeySkills
- Level 1 GNVQs in relevant vocational/technical subjects
- A Level 1 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer

Progression routes out of this pathway:

On successful completion of the Foundation (Level 2) in Air Conditioning , an apprentice will have the skills, knowledge and qualifications to:

- Register on an appropriate Certification Scheme
- Progress to learning and assessment programmes that lead to relevant Level 3 qualifications and/or an Apprenticeship (Level 3) in Air Conditioning or Air Conditioning Service and Maintenance

- Progress in their career into such job roles such as Technician, Designer Estimator, Project Manager, Site/Workshop Supervisor/Manager, Chartered Engineer, Sales Engineer

Further career guidance can be found at: www.summitskills.org.uk/careers

Employee rights and responsibilities

The Employee Rights and Responsibilities (ERR) elements identified below are likely to be achieved through an induction programme, in combination with the Level 2 NVQ Diploma in Installing, Testing and Maintaining Air Conditioning and Heat Pump Systems qualification (City & Guilds (600/0912/3) into which they are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate plus a completed checklist which must be signed by the assessor and apprentice confirming all nine ERR elements have been achieved.

This checklist must accompany the claim for an Apprenticeship Completion Certificate and can be downloaded from

www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers.
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety and Equality and Diversity training must be an integral part of the apprentice's learning programme;
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme
4. understands the role played by their occupation within their organisation and industry;
5. has an informed view of the types of career pathways that are open to them;
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities
7. knows where and how to get information and advice on their industry, occupation, training and career;
8. can describe and work within their organisations principles and codes of practice;
9. recognises and can form a view on issues of public concern that affect their organisation and industry

Additional employer requirements

(No requirement specified)

Level 3

Title for this framework at level 3

Apprenticeships (Level 3) in Refrigeration & Air Conditioning

Pathways for this framework at level 3

- | | |
|------------|--|
| Pathway 1: | Refrigeration |
| Pathway 2: | Refrigeration Service and Maintenance |
| Pathway 3: | Air Conditioning |
| Pathway 4: | Air Conditioning Service and Maintenance |

Level 3, Pathway 1: Refrigeration

Description of this pathway

Refrigeration - Completing the installation, assembly, fitting, testing, de-commissioning and commissioning of refrigeration systems and components - 52 credits minimum total

Entry requirements for this pathway in addition to the framework entry requirements

The Refrigeration Industry would normally expect entry into this framework to be for those who have already successfully completed a Foundation (Level 2) framework in Refrigeration or for individuals with the experience and knowledge comparable with the requirements of that programme.

Examples of formal qualifications that can be used as an indication that an applicant has the potential to progress into and successfully complete the Apprenticeship (Level 3) in Refrigeration are:

- Successful completion of a Foundation (Level 2) framework in Refrigeration
- Welsh Baccalaureate Intermediate Diploma
- Completion of a 'Pathway to Apprenticeship' in Engineering
- GCSE grade A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Level 2 GNVQs in relevant vocational/technical subjects
- A Level 2 'Access to Building Services Engineering' qualification

Job title(s)	Job role(s)
Refrigeration Technician	Completes and oversees the installation, testing, commissioning and de-commissioning of refrigeration systems and components

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 - Level 3 NVQ Certificate in Installing and Commissioning Refrigeration Systems						
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value	Total qualification time
B1a	600/0907/X	City & Guilds	34	282	N/A	

Relationship between competence and knowledge qualifications

This framework requires the completion of the combined qualification B1a identified in the combined qualifications section B1 above.

