

apprenticeship FRAMEWORK

Building Services Engineering Technology and Project Management (Wales)

IMPORTANT NOTIFICATION FOR ALL APPRENTICESHIP STARTS FROM 14 OCTOBER 2016

Modifications to SASW came into effect on 14 October 2016. These changes relate to the **Essential Skills and Employer Rights and Responsibilities** requirements of a framework and they **ONLY** apply to new Apprenticeship starts on, or after, 14th October. Apprenticeship starts before this date must continue to meet the 2013 SASW requirements for Essential Skills and Employer Rights and Responsibilities.

For more details of the changes and how they will affect new apprenticeship starts, please read the following preface page to the framework document. NB: Please check the "Revising a Framework" section for information on any additional changes that may have been made to this framework.

Latest framework version?

For any previous versions of this framework: www.acwcerts.co.uk/framework_library

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Apprenticeship Certification
Wales

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Apprenticeship Certification
Wales

Building Services Engineering Technology and Project Management (Wales)

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Framework information

Information on the Issuing Authority for this framework:

Instructus

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

Issue number: 8	This framework includes:
Framework ID: FR04359	Level 2 <input type="checkbox"/> Level 3 <input checked="" type="checkbox"/> Level 4-7 <input type="checkbox"/>
Date this framework is to be reviewed by: 01/04/2020	This framework is for use in: Wales

Short description

Apprenticeships for occupations in Building Services Engineering Technology & Project Management are designed to meet the industry's competence requirements. Depending on the pathway chosen you will either plan and monitor or design (manually or with CAD - Computer Aided Design) installations and refurbishments of work potentially involving environmental technologies, lighting, heating, ventilation and building control systems. You may work on one site or be involved at multiple sites from new buildings to historic restorations.

This Apprenticeship framework document contains two occupation pathways at Apprenticeship Level 3. This framework can be completed in 42 months.

Job roles:

- Building Services Engineering Technician
- Building Services Engineering Design Technician

All roles detailed in this framework are likely to fit into Standard Occupational Code (SOC): 31

Contact information

Proposer of this framework

[Former Summit Skills, the Sector Skills Council for the Building Services Engineering Sector, has engaged with employers, manufacturers, trade associations and training providers through consultations with the Technician Consortium Group to ensure that this framework document is fit-for-purpose.]

Developer of this framework

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Your organisation | Instructus Skills

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Revising a framework

Why this framework is being revised

| This framework has been updated by Instructus Skills in order to amend contact details, and ensure all qualifications are up to date |

Summary of changes made to this framework

| This framework has been updated by Instructus Skills in order to amend contact details, and ensure all qualifications are up to date. |

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

This framework is designed to provide new entrants and those seeking progression in their career with the opportunity to develop competencies that are needed to carry out job roles and responsibilities associated with Building Services Engineering Technology & Project Management, including relevant:

- Procedures and Practices for monitoring and implementing Health & Safety associated with Building Services Engineering Projects
- Application of Design Principles of Building Services Engineering Projects
- Contribution to Estimating & Tendering processes for Building Services Engineering Projects
- Contribution to the goal of Sustainable Buildings Management
- Monitoring the Commissioning and Testing of Building Services Engineering Projects
- Application of Contract Conditions for Building Services Engineering Projects
- Planning work, methods resources and systems to meet work requirements
- Environmental Technologies
- Technological requirements and changes
- Statutory and Non-Statutory Regulations & Requirements
- Working practices in accordance with project management procedures.

They will also contribute towards meeting the skills priorities for Wales, highlighted in the following extract from 'The National Strategic Skills Audit for Wales; June 2011'

"The Audit highlights the growing importance of technicians, the importance of replacement demands with regard to intermediate jobs in more traditional areas (skilled trades, for example); and the persistence of skills shortages at this level, perhaps seeing only temporary moderation due to the recession. Moreover, skilled trades are expected to be a key part of the skills mix within emerging sectors with high productivity levels, including elements of advanced manufacturing."

Your employer may have a variety of contracts from new buildings to refurbishment of historic premises for every sector of industry such as defence, health, finance, education, research and etc.

You will be dealing with issues such as the environment, sustainability and acoustics and will generally work in either a mechanical or electrical discipline.

The role will require not only technical skills but also the skills of customer service and communication.

Successful completion of these Level 3 frameworks equips an apprentice with 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. They include 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.

The following job roles will be covered in the framework:

- Building Services Engineering Technician
- Building Services Engineering Design Technician.

