apprenticeship
FRAMEWORK

Refrigeration and Air Conditioning (England)

IMPORTANT NOTIFICATION FOR ALL APPRENTICESHIP STARTS FROM 22 AUGUST 2017

Modifications to SASE came into effect on 22 August 2017. Accordingly, SASE publication DFE-00167-2017 applies **both** to new Apprenticeship starts from 22 August 2017 **and** all Apprenticeships commenced before and not completed by 22 August 2017.

For more details of the changes please read the following preface page to the framework document.

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=FR01514

Issue date: 27 June 2012

Issued by
SummitSkills

apprenticeship
FRAMEWORKS ONLINE
www.afo.sscalliance.org

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Issued

Apprenticeships

CHANGES TO THE ENGLISH AND MATHS REGULAR MINIMUM REQUIREMENTS FOR APPRENTICESHIP STARTS FROM 22 AUGUST 2017 AND APPRENTICESHIPS REMAINING INCOMPLETE ON 22 AUGUST 2017.

Modifications to SASE came into effect on 22 August 2017. Accordingly, SASE publication DFE-00167-2017 applies both to new Apprenticeship starts from 22 August 2017 and all Apprenticeships commenced before and not completed by 22 August 2017.

The modifications allow for an exemption to the English and Maths regular minimum requirements for people with Special Educational Needs, Learning Difficulties or Disabilities. This means that adjusting the minimum requirements to Entry Level 3 in English and Maths can be considered by the provider, on an individual and case-by-case basis, where **all of the conditions** of the updated SASE section 18 (Intermediate level) or section 37 (Advanced level) for have been satisfied and can be evidenced.

Full details relating to the exceptions eligibility criteria are contained in:

Sections 15-23 of SASE for Intermediate Level Apprenticeships
Sections 34-42 of SASE for Advanced Level Apprenticeships

When applying this exemption, providers must **STILL** consider how to enable the Apprentice to access further literacy and numeracy development – including Level 1 and Level 2 courses – as part of their overall training provision.

The modifications to SASE have also extended the list of qualifications that meet the minimum English requirements to allow for a British Sign Language (BSL) qualification, at the appropriate level, to be accepted as an alternative to a qualification in English, where **BSL is the primary language of the Apprentice**.

Full details relating to BSL acceptance are contained in:

Section 5(f) of SASE for Intermediate Level Apprenticeships
Section 28(f) of SASE for Advanced Level Apprenticeships

Furthermore, the SASE modifications have further extended the list of qualifications that meet the minimum English and Maths requirements to allow for the acceptance of a range of UK-wide qualifications, as an alternative to qualifications gained in England.

Full details relating to the list of acceptable qualifications are contained in:

Sections 5(g-j) and 6(f-i) of SASE for Intermediate Level Apprenticeships
Sections 28(g-j) and 29(f-i) of SASE for Advanced Level Apprenticeships

The modifications include reference to the new numerical grades in the reformed GCSE system and the **minimum** grade requirements. A grade 4 (new grading) will be considered equivalent to a grade C (old grading). A grade 2 (new grading) will be considered equivalent to a Grade E (old grading).

Full details relating to the numerically graded GCSEs are contained in:

Sections 5 and 6 of SASE for Intermediate Level Apprenticeships
Sections 28 and 29 of SASE for Advanced Level Apprenticeships

Please note that some frameworks may have English and Maths grade/level requirements that are **above** the SASE **regular** minimum requirements. The exceptions relating to the use of British Sign Language or Entry Level 3 qualifications, detailed above, **do not apply** to **industry-specific** minimum entry requirements. Please check specific framework documents to ascertain where this is the case and/or check directly with the Issuing Authority responsible for the framework.