Qualification Title - Level 3 NVQ Certificate in Installing and Commissioning Refrigeration Systems, which has:

Knowledge Units

- Understand how to organise resources within BSE R/602/2498 **Unit Credit Value 3**
- Understand halocarbon 'fluorinated' refrigeration system installation and commissioning techniques Y/502/9300 **Unit Credit Value 16**

Knowledge Element = 19 Credits

Competence Units

- Install and commission halocarbon 'fluorinated' refrigeration systems M/502/9304 **Unit Credit Value 3**

Plus either -

- Understand and carry out electrical work on RAC systems and components K/602/4998 **Unit Credit Value 12**

or

- Understand and carry out electrical work on RAC systems and components T/504/0305 **Unit Credit Value 12**

Competence Element = 15 credits

... Refrigeration & Air Conditioning (non-statutory) (Wales)
..... level 3
..... Pathway 1

Total Qualification = 34 credits

Transferable skills (Wales)

Essential skills (Wales)

Subject	Minimum Level
Communication	N/A
Application of numbers	N/A
ICT/Digital literacy	N/A

For a full list of available proxies for starts on or after 14th October 2016 please see section 35 of the current [SASW](#).

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of a Foundation (Level 2) framework in Refrigeration
- Successful completion of a Welsh Baccalaureate Intermediate Diploma
- Successful Completion of a 'Pathway to Apprenticeship' in Engineering
- Work or work experience
- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Essential Skills or Wider KeySkills
- Level 2 GNVQs in relevant vocational/technical subjects
- Completion of a Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer.

Progression routes out of this pathway:

On successful completion of the Apprenticeship (Level 3) framework in Refrigeration, an apprentice will have the skills, knowledge and qualifications to:

- Register on a relevant industry Certification Scheme
- Progress to relevant Level 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 Technician, Designer, Estimator, Project Manager, Site/Workshop Supervisor/ Manager, Chartered Engineer, Sales Engineer or Commercial Manager

Further career guidance can be found at: www.summitskills.org.uk/careers

UCAS points for this pathway: N/A

Employee rights and responsibilities

The normal entry into this apprenticeship would be through the previous completion of the Foundation (Level 2) in Refrigeration into which the Employee Rights and Responsibilities (ERR) elements identified below are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate. Recognition of Prior Learning (RPL) may therefore be applied if ERR is gained in this way or from another programme.

Alternatively the ERR elements identified below must be achieved through an induction programme, in combination with the Level 3 NVQ Certificate in Installing and Commissioning Refrigeration Systems qualification (City & Guilds 600/0907/X) into which they are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate plus a completed checklist which must be signed by the assessor and apprentice confirming all nine ERR elements have been achieved.

This checklist must accompany the claim for an Apprenticeship Completion Certificate and can be downloaded from

www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health & Safety, together with the responsibilities and duties of employers.
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health & Safety and Equality & Diversity training must be an integral part of the apprentice's learning programme;
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme
4. understands the role played by their occupation within their organisation and industry;
5. has an informed view of the types of career pathways that are open to them;
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities
7. knows where and how to get information and advice on their industry, occupation, training and career;
8. can describe and work within their organisations principles and codes of practice;
9. recognises and can form a view on issues of public concern that affect their organisation and industry

Additional employer requirements

(No requirement specified)

Level 3, Pathway 2: Refrigeration Service and Maintenance

Description of this pathway

Refrigeration Service and Maintenance - the service and maintenance of refrigeration systems and components - 55 credits minimum total

Entry requirements for this pathway in addition to the framework entry requirements

The Refrigeration Industry would normally expect entry into this framework to be for those who have already completed an Intermediate Level Apprenticeship in Refrigeration, or for individuals with the experience and knowledge comparable with the requirements of that programme.

Examples of formal qualifications that can be used as an indication that an applicant has the potential to progress into and complete the Apprenticeship (Level 3) in Refrigeration Service and Maintenance are:

- Foundation (Level 2) framework in Refrigeration
- Welsh Baccalaureate Intermediate Diploma
- Completion of a 'Pathway to Apprenticeship' in Engineering
- GCSE grade A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Level 2 GNVQs in relevant vocational/technical subjects
- A Level 2 'Access to Building Services Engineering' qualification

Job title(s)	Job role(s)
Refrigeration Service and Maintenance Technician	Completes and oversees the servicing and maintenance of refrigeration systems and components

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 - Level 3 NVQ Certificate in Servicing and Maintaining Refrigeration Systems						
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value	Total qualification time
B1a	600/0991/3	City & Guilds	37	312	N/A	

Relationship between competence and knowledge qualifications

This framework requires the completion of the combined qualification B1a identified in the combined qualifications section B1 above.