Aims and objectives of this framework (Wales)

The aim of this framework is to ensure that the Apprenticeship (Level 3) programmes deliver:

- The Skills and Knowledge required by the industry to achieve competence
- Job related skills that will be used in the working environment
- New entrants to replace those retiring or leaving the sector
- Transferable Skills such as problem solving, communication, team working, literacy, numeracy and IT skills which are a priority for the sector
- Career progression.

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

Where Recognition of Prior Learning (RPL) is applied in relation to competence, knowledge or Essential Skills, the Apprenticeship programme must be tailored to allow the Apprentice to undertake new learning, including learning at a higher level and developing new skills.

Please refer to the Instructus Skills website for more information: www.instructus-skills.org

Entry conditions for this framework

Although there are generally no nationally laid-down minimum entry or previous experience requirements to undertake the Apprenticeship (Level 3) frameworks in Building Services Engineering & Project Management, the following selection criteria may be used as guidance.

- Have an aptitude for technical subjects and/or are practically minded
- Have an interest in technology
- Can demonstrate an ability to solve practical and theoretical problems
- Have a portfolio of evidence from work experience, non-accredited courses, volunteering, have previously worked or are working in the sector
- Can demonstrate that they have the potential to achieve the qualifications which are part of this Apprenticeship (Level 3) programme.

Other selection criteria may include:

- Ability to communicate effectively with a range of people
- Being numerate and literate as a significant amount of paperwork will be involved
- Good colour vision to recognise colour coded wires and components
- Willingness to learn to drive if you don't already have a driving licence as much of the work will require you to drive to customers premises (Insurance requirements may differ per company)
- Ability to work at heights or in confined spaces
- Willingness to work outside and carry out manual handling tasks as some materials and equipment are heavy
- Willingness to work unsociable hours
- Willingness to undergo Disclosure and Barring Service (DBS) check when required
- Willingness to work safely and respectfully in support of safeguarding policies.

Examples of formal qualifications that could indicate that an applicant has the potential to progress into the Apprenticeships (Level 3) in Building Services Engineering Technology and Project Management are:

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

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 3

Title for this framework at level 3

Apprenticeships (level 3) in Building Services Engineering Technology and Project Management

Pathways for the framework at level 3:

Pathway 1: Technician

Pathway 2: Design Technician

Level 3, Pathway 1: Technician

Description of this pathway

Technician - designing, administering and overseeing Building Services Engineering projects - total credits for this framework are 172-177 depending on unit options chosen:

- 154 - 159 credits for combined (Knowledge 120 credits & Competence 34-39 credits) qualification
- 18 credits for Essential Skills Wales in Communication, Application of Number & IT.

Where Recognition of Prior Learning (RPL) is applied in relation to competence, knowledge or Essential Skills, the Apprenticeship programme must be tailored to allow the Apprentice to undertake new learning, including learning at a higher level and developing new skills.

In order to demonstrate the industry recognised level of competence reflected by this Apprenticeship (Level 3) frameworks it is expected the minimum duration for their completion will be **no less than 42 months.**

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

No additional requirements for this pathway

Job title(s)	Job role(s)
Building Services Engineering Technician	Supporting the design and monitoring of Building Services Engineering projects

Qualifications

Competence qualifications available to this pathway

C1 – Level 3 NVQ Certificate in Building Services Engineering Technology & Project Management

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	600/4309/X	EAL	34-39	190-224	340

Knowledge qualifications available to this pathway

K1 – Level 3 Diploma in Construction and the Built Environment (Building Services Engineering)

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	500/7137/3	Edexcel	120	720	1200

Combined qualifications available to this pathway

N/A

Relationship between competence and knowledge qualifications

This framework requires the completion of the knowledge qualification K1a identified in the knowledge section K1 above as well as the competence qualification C1a identified in the competence qualifications section C1 above.

Competence qualification Title - **Level 3 NVQ Certificate in Building Services Engineering Technology & Project Management**, which has four **Mandatory** units and the candidate must choose 3 pairs of units from the 6 pair options:

Mandatory Knowledge Units

- Understand how to monitor and implement health and safety during building services

engineering projects A/503/0861 **Unit Credit Value 4**

- Understand how to monitor and implement building services engineering projects in the work location H/503/0823 **Unit Credit Value 5**

Mandatory Knowledge Element Total = 9 credits

Mandatory Competence Units

- Monitor and implement building services engineering projects in the work location F/503/0814 **Unit Credit Value 4**
- Monitor and implement health and safety during building services engineering projects T/503/0812 **Unit Credit Value 4**

Mandatory Competence Element Total = 8 credits

Optional Units - Select 3 pairs (Each pair is a performance unit coupled with the relevant knowledge unit)