The updated version of SASE, and guidance documents, can be accessed here:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/630068/Specification_of_Apprenticeship_Standards_for_England_.pdf

Refrigeration and Air Conditioning (England)

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Framework summary

Refrigeration and Air Conditioning

Intermediate Level Apprenticeships in Refrigeration and Air Conditioning

This framework includes information on Personal Learning and Thinking Skills

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
- Functional 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
- Functional skills

Refrigeration and Air Conditioning

Advanced Level Apprenticeships in Refrigeration and Air Conditioning

This framework includes information on Personal Learning and Thinking Skills

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
- Functional 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 Diploma in Servicing and Maintaining Refrigeration Systems

This pathway also contains information on:

- Employee rights and responsibilities
- Functional 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
- Functional 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
- Functional skills

Framework information

Information on the Issuing Authority for this framework:

SummitSkills

The Apprenticeship sector for occupations in electrical and electronic servicing, plumbing, heating and building services (summarised as electrotechnical; plumbing, heating and ventilating; refrigeration and air conditioning).

Issue number: 5	**This framework includes:**
Framework ID: FR01514	Level 2 Level 3
Date this framework is to be reviewed by: 01/04/2016	This framework is for use in: **England**

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:

Intermediate Level -

- Refrigeration
- Air Conditioning

Whichever occupation framework pathway is chosen at Intermediate Level, 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 an Intermediate Level 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 Advanced Level Apprenticeship Framework

In order to demonstrate the industry recognised level of competence reflected by this Intermediate framework it is expected the minimum duration for its completion will be no less than 24months.

Job roles covered are:

- Refrigeration Operative
- Air Conditioning Operative

Advanced Level -

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

Whichever occupation framework pathway is chosen at Advanced Level, 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 Advanced Level occupation framework would be through completion of the relevant Intermediate Level framework or alternatively proven knowledge/experience to an equivalent level.

Successful completion of an Advanced Level 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.

In order to demonstrate the industry recognised level of competence reflected by this Advanced framework it is expected the minimum duration for its completion will be no less than 24months.

Contact information

Proposer of this framework

N/A

Developer of this framework

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Issuer email:	apprenticeships@summitskills.org.uk

Revising a framework

Contact details

Who is making this revision:	Trevor Hill
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Why this framework is being revised

The National Apprenticeship Service has asked us to add a short statement to the framework introductions highlighting timescales required for completion of the frameworks.

Summary of changes made to this framework

The National Apprenticeship Service has asked us to add a short statement to the framework introductions highlighting timescales required for completion of the frameworks.

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 Intermediate Level occupation pathways:

- Refrigeration Operative
- Air Conditioning Operative

The following job roles will be covered by the Advanced Level occupation pathways:

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

Aims and objectives of this framework (England)

The aim of the occupation frameworks is to ensure that the Intermediate and Advanced Level Apprenticeship 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 Intermediate and Advanced Level Apprenticeships 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 new entrants 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 Intermediate and/or Advanced Level Apprenticeship programme
- 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 Intermediate or Advanced Level Apprenticeships 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

Intermediate Level 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 - 81 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 this Intermediate Level Apprenticeship are:

- 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 14-19 Diploma in either Construction and The Built Environment, or Engineering
- 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**
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/Qu alifications and search by the relevant qualifications or unit number

Transferable skills (England)

Functional Skills / GCSE (with enhanced functional content) and Key Skills (England)

Apprentices must complete or have completed one of the English transferable skills qualifications and one of the Mathematical transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

English	Minimum level or grade	Credit value
Functional Skills qualification in English	2	5
GCSE qualification in English (with enhanced functional content)	C	5
Key Skills qualification in Communication achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE Qualification in English*	C	N/A
A' Level or AS Level qualification in English Language*	E	N/A
A' Level or AS Level qualification in English Literature*	E	N/A
A' Level or AS Level qualification in English Language and Literature*	E	N/A
GCSE or O' Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Literature**	A	N/A
A' Level or AS Level qualification in English Language and Literature**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Mathematics	Minimum level or grade	Credit value
Functional Skills qualification in Mathematics	2	5
GCSE qualification (with enhanced functional content) in Mathematics	C	5
Key Skills qualification in Application of Number achieved either before September 2013 as part of the Apprenticeship, or... *	2	5
GCSE qualification in Mathematics*	C	N/A
A' level or AS Level qualification in Mathematics*	E	N/A
A' Level or AS Level qualification in Pure Mathematics*	E	N/A
A'Level or AS Level qualification in Further Mathematics*	E	N/A
GCSE or O'Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Pure Mathematics**	A	N/A
A' Level or AS Level qualification in Further Mathematics**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