Qualification Title - Level 3 NVQ Certificate in Servicing and Maintaining Refrigeration Systems which has:

Knowledge Units

- Understand how to organise resources within BSE R/602/2498 **Unit Credit Value 3**
- Understand halocarbon 'fluorinated' refrigeration system service and maintenance techniques H/502/9302 **Unit Credit Value 19**

Knowledge Element = 22 credits

Competence Units

- Service and maintain halocarbon 'fluorinated' refrigeration systems F/502/9307 **Unit Credit Value 3**

Plus either -

- Understand and carry out electrical work on RAC systems and components K/602/4998 **Unit Credit Value 12**

or

- Understand and carry out electrical work on RAC systems and components T/504/0305 **Unit Credit Value 12**

Competence Element = 15 credits

Total Qualification = 37 credits

For further qualification details refer to: register.ofqual.gov.uk/Qualifications and search for the relevant qualification or unit number.

Transferable skills (Wales)

Essential skills (Wales)

Subject	Minimum Level
Communication	N/A
Application of numbers	N/A
ICT/Digital literacy	N/A

For a full list of available proxies for starts on or after 14th October 2016 please see section 35 of the current [SASW](#).

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of a Foundation (Level 2) framework in Refrigeration
- Successful completion of a Welsh Baccalaureate Intermediate Diploma
- Successful Completion of a 'Pathway to Apprenticeship' in Engineering
- Work or work experience
- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Essential Skills or Wider KeySkills
- Level 2 GNVQs in relevant vocational/technical subjects
- Completion of a Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer.

Progression routes out of this pathway:

On successful completion of the Apprenticeship (Level 3) framework in Refrigeration Service and Maintenance, an apprentice will have the skills, knowledge and qualifications to:

- Register on a relevant industry Certification Scheme
- Progress to relevant Level 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 Technician, Designer, Estimator, Project Manager, Site/Workshop Supervisor/ Manager, Chartered Engineer, Sales Engineer or Commercial Manager

Further career guidance can be found at: www.summitskills.org.uk/careers

UCAS points for this pathway: N/A

Employee rights and responsibilities

The normal entry into this framework would be through the previous completion of the Intermediate Level Apprenticeship in Refrigeration into which the Employer Rights and Responsibilities (ERR) elements identified below are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate. Recognition of Prior Learning (RPL) may therefore be applied if ERR is gained in this way or from another programme.

Alternatively the ERR elements identified below must be achieved through an induction programme, in combination with the Level 3 NVQ Certificate in Servicing and Maintaining Refrigeration Systems qualification (City & Guilds 600/0991/3) into which they are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate plus a completed checklist which must be signed by the assessor and apprentice confirming all nine ERR elements have been achieved.

This checklist must accompany the claim for an Apprenticeship Completion Certificate and can be downloaded from

www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety and Equality and Diversity training must be an integral part of the apprentice's learning programme
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme
4. understands the role played by their occupation within their organisation and industry
5. has an informed view of the types of career pathways that are open to them
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities
7. knows where and how to get information and advice on their industry, occupation, training and career
8. can describe and work within their organisations principles and codes of practice
9. recognises and can form a view on issues of public concern that affect their organisation and industry

Additional employer requirements

(No requirement specified)

Level 3, Pathway 3: Air Conditioning

Description of this pathway

Air Conditioning - the installation and commissioning of air conditioning and heat pump systems - 46 credits in total

Entry requirements for this pathway in addition to the framework entry requirements

The Refrigeration & Air Conditioning Industry would normally expect entry into this framework to be for those who have already successfully completed a Foundation (Level 2) framework in Air Conditioning, or for individuals with the experience and knowledge comparable with the requirements of that programme.