Pair Group One (PG1) - 8 credits

- Understand how to apply design principles to building services engineering projects M/503/0825 **Unit Credit Value 4 - Knowledge**
- Apply design principles to building services engineering projects J/503/0815 **Unit Credit Value 4 - Competence**

Pair Group Two (PG2) - 7 credits

- Understand how to contribute to estimating and tendering processes for building services engineering projects T/503/0826 **Unit Credit Value 4 - Knowledge**
- Contribute to estimating and tendering processes for building services engineering projects L/503/0816 **Unit Credit Value 3 - Competence**

Pair Group Three (PG3) - 7 credits

- Understand how to monitor commissioning and testing for building services engineering projects F/503/0828 **Unit Credit Value 4 - Knowledge**
- Monitor commissioning and testing procedures for building services engineering projects Y/503/0818 **Unit Credit Value 3 - Competence**

Pair Group Four (PG4) - 6 credits

- Understand how to apply contract conditions for building services engineering projects H/503/0854 **Unit Credit Value 3 - Knowledge**
- Apply contract conditions for building services engineering projects D/503/0819 **Unit Credit Value 3 - Competence**

Pair Group Five (PG5) - 4 credits

- Understand how to provide technical and functional information to relevant people

K/503/0855 Unit Credit Value 2 - Knowledge

- Provide technical and functional information to relevant people **R/503/0820 Unit Credit Value 2 - Competence**

Pair Group Six (PG6) -7 credits

- Understand how to contribute to planning work methods, resources and systems to meet building services engineering project work requirements **M/503/0856 Unit Credit Value 4 - Knowledge**
- Contribute to planning work methods, resources and systems to meet building services engineering project work requirements **Y/503/0821 Unit Credit Value 3 - Competence**

Optional Knowledge Element Total, subject to pair choices = 9-12 credits

Optional Competence Element Total, subject to pair choices = 8-10 credits

Total Knowledge Elements in Qualification subject to pair choices = 18-21 credits

Total Competence Elements in Qualification subject to pair choices = 16-18 credits

Knowledge qualification Title - **Level 3 Diploma in Construction and the Built Environment (Building Services Engineering)** which has several routes but 12 of the following units (6 Mandatory and 6 Optional Totalling 120 credits & 720 GLH) must be completed to fulfil the requirements of this framework:

Six Mandatory Units

- Mathematics in Construction and the Built Environment **J/600/0451 Unit Credit Value 10**
- Health, Safety and Welfare in Construction and the Built Environment **L/600/0211 Unit Credit Value 10**
- Sustainable Construction **R/600/0212 Unit Credit Value 10**
- Science and Materials in Construction and the Built Environment **T/600/0221 Unit Credit Value 10**
- Building Services Control Systems **J/600/0319 Unit Credit Value 10**
- Building Services Science **T/600/0297 Unit Credit Value 10**

Plus 6 Optional Units from the 12 listed below which enables flexibility in the framework for an individual to select units compatible with their job role/responsibilities.

- Project in Construction and the Built Environment **M/600/0444 Unit Credit Value 10**
- Information and Communication Technology for Construction and the Built Environment **K/600/0443 Unit Credit Value 10**
- Tendering and Estimating in Construction **F/600/0397 Unit Credit Value 10**
- Measurement Techniques in Construction **Y/600/0356 Unit Credit Value 10**
- Electrical Installation Design in Building Services Engineering **F/600/0416 Unit Credit Value 10**
- Ventilation and Air Conditioning Design in Building Services Engineering **H/600/0375 Unit Credit Value 10**

- Low Temperature Hot Water Heating in Building Services Engineering M/600/0380 **Unit Credit Value 10**
- Refrigeration Technology in Building Services Engineering T/600/0459 **Unit Credit Value 10**
- Plumbing Technology in Building Services Engineering Y/600/0437 **Unit Credit Value 10**
- Electrical Principles in Building Services Engineering A/600/0415 **Unit Credit Value 10**
- Commissioning Electrical Installations in Building Services Engineering R/600/0405 **Unit Credit Value 10**
- Electrical Installation Standards and Components in Building Services Engineering H/600/0408 **Unit Credit Value 10**

Knowledge Qualification Total = 120 credits (6 Mandatory Units - 60 credits + 6 Optional Units - 60 credits)

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

Essential Skills

An apprenticeship framework must specify as a Welsh certificate requirement the expected achievement levels of Essential Skills in Communication and the Application of Number.

Where Essential Skills qualifications are specified in an apprenticeship framework, the apprenticeship framework must specify the acceptance of a recognised proxy qualification for Communication and Application of Number.