ICT

Apprentices must complete or have completed one of the ICT transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have one of these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

ICT	Minimum level or grade	Credit value
Functional Skills qualification in Information and Communications Technology (ICT)	1	5
GCSE qualification in ICT (with enhanced functional content)	D	5
Key Skills qualification in ICT achieved either before September 2013 as part of the Apprenticeship, or...*	1	5
GCSE qualification in ICT*	C	N/A
A' Level or AS Level qualification in ICT*	E	N/A
GCSE or O'Level qualification in ICT**	A	N/A
A' Level or AS Level qualification in ICT**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Inclusion of Information and Communications Technology (ICT)

N/A

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- 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 Key Skills or Functional Skills
- Level 1 GNVQs in relevant vocational/technical subjects
- A 14-19 Diploma in either Construction and the Built Environment or Engineering
- 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 Advanced Apprenticeship 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

Level 2, Pathway 2: Air Conditioning

Description of this pathway

Air Conditioning - Installing, maintaining and repairing air conditioning and heat pump systems - 81 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 Intermediate Level Apprenticeship in Air Conditioning are:

- 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 14-19 Diploma in either Construction and The Built Environment, or Engineering
- 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
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/Qua lification and search by the relevant qualification or unit number.

Transferable skills (England)

Functional Skills / GCSE (with enhanced functional content) and Key Skills (England)

Apprentices must complete or have completed one of the English transferable skills qualifications and one of the Mathematical transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

English	Minimum level or grade	Credit value
Functional Skills qualification in English	2	5
GCSE qualification in English (with enhanced functional content)	C	5
Key Skills qualification in Communication achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE Qualification in English*	C	N/A
A' Level or AS Level qualification in English Language*	E	N/A
A' Level or AS Level qualification in English Literature*	E	N/A
A' Level or AS Level qualification in English Language and Literature*	E	N/A
GCSE or O' Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Literature**	A	N/A
A' Level or AS Level qualification in English Language and Literature**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Mathematics	Minimum level or grade	Credit value
Functional Skills qualification in Mathematics	2	5
GCSE qualification (with enhanced functional content) in Mathematics	C	5
Key Skills qualification in Application of Number achieved either before September 2013 as part of the Apprenticeship, or... *	2	5
GCSE qualification in Mathematics*	C	N/A
A' level or AS Level qualification in Mathematics*	E	N/A
A' Level or AS Level qualification in Pure Mathematics*	E	N/A
A'Level or AS Level qualification in Further Mathematics*	E	N/A
GCSE or O'Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Pure Mathematics**	A	N/A
A' Level or AS Level qualification in Further Mathematics**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

ICT

Apprentices must complete or have completed one of the ICT transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have one of these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

ICT	Minimum level or grade	Credit value
Functional Skills qualification in Information and Communications Technology (ICT)	1	5
GCSE qualification in ICT (with enhanced functional content)	D	5
Key Skills qualification in ICT achieved either before September 2013 as part of the Apprenticeship, or...*	1	5
GCSE qualification in ICT*	C	N/A
A' Level or AS Level qualification in ICT*	E	N/A
GCSE or O'Level qualification in ICT**	A	N/A
A' Level or AS Level qualification in ICT**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Inclusion of Information and Communications Technology (ICT)