Examples of formal qualifications that can be used as an indication that an applicant has the potential to progress into and complete the Apprenticeship (Level 3) framework in Air Conditioning are:

- Foundation (Level 2) framework in Air Conditioning
- Welsh Baccalaureate Intermediate Diploma
- Completion of a 'Pathway to Apprenticeship' in Engineering
- GCSE grade A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Level 2 GNVQs in relevant vocational/technical subjects
- A Level 2 'Access to Building Services Engineering' qualification

Job title(s)	Job role(s)
Air Conditioning Technician	Completes and oversees the installation, assembly, fitting, testing, commissioning and de-commissioning of air conditioning and heat pump systems and associated components

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 - Level 3 NVQ Certificate in Installing and Commissioning Air Conditioning and Heat Pump Systems							
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value	Total qualification time	
B1a	600/0900/7	City & Guilds	28	222	N/A		

Relationship between competence and knowledge qualifications

This framework requires the completion of the combined qualifications B1a identified in the combined qualifications section B1 above.

Qualification Title - Level 3 NVQ Certificate in Installing and Commissioning Air Conditioning and Heat Pump Systems which has:

Knowledge Units

- Understand how to organise resources within BSE R/602/2498 **Unit Credit Value 3**
- Understand halocarbon 'fluorinated' air conditioning and heat pump system installation and commissioning techniques K/502/8913 **Unit Credit Value 10**

Knowledge Element = 13 credits

Competence Units

- Install and commission halocarbon 'fluorinated' air conditioning and heat pump systems J/502/8918 **Unit Credit Value 3**

Plus either -

- Understand and carry out electrical work on RAC systems and components K/602/4998 **Unit Credit Value 12**

or

- Understand and carry out electrical work on RAC systems and components T/504/0305 **Unit Credit Value 12**

Competence Element = 15 credits

Total Qualification = 28 credits

For further qualification details refer to: www.register.ofqual.gov.uk/Qualification and search by the relevant qualification or unit number.

Transferable skills (Wales)

Essential skills (Wales)

Subject	Minimum Level
Communication	N/A
Application of numbers	N/A
ICT/Digital literacy	N/A

For a full list of available proxies for starts on or after 14th October 2016 please see section 35 of the current [SASW](#).

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of a Foundation (Level 2) framework in Air Conditioning
- Successful completion of a Welsh Baccalaureate Intermediate Diploma
- Successful Completion of a 'Pathway to Apprenticeship' in Air Conditioning
- Work or work experience
- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Essential Skills or Wider KeySkills
- Level 2 GNVQs in relevant vocational/technical subjects
- Completion of a Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer.

Progression routes out of this pathway

On successful completion of the Apprenticeship (Level 3) in Air Conditioning, an apprentice will have the skills, knowledge and qualifications to:

- Register on a relevant industry Certification Scheme
- Progress to relevant Level 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 Technician, Designer, Estimator, Project Manager, Site/Workshop Supervisor/ Manager, Chartered Engineer, Sales Engineer or Commercial Manager

Further career guidance can be found at: www.summitskills.org.uk/careers

UCAS points for this pathway: N/A

Employee rights and responsibilities

The normal entry into this framework would be through the previous completion of the Foundation (Level 2) in Air Conditioning into which the Employee Rights and Responsibilities (ERR) elements identified below are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate. Recognition of Prior Learning (RPL) may therefore be applied if ERR is gained in this way or from another programme.

Alternatively the ERR elements identified below must be achieved through an induction programme, in combination with the Level 3 NVQ Certificate in Installing and Commissioning Air Conditioning and Heat Pump Systems qualification (City & Guilds 600/0900/7) into which they are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate plus a completed checklist which must be signed by the assessor and apprentice confirming all nine ERR elements have been achieved.

This checklist must accompany the claim for an Apprenticeship Framework completion certificate and can be downloaded from

www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety and Equality and Diversity training must be an integral part of the apprentice's learning programme
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme
4. understands the role played by their occupation within their organisation and industry
5. has an informed view of the types of career pathways that are open to them
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities
7. knows where and how to get information and advice on their industry, occupation, training and career
8. can describe and work within their organisations principles and codes of practice
9. recognises and can form a view on issues of public concern that affect their organisation and industry

Additional employer requirements

(No requirement specified)

Level 3, Pathway 4: Air Conditioning Service and Maintenance

Description of this pathway

Air Conditioning Service and Maintenance - the service and maintenance of air conditioning and heat pump systems and associated components - 52 credits in total

Entry requirements for this pathway in addition to the framework entry requirements

The Air Conditioning Industry would normally expect entry into this framework to be for those who have already completed an Intermediate Level Apprenticeship in Air Conditioning, or for individuals with the experience and knowledge comparable with the requirements of that framework.