Communication

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

Does this framework require Communication achievement above the minimum SASW requirement? **YES** **NO**

If YES, please state the grade/level required for English and give a brief **REASON** as to why this is required:

Enter alternative grade/level requirements and reasons here.

Application of Number

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

Does this framework require Application of Number achievement above the minimum SASW requirement? **YES** **NO**

If YES, please state the grade/level required for Maths and give a brief **REASON** as to why this is required:

Enter alternative grade/level requirements and reasons here.

Inclusion of Digital Literacy (ICT)

Digital Literacy (ICT) is an **optional** framework requirement.

Is Digital Literacy a requirement in this framework? **YES** **NO**

Digital Literacy (ICT)

Please note that there are currently no acceptable proxy qualifications for Digital Literacy (ICT).

For the current **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

Does this framework require Digital Literacy (ICT) achievement above the minimum SASW requirement? YES NO

If YES, please state the grade/level required for **Digital Literacy (ICT)** and give a brief **REASON** as to why this is required:

Enter alternative grade/level requirements and reasons here.

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

- Successful completion of a Foundation Level 2 framework in the Building Services Engineering Sector
- Completion of a 'Pathway to Apprenticeship' in Engineering
- Work or work experience
- Academic qualification(s) such as three GCSEs grades A-C in each of the following:- a communication subject, maths and either a science or technical-based subject
- Achievement of Essential Skills or Wider Key Skills at Level 2
- 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 from this pathway:

On successful completion of the Apprenticeship (Level 3) in Building Services Engineering Technology and Project Management, an apprentice will have the skills, knowledge and qualifications to:

- Register on an appropriate Certification Scheme
- Progress onto relevant Level 4/5 qualifications e.g. Level 4 Building Services Engineering Technology & Project Management, Higher National Certificate in Construction and the Built Environment or Foundation Degree in Building Services Engineering
- Progress onto the Level 6 Apprenticeships in Building Services Engineering Technology & Project Management
- Take a relevant Trade Test to demonstrate competence to work in other UK countries
- Progress in their career with further training into job roles such as Technician, System Designer, Estimator, Project/Contracts Manager, Site/Workshop Supervisor/Manager, Chartered Engineer, Sales Engineer or Commercial Manager
- Gain recognition with a professional body i.e. the Engineering Councils UK Standards for Professional Engineering Competence <http://www.engc.org.uk/>

Please refer to the Instructus Skills website for more information: www.instructus-skills.org |

UCAS points for this pathway:

N/A

Employee rights and responsibilities

Please note that for Apprenticeship starts from 14/10/2016 onwards ERR is no longer a **mandatory** requirement in all frameworks.

However, it may still be included in some frameworks and where it is not explicitly stated that ERR is not a requirement then confirmation of an Apprentice's ERR achievement will still remain a requirement for Apprenticeship certification purposes.

Is ERR a requirement for this framework? **YES** **NO**

Delivery and assessment

The Employee Rights and Responsibilities component of the apprenticeship can be achieved through either:

1. A ERR Qualification/Unit:

- The L/506/1905 Employee rights and responsibilities unit - this is an optional unit included within the combined qualification
- The Level 2 Award in Employee Rights and Responsibilities - this qualification is offered by a range of organisations
- Any other approved unit or qualification listed in Instructus Skills FAQ.

2. ERR Workbook:

- The Instructus Skills ERR workbook, available from the Instructus Skills E-learning portal (elearning.instructus.org) - The workbook has been designed to enable apprentices to work their way through a series of questions and activities which will bring ERR to life, making the learning more meaningful and long lasting and enhance the employability skills of the apprentice.

ERR National Outcomes

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law. This should cover the apprentice's rights and responsibilities under the Employment Rights Act 1996, Equality Act 2010, and Health and Safety legislation, together with the responsibilities and duties of employers;
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health & Safety and Equality & Diversity training must be an integral part of the apprentice's learning programme;
3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme
4. understands the role played by their occupation within their organisation and industry;
5. has an informed view of the types of career pathways that are open to them;

6. knows the types of representative bodies and understands their relevance to their skill, trade or occupation, 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 organisation's principles of conduct 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: Design Technician

Description of this pathway

Design Technician - Designing, estimating and scheduling work to a specification in a variety of premises. The role may involve work on new buildings or refurbishment of lighting, heating, ventilation and control systems- 241 credits total:

- 223 credits for combined (Knowledge 120 credits & Competence 103 credits) qualification
- 18 credits for Essential Skills Wales in Communication, Application of Number & IT.

Where Recognition of Prior Learning (RPL) is applied in relation to competence, knowledge or Essential Skills, the Apprenticeship programme must be tailored to allow the Apprentice to undertake new learning, including learning at a higher level and developing new skills.