N/A

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- 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 Key Skills or Functional Skills
- Level 1 GNVQs in relevant vocational/technical subjects
- A 14-19 Diploma in either Construction and the Built Environment or Engineering
- 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 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 Advanced Apprenticeship in Air Conditioning or Air Conditioning Service and Maintenance
- Progress in their career with further training into such job roles as Technician, Designer Estimator, Project Manager, Service 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

Level 3

Title for this framework at level 3

Advanced Level Apprenticeships in Refrigeration and 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 - 49 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 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 successfully complete the Advanced Level Apprenticeship in Refrigeration are:

- Successful completion of an Intermediate Level Apprenticeship in Refrigeration
- 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
- 14-19 Higher Diploma in either Construction and The Built Environment, or Engineering
- 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**
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

Total Qualification = 34 credits

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

Transferable skills (England)

Functional Skills / GCSE (with enhanced functional content) and Key Skills (England)

Apprentices must complete or have completed one of the English transferable skills qualifications and one of the Mathematical transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

English	Minimum level or grade	Credit value
Functional Skills qualification in English	2	5
GCSE qualification in English (with enhanced functional content)	C	5
Key Skills qualification in Communication achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE Qualification in English*	C	N/A
A' Level or AS Level qualification in English Language*	E	N/A
A' Level or AS Level qualification in English Literature*	E	N/A
A' Level or AS Level qualification in English Language and Literature*	E	N/A
GCSE or O' Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Literature**	A	N/A
A' Level or AS Level qualification in English Language and Literature**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Mathematics	Minimum level or grade	Credit value
Functional Skills qualification in Mathematics	2	5
GCSE qualification (with enhanced functional content) in Mathematics	C	5
Key Skills qualification in Application of Number achieved either before September 2013 as part of the Apprenticeship, or... *	2	5
GCSE qualification in Mathematics*	C	N/A
A' level or AS Level qualification in Mathematics*	E	N/A
A' Level or AS Level qualification in Pure Mathematics*	E	N/A
A'Level or AS Level qualification in Further Mathematics*	E	N/A
GCSE or O'Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Pure Mathematics**	A	N/A
A' Level or AS Level qualification in Further Mathematics**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Inclusion of Information and Communications Technology (ICT)

This framework has no requirement for Level 2 ICT as the industry has determined it is not relevant for effective performance in this occupation. Applicants will be required to have completed the relevant Intermediate Level Apprenticeship which includes ICT at Level 1 or have knowledge and experience at a comparable level.

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of an Intermediate Level Apprenticeship in Refrigeration
- 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 Key Skills or Functional Skills
- Level 2 GNVQs in relevant vocational/technical subjects
- A 14-19 Higher Diploma in either Construction and the Built Environment or Engineering
- 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 Advanced Level Apprenticeship 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 job roles such as Technician, Designer Estimator, Project Manager, Site/Workshop Supervisor/Manager, Service Manager, Chartered Engineer, Sales Engineer or Commercial Manager

Further careers 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 Intermediate Level Apprenticeship 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 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

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 - 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 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 Advanced Level Apprenticeship in Refrigeration Service and Maintenance are:

- Successful completion of an Intermediate Level Apprenticeship in Refrigeration
- 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 14-19 Higher Diploma in either Construction and the Built Environment, or Engineering
- 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 Diploma in Servicing and Maintaining Refrigeration Systems					
No.	**Ref no.**	**Awarding organisation**	**Credit value**	**Guided learning hours**	**UCAS points value**
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 Diploma 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/Qualification and seach for the relevant qualification or unit number.