Examples of formal qualifications that can be used as an indication that an applicant has the potential to progress into and complete the Advanced Level Apprenticeship in Air Conditioning Service and Maintenance are:

- Foundation (Level 2) framework in Air Conditioning
- Welsh Baccalaureate Intermediate Diploma
- Completion of a 'Pathway to Apprenticeship' in Engineering
- GCSE grade A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Level 2 GNVQs in relevant vocational/technical subjects
- A Level 2 'Access to Building Services Engineering' qualification

Job title(s)	Job role(s)
Air Conditioning Service and Maintenance Technician	Completes and oversees the servicing and maintenance of air conditioning and heat pump systems and associated components

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 - Level 3 NVQ Certificate in Servicing and Maintaining Air Conditioning and Heat Pump Systems						
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value	Total qualification time
B1a	600/0909/3	City & Guilds	34	282	N/A	

Relationship between competence and knowledge qualifications

This framework requires the completion of the combined qualification B1a identified in the combined qualifications section B1 above.

Qualification Title - Level 3 NVQ Certificate in Servicing and Maintaining Air Conditioning and Heat Pump Systems which has:

Knowledge Units

- Understand how to organise resources within BSE R/602/2498 **Unit Credit Value 3**
- Understand halocarbon 'fluorinated' air conditioning and heat pump service and maintenance techniques T/502/8915 **Unit Credit Value 16**

Knowledge Element = 19 credits

Competence Units

- Service and maintain halocarbon 'fluorinated' air conditioning and heat pump systems F/502/8920 **Unit Credit Value 3**

Plus either -

- Understand and carry out electrical work on RAC systems and components K/602/4998 **Unit Credit Value 12**

or

- Understand and carry out electrical work on RAC systems and components T/504/0305 **Unit Credit Value 12**

Competence Element = 15 credits

Total Qualification = 34 credits

For further qualification details refer to: <http://register.ofqual.gov.uk/Qualification> and search by the relevant qualification or unit number.

Transferable skills (Wales)

Essential skills (Wales)

Subject	Minimum Level
Communication	N/A
Application of numbers	N/A
ICT/Digital literacy	N/A

For a full list of available proxies for starts on or after 14th October 2016 please see section 35 of the current [SASW](#).

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of a Foundation (Level 2) framework in Air Conditioning
- Successful completion of a Welsh Baccalaureate Intermediate Diploma
- Successful Completion of a 'Pathway to Apprenticeship' in Engineering
- Work or work experience
- Training and/or experience which could include a portfolio showing what they have done
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Essential Skills or Wider KeySkills
- Level 2 GNVQs in relevant vocational/technical subjects
- Completion of a Level 2 'Access to Building Services Engineering' qualification

No individual should be refused access to an initial assessment on the basis of educational qualifications alone. The ultimate responsibility for selection will rest with the individual employer.

Progression routes out of this pathway:

On successful completion of the Apprenticeship (Level 3) in Air Conditioning Service and Maintenance, an apprentice will have the skills, knowledge and qualifications to:

- Register on a relevant industry Certification Scheme
- Progress to relevant Level 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 Technician, Designer, Estimator, Project Manager, Site/Workshop Supervisor/ Manager, Chartered Engineer, Sales Engineer or Commercial Manager

Further career guidance can be found at: www.summitskills.org.uk/careers

UCAS points for this pathway:

(No requirement specified)

Employee rights and responsibilities

The normal entry into this framework would be through the previous completion of the Foundation (Level 2) in Air Conditioning into which the Employee Rights and Responsibilities (ERR) elements identified below are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate. Recognition of Prior Learning (RPL) may therefore be applied if ERR is gained in this way or from another programme.

Alternatively the ERR elements identified below must be achieved through an induction programme, in combination with the Level 3 NVQ Certificate in Servicing and Maintaining Air Conditioning and Heat Pump Systems qualification (City & Guilds (600/0909/3) into which they are integrated and signposted. The ERR elements will be evidenced by the issuing of a qualification achievement certificate plus a completed checklist which must be signed by the assessor and apprentice confirming all nine ERR elements have been achieved.

This checklist must accompany the claim for an Apprenticeship Completion Certificate and can be downloaded from

www.summitskills.org.uk/Apprenticeships/Certification-and-Registration/219

The delivery and assessment of ERR must be designed so that the apprentice:

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law and that employment rights can be affected by other legislation as well. This should cover the apprentice's rights and responsibilities under the Disability Discrimination Act, other relevant equalities legislation and Health and Safety, together with the responsibilities and duties of employers
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health and Safety and Equality and Diversity training must be an integral part of the apprentice's learning programme
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme
4. understands the role played by their occupation within their organisation and industry
5. has an informed view of the types of career pathways that are open to them
6. knows the types of representative bodies and understands their relevance to their industry and organisation, and their main roles and responsibilities
7. knows where and how to get information and advice on their industry, occupation, training and career
8. can describe and work within their organisations principles and codes of practice
9. recognises and can form a view on issues of public concern that affect their organisation and industry

Additional employer requirements

(No requirement specified)

The remaining sections apply to all levels and pathways within this framework.

How equality and diversity will be met

The nature of the work means that the Refrigeration & Air Conditioning Industry is not a traditional career choice for women, but women do qualify and work successfully in the industry and this is encouraged. We are continuing to work with the UK Resource Centre for Women in Science, Engineering and Technology and the Platform 51 (formerly YWCA) to promote the opportunities for women working within the building services engineering sector.

SummitSkills will have overall responsibility for the development and review of the framework and for monitoring equality of opportunity, primarily by the analysis of the National Apprenticeship Service data.

There should be open recruitment of apprentices 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.

<http://www.equalityhumanrights.com/advice-and-guidance/new-equality-act-guidance/>

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.

On and off the job training (Wales)

Summary of on- and off-the-job training

Foundation (Level 2) Frameworks

Overview of Refrigeration

Qualification Total - 540 hrs (Knowledge elements 192hrs + Competence elements 348hrs)

Essential Skills (ES) - 135 hrs (notional value of 45 hrs per ES x 3, which can be offset if previously completed)

Mentoring - 92 hrs (based on 46 wks x 2 hrs)

Minimum total Training Hours for this framework is 767 hrs

Overview of Air Conditioning

Qualification Total - 540 hrs (Knowledge elements 192hrs + Competence elements 348hrs)

Essential Skills (ES) - 135 hrs (notional value of 45 hrs per ES x 3, which can be offset if previously completed)

Mentoring - 92 hrs (based on 46 wks x 2 hrs)

Minimum total Training Hours for this framework is 767 hrs

Apprenticeship (Level 3) Frameworks

Overview of Refrigeration

Qualification Total - 282 hrs (Knowledge elements 176hrs + Competence elements 106hrs)

Essential Skills (ES) - 90 hrs (notional value of 45 hrs per ES x 2, which can be offset if previously completed)

Mentoring - 230 hrs (based on 92 wks x 2.5 hrs)

Minimum total GLH for this framework is 602 hrs

Overview of Refrigeration Service and Maintenance

Qualification Total - 312 hrs (Knowledge elements 206hrs + Competence elements 106hrs)

Essential Skills (ES) - 90 hrs (notional value of 45 hrs per ES x 2, which can be offset if previously completed)

Mentoring - 230 hrs (based on 92 wks x 2.5 hrs)

Minimum total Training Hours for this framework is 632 hrs

Overview of Air Conditioning

Qualification Total - 222 hrs (Knowledge elements 116hrs + Competence elements 106hrs)

Essential Skills (ES) - 90 hrs (notional value of 45 hrs per ES x 2, which can be offset if previously completed)