Transferable skills (England)

Functional Skills / GCSE (with enhanced functional content) and Key Skills (England)

Apprentices must complete or have completed one of the English transferable skills qualifications and one of the Mathematical transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

English	Minimum level or grade	Credit value
Functional Skills qualification in English	2	5
GCSE qualification in English (with enhanced functional content)	C	5
Key Skills qualification in Communication achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE Qualification in English*	C	N/A
A' Level or AS Level qualification in English Language*	E	N/A
A' Level or AS Level qualification in English Literature*	E	N/A
A' Level or AS Level qualification in English Language and Literature*	E	N/A
GCSE or O' Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Literature**	A	N/A
A' Level or AS Level qualification in English Language and Literature**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Mathematics	Minimum level or grade	Credit value
Functional Skills qualification in Mathematics	2	5
GCSE qualification (with enhanced functional content) in Mathematics	C	5
Key Skills qualification in Application of Number achieved either before September 2013 as part of the Apprenticeship, or... *	2	5
GCSE qualification in Mathematics*	C	N/A
A' level or AS Level qualification in Mathematics*	E	N/A
A' Level or AS Level qualification in Pure Mathematics*	E	N/A
A'Level or AS Level qualification in Further Mathematics*	E	N/A
GCSE or O'Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Pure Mathematics**	A	N/A
A' Level or AS Level qualification in Further Mathematics**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Inclusion of Information and Communications Technology (ICT)

This framework has no requirement for Level 2 ICT as the industry has determined it is not relevant for effective performance in this occupation. Applicants will be required to have completed the relevant Intermediate Level Apprenticeship which includes Level 1 ICT or have knowledge and experience at a comparable level.

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of an Intermediate Level Apprenticeship in Refrigeration Service and Maintenance
- 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 Key Skills or Functional Skills
- Level 2 GNVQs in relevant vocational/technical subjects
- A 14-19 Higher Diploma in either Construction and the Built Environment or Engineering
- 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 Advanced Level Apprenticeship 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 job roles such as Technician, Designer Estimator, Project Manager, Site/Workshop Supervisor/Manager, Service 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 Diploma 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

Level 3, Pathway 3: Air Conditioning

Description of this pathway

Air Conditioning - the installation and commissioning of air conditioning and heat pump systems - 43 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 are:

- Successful completion of an Intermediate Level Apprenticeship in Air Conditioning
- 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 14-19 Higher Diploma in either Construction and The Built Environment, or Engineering
- 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
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/Qua lification and search by the relevant qualification or unit number.

Transferable skills (England)

Functional Skills / GCSE (with enhanced functional content) and Key Skills (England)

Apprentices must complete or have completed one of the English transferable skills qualifications and one of the Mathematical transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

English	Minimum level or grade	Credit value
Functional Skills qualification in English	2	5
GCSE qualification in English (with enhanced functional content)	C	5
Key Skills qualification in Communication achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE Qualification in English*	C	N/A
A' Level or AS Level qualification in English Language*	E	N/A
A' Level or AS Level qualification in English Literature*	E	N/A
A' Level or AS Level qualification in English Language and Literature*	E	N/A
GCSE or O' Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Literature**	A	N/A
A' Level or AS Level qualification in English Language and Literature**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Mathematics	Minimum level or grade	Credit value
Functional Skills qualification in Mathematics	2	5
GCSE qualification (with enhanced functional content) in Mathematics	C	5
Key Skills qualification in Application of Number achieved either before September 2013 as part of the Apprenticeship, or... *	2	5
GCSE qualification in Mathematics*	C	N/A
A' level or AS Level qualification in Mathematics*	E	N/A
A' Level or AS Level qualification in Pure Mathematics*	E	N/A
A'Level or AS Level qualification in Further Mathematics*	E	N/A
GCSE or O'Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Pure Mathematics**	A	N/A
A' Level or AS Level qualification in Further Mathematics**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Inclusion of Information and Communications Technology (ICT)

This framework has no requirement for Level 2 ICT as the industry has determined it is not relevant for effective performance in this occupation. Applicants will be required to have completed the relevant Intermediate Level Apprenticeship which includes Level 1 ICT or have knowledge and experience at a comparable level.