Mentoring - 230 hrs (based on 92 wks x 2.5 hrs)

Minimum total Training Hours for this framework is 642 hrs

Overview of Air Conditioning Service and Maintenance

Qualification Total - 282 hrs (Knowledge elements 176hrs + Competence elements 106hrs)

Essential Skills (ES) - 90 hrs (notional value of 45 hrs per ES x 2, which can be offset if previously completed)

Mentoring - 230 hrs (based on 92 wks x 2.5 hrs)

Minimum total Training Hours for this framework is 602 hrs

Off-the-job training

Foundation (Level 2) Frameworks

Refrigeration

Minimum total off-the-job Training Hours is 583 hrs over 24 months

- Yr 1 - 292 hrs
- Yr 2 - 291 hrs

Air Conditioning

Minimum total off-the-job Training Hours is 583 hrs over 24 months

- Yr 1 - 292 hrs
- Yr 2 - 291 hrs

Apprenticeships (Level 3) Frameworks

Refrigeration

Minimum total off -the-job Training Hours is 372 hrs over 24 months

- Yr 1 - 186 hrs
- Yr 2 - 186 hrs

Refrigeration Service and Maintenance

Minimum total off-the-job Training Hours is 402 hrs over 24 months

- Yr 1 - 201 hrs
- Yr 2 - 201 hrs

Air Conditioning

Minimum total off-the-job Training Hours is 312 hrs over 24 months

- Yr 1 - 156 hrs
- Yr 2 - 156 hrs

Air Conditioning Service and Maintenance

Minimum total off-the-job Training Hours is 372 hrs over 24 months

- Yr 1 - 186 hrs
- Yr 2 - 186 hrs

How this requirement will be met

Training Hours will be achieved through clear and specific outcomes which contribute directly to the successful achievement of the framework and these may include accredited and non-accredited elements of the framework.

Training Hour will be delivered through one or more of the following methods: individual and group teaching; e-learning; distance learning; feedback and assessment; guided study. All Training Hours delivery must be completed while undertaking apprenticeship training and will take place during contracted working hours.

This will be evidenced by training provider attendance statistics and assessment reports.

On-the-job training

Foundation (Level 2) Frameworks

Refrigeration

Minimum total on-the-job Training Hours is 184 hrs over 24 months

- Yr 1 - 92 hrs
- Yr 2 - 92 hrs

Air Conditioning

Minimum total on-the-job Training Hours is 184 hrs over 24 months

- Yr 1 - 92 hrs
- Yr 2 - 92 hrs

Apprenticeship (Level 3) Frameworks

Refrigeration

Minimum total on-the-job Training Hours is 230 hrs over 24 months

- Yr 1 - 115 hrs
- Yr 2 - 115 hrs

Refrigeration Service and Maintenance

Minimum total on-the-job Training Hours is 230 hrs over 24 months

- Yr 1 - 115 hrs
- Yr 2 - 115 hrs

Air Conditioning

Minimum total on-the-job Training Hours is 230 hrs over 24 months

- Yr 1 - 115 hrs
- Yr 2 - 115 hrs

Air Conditioning Service and Maintenance

Minimum total on-the-job Training Hours is 230 hrs over 24 months

- Yr 1 - 115 hrs
- Yr 2 - 115 hrs

These are the minimum number of Training Hours that should be allocated for the apprentice to gather evidence in accordance with the requirements of the integrated

qualification and mentoring.

How this requirement will be met

Training Hours will be achieved through clear and specific outcomes which contribute directly to the successful achievement of the framework and these may include accredited and non-accredited elements of the framework.

Training Hours will be delivered through one or more of the following methods: coaching; mentoring; feedback and assessment; collaborative/ networked learning with peers. All Training Hours delivery must be completed while undertaking apprenticeship training and will take place during contracted working hours.

This will be evidenced by apprentices' portfolios, employer dialogue, qualification assessment records and reports.

Essential employability skills (Wales)

Essential employability skills

(No requirement specified)

apprenticeship
FRAMEWORKS ONLINE

For more information visit
www.afo.sscalliance.org