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of an Intermediate Level 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 Key Skills or Functional Skills
- Level 2 GNVQs in relevant vocational/technical subjects
- A 14-19 Higher Diploma in either Construction and the Built Environment or Engineering
- 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 Advanced Level Apprenticeship 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 job roles such 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 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

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 - 49 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:

- Successful completion of an Intermediate Level Apprenticeship in Air Conditioning
- GCSE grade A-C in each of the following:- a communication subject, maths and either a science or echnical-based subject
- Level 2 GNVQs in relevant vocational/technical subjects
- A 14-19 Higher Diploma in either Construction and The Built Environment, or Engineering
- 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**
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: register.ofqual.gov.uk/Qualifi cation and search by the relevant qualification or unit number.

Transferable skills (England)

Functional Skills / GCSE (with enhanced functional content) and Key Skills (England)

Apprentices must complete or have completed one of the English transferable skills qualifications and one of the Mathematical transferable skills qualifications listed below in order to successfully complete their Apprenticeship and this will carry the QCF five credit values. If they do not have these qualifications as part of their evidence an Apprenticeship certificate cannot be awarded.

English	Minimum level or grade	Credit value
Functional Skills qualification in English	2	5
GCSE qualification in English (with enhanced functional content)	C	5
Key Skills qualification in Communication achieved either before September 2013 as part of the Apprenticeship, or...*	2	5
GCSE Qualification in English*	C	N/A
A' Level or AS Level qualification in English Language*	E	N/A
A' Level or AS Level qualification in English Literature*	E	N/A
A' Level or AS Level qualification in English Language and Literature*	E	N/A
GCSE or O' Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Language**	A	N/A
A' Level or AS Level qualification in English Literature**	A	N/A
A' Level or AS Level qualification in English Language and Literature**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Mathematics	Minimum level or grade	Credit value
Functional Skills qualification in Mathematics	2	5
GCSE qualification (with enhanced functional content) in Mathematics	C	5
Key Skills qualification in Application of Number achieved either before September 2013 as part of the Apprenticeship, or... *	2	5
GCSE qualification in Mathematics*	C	N/A
A' level or AS Level qualification in Mathematics*	E	N/A
A' Level or AS Level qualification in Pure Mathematics*	E	N/A
A'Level or AS Level qualification in Further Mathematics*	E	N/A
GCSE or O'Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Mathematics**	A	N/A
A' Level or AS Level qualification in Pure Mathematics**	A	N/A
A' Level or AS Level qualification in Further Mathematics**	A	N/A

* *achieved before September 2012 and within the 5 years immediately prior to starting an Apprenticeship.*

** *achieved before September 2012, otherwise at any time prior to starting the Apprenticeship.*

Inclusion of Information and Communications Technology (ICT)

This framework has no requirement for Level 2 ICT as the industry has determined it is not relevant for effective performance in this occupation. Applicants will be required to have completed the relevant Intermediate Level Apprenticeship which includes Level 1 ICT or have knowledge and experience at a comparable level.

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of an Intermediate Level Apprenticeship in Air Conditioning Service and Maintenance
- 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 Key Skills or Functional Skills
- Level 2 GNVQs in relevant vocational/technical subjects
- A 14-19 Higher Diploma in either Construction and the Built Environment or Engineering
- 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 Advanced Level Apprenticeship 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 job roles such as Technician, Designer Estimator, Project Manager, Site/Workshop Supervisor/Manager, Service 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 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

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 and Air Conditioning Industries are 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 Platform 51 (formerly the YWCA) to promote the opportunities for women working in 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 to the programme 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 equal opportunities and must have a formal equal opportunities policy 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 guided learning (England)

Total GLH for each pathway

Intermediate Level Apprenticeships

Overview of Refrigeration

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

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

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

Minimum total GLH for this framework is 767 hrs

Overview of Air Conditioning

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

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

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

Minimum total GLH for this framework is 767 hrs

Advanced Level Apprenticeships

Overview of Refrigeration

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

Functional Skills (FS) - 90 hrs (notional value of 45 hrs per FS 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)

Functional Skills (FS) - 90 hrs (notional value of 45 hrs per FS 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 632 hrs

Overview of Air Conditioning

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

Functional Skills (FS) - 90 hrs (notional value of 45 hrs per FS 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 642 hrs

Overview of Air Conditioning Service and Maintenance

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

Functional Skills (FS) - 90 hrs (notional value of 45 hrs per FS 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

Minimum off-the-job guided learning hours

Intermediate Level Apprenticeships

Refrigeration

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

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

Air Conditioning

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

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

Advanced Level Apprenticeships

Refrigeration

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

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

Refrigeration Service and Maintenance

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

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

Air Conditioning

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

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

Air Conditioning Service and Maintenance

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

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

How this requirement will be met

Guided Learning Hours (GLH) 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.

GLH 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 GLH 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.

Minimum on-the-job guided learning hours

Intermediate Level Apprenticeships

Refrigeration

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

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

Air Conditioning

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

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

Advanced Level Apprenticeships

Refrigeration

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

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

Refrigeration Service and Maintenance

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

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

Air Conditioning

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

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

Air Conditioning Service and Maintenance

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

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

These are the minimum number of Guided Learning 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

Guided Learning Hours (GLH) 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.

GLH will be delivered through one or more of the following methods: coaching; mentoring; feedback and assessment; collaborative/ networked learning with peers. All GLH 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 asessment records and reports.

Personal learning and thinking skills assessment and recognition (England)

Summary of Personal Learning and Thinking Skills

The six Personal, Learning and Thinking Skills will be achieved and demonstrated as detailed in the following statements while completing either of the following two qualifications:

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

The normal entry route into the Advanced Level Apprenticeships is through progression from the Intemediate Level Apprenticeship. However, those entering the Advanced Level Apprenticeship directly need to produce auditable evidence to demonstrate their previous knowledge and experience is compatible with the relevant Level 2 qualification. This can be achieved through a process of Recognition of Prior Learning (RPL).

Formal recognition of PLTS achievement will be provided in the form of a certificate upon framework completion.

Creative thinking

Creative thinking will be demonstrated and delivered at a minimum level within the units of the competence-based qualification Level 2 NVQ Diploma in Installing and Maintaining Refrigeration Systems as referenced below:

- Understand and carry out safe working practices in building services engineering (J/602/2479)
- Understand and carry out electrical work on refrigeration and air conditioning (RAC) systems and components (K/602/4998)
- Install, test and maintain refrigeration systems (J/502/7932)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Creative thinking will be demonstrated and delivered at a minimum level within the units of the competence-based qualification Level 2 NVQ Diploma in Installing, Testing and Maintaining Air Conditioning and Heat Pump Systems as referenced below:

- Understand and carry out safe working practices in building services engineering

(J/602/2479)
- Understand how to apply scientific principles within MES (J/602/2496)
- Understand air conditioning and heat pump system installation, testing and maintenance techniques (A/602/4987)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Independent enquiry

Independent enquiry will be demonstrated and delivered at a minimum level within the units of the competence-based qualification Level 2 NVQ Diploma in Installing and Maintaining Refrigeration Systems as referenced below:

- Understand how to apply environmental protection measures within BSE (D/602/2486)
- Understand how to apply scientific principles within MES (J/602/2496)
- Understand refrigeration system installation, testing and maintenance techniques (M/602/4999)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Independent enquiry will be demonstrated and delivered at a minimum level within the units of the competence-based qualification Level 2 NVQ Diploma in Installing, Testing and Maintaining Air Conditioning and Heat Pump Systems as referenced below:

- Understand and carry out site preparation and pipework fabrication techniques for RAC systems (R/602/4994)
- Understand air conditioning and heat pump system installation, testing and maintenance techniques (A/602/4987)
- Install, test and maintain air conditioning and heat pump systems (D/602/5002)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Reflective learning

Reflective learning will be demonstrated and delivered at a minimum level within the units of the competence-based qualification Level 2 NVQ Diploma in Installing and Maintaining Refrigeration Systems as referenced below:

- Understand how to apply environmental protection measures within BSE (D/602/2486)
- Apply safe working practices in building services engineering working environments

(T/602/2493)
- Understand and carry out site preparation and pipework fabrication techniques for RAC systems (R/602/4994)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Reflective learning will be demonstrated and delivered at a minimum level within the units of the competence-based qualification Level 2 NVQ Diploma in Installing, Testing and Maintaining Air Conditioning and Heat Pump Systems as referenced below:

- Understand and carry out safe working practices in building services engineering (J/602/2479)
- Understand how to communicate with others within BSE (J/602/2482)
- Understand and carry out electrical work on RAC systems and components (K/602/4998)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Team working

Team working will be demonstrated and delivered at a minimum level within the units of the competence-based qualification Level 2 NVQ Diploma in Installing and Maintaining Refrigeration Systems as referenced below:

- Understand how to communicate with others within BSE (J/602/2482)
- Handling fluorinated gases and ozone depleting substances (Cat 1 personnel) (D/502/0629)
- Install, test and maintain refrigeration systems (J/502/7932)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Team working will be demonstrated and delivered at a minimum level within the units of the competence-based qualification Level 2 NVQ Diploma in Installing, Testing and Maintaining Air Conditioning and Heat Pump Systems as referenced below:

- Understand how to communicate with others within BSE (J/602/2482)
- Apply safe working practices in building services engineering working environments (T/602/2493)
- Understand and carry out site preparation and pipework fabrication techniques for RAC systems (R/602/4994)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Self management

Self management will be demonstrated and delivered at a minimum level within the units of the competence-based qualification Level 2 NVQ Diploma in Installing and Maintaining Refrigeration Systems as referenced below:

- Understand how to communicate with others within BSE (J/602/2482)
- Understand how to apply environmental protection measures within BSE (D/602/2486)
- Understand how to apply scientific principles within MES (J/602/2496)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Self management will be demonstrated and delivered at a minimum level within the units of the competence-based qualification Level 2 NVQ Diploma in Installing, Testing and Maintaining Air Conditioning and Heat Pump Systems as referenced below:

- Understand and carry out safe working practices in building services engineering (J/602/2479)
- Understand how to apply environmental protection measures within BSE (D/602/2486)
- Apply safe working practices in building services engineering working environment (T/602/2493)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Effective participation

Effective participation will be demonstrated and delivered at a minimum within the units of the competence based qualification Level 2 NVQ Diploma in Installing and Maintaining Refrigeration Systems as referenced below:

- Understand and carry out safe working practices in building services engineering - (J/602/2479)
- Understand and carry out site preparation and pipework fabrication techniques for RAC systems - (R/602/4994)
- Install, test and maintain refrigeration systems - (J/502/7932)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Effective participation will be demonstrated and delivered at a minimum within the units of the competence-based qualification Level 2 NVQ Diploma in Installing, Testing and Maintaining Air

Conditioning and Heat Pump Systems as referenced below:

- Apply safe working practices in building services engineering working environment (T/602/2493)
- Understand and carry out electrical work on RAC systems and components (K/602/4998)
- Install, test and maintain air conditioning and heat pump systems (D/602/5002)

Assessment and recognition will take place during the delivery and be evidenced at certification by the achievement of the qualification.

Additional employer requirements

Although not a requirement for issuing an Apprenticeship Completion Certificate, employers in the building services engineering sector ***encourage*** organisations delivering a learning and assessment programme for the Advanced Level Apprenticeship Frameworks to integrate the **Level 3 Award in the Fundamental Principles and Requirements of Environmental Technology Systems (City & Guilds 600/0701/1 or EAL 600/0665/1)** into their delivery models.

It should be noted that the delivery of this qualification will **not** attract funding.

apprenticeship
FRAMEWORKS ONLINE

For more information visit
www.afo.sscalliance.org