In order to demonstrate the industry recognised level of competence reflected by this Apprenticeship (Level 3) framework it is expected the minimum duration for its completion will be **no less than 42 months**.

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

N/A

Job title(s)	Job role(s)
Building Services Engineering Design Technician	Carries out design work including production of manual and CAD (Computer Aided Design) drawings, provides estimates, schedules and data to meet a specification. The role may involve work on new buildings or refurbishment of lighting, heating, ventilation and control systems in a variety of premises.

Qualifications

Competence qualifications available to this pathway

C1 – Level 3 Diploma in Building Services Engineering for Technicians

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
C1a	600/7813/3	Pearson Education Ltd (Edexcel)	103	334	1030

Knowledge qualifications available to this pathway

K1 – Level 3 Diploma in Construction and the Built Environment

No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	UCAS points value
K1a	500/7137/3	Pearson Education Ltd (Edexcel)	120	720	1200

Combined qualifications available to this pathway

N/A

Relationship between competence and knowledge qualifications

This framework requires the completion of the competence qualification C1a identified in the competence qualifications section C1 above, as well as the knowledge qualification K1a identified in the knowledge section K1 above.

Competence Qualification Title - **Level 3 Diploma in Building Services Engineering Technicians** which has the following units:

Competence units

- Techniques and Procedures for Building Services Engineering Tasks A/504/6056 **Credit Value 16**
- Developing Building Services Engineering Solutions F/504/6057 **Credit Value 17**
- Management and Leadership in Building Services Engineering L/504/6059 **Credit Value 10**
- Working Independently in Building Services Engineering F/504/6060 **Credit Value 12**
- Commercial Activities in Building Services Engineering J/504/6061 **Credit Value 8**
- Health, Safety and Welfare for Building Services Engineers L/504/6062 **Credit Value 16**
- Sustainable Development in Building Services Engineering Y/504/6064 **Credit Value 8**
- Interpersonal Skills and Communication in Building Services Engineering D/504/6065 **Credit Value 12**
- Professional Values for Building Services Engineers H/504/6066 **Credit Value 4**

Competence Element = 103 credits

Total Qualification = 103 credits

Knowledge qualification Title - **Level 3 Diploma in Construction and the Built Environment (Building Services Engineering)** which has several routes but 12 of the following units (6 Mandatory and 6 Optional Totalling 120 credits & 720 GLH) must be completed to fulfil the requirements of this framework:

Six Mandatory Units

- Mathematics in Construction and the Built Environment J/600/0451 **Credit Value 10**
- Health, Safety and Welfare in Construction and the Built Environment L/600/0211 **Credit Value 10**
- Sustainable Construction R/600/0212 **Credit Value 10**
- Science and Materials in Construction and the Built Environment T/600/0221 **Credit Value 10**
- Building Services Control Systems J/600/0319 **Credit Value 10**
- Building Services Science T/600/0297 **Credit Value 10**

Plus 6 Optional Units from the 13 listed below which enables flexibility in the framework for an individual to select units compatible with their job role/responsibilities.

- Project in Construction and the Built Environment M/600/0444 **Credit Value 10**
- Information and Communication Technology for Construction and the Built Environment K/600/0443 **Credit Value 10**
- Tendering and Estimating in Construction F/600/0397 **Credit Value 10**
- Measurement Techniques in Construction Y/600/0356 **Credit Value 10**
- Electrical Installation Design in Building Services Engineering F/600/0416 **Credit Value 10**
- Ventilation and Air Conditioning Design in Building Services Engineering H/600/0375 **Credit Value 10**
- Low Temperature Hot Water Heating in Building Services Engineering M/600/0380 **Credit Value 10**

- Refrigeration Technology in Building Services Engineering T/600/0459 **Credit Value 10**
- Plumbing Technology in Building Services Engineering Y/600/0437 **Credit Value 10**
- Electrical Principles in Building Services Engineering A/600/0415 **Credit Value 10**
- Commissioning Electrical Installations in Building Services Engineering R/600/0405 **Credit Value 10**
- Electrical Installation Standards and Components in Building Services Engineering H/600/0408 **Credit Value 10**
- Fluids - Static and Dynamic in Building Services Engineering L/600/0371 **Credit Value 10**

Knowledge Qualification total = 120 credits (6 Mandatory Units - 60 credits + 6 Optional Units - 60 credits)

For further qualification details refer to: register.ofqual.gov.uk/ and search by the relevant qualification.

Essential Skills

An apprenticeship framework must specify as a Welsh certificate requirement the expected achievement levels of Essential Skills in Communication and the Application of Number.

Where Essential Skills qualifications are specified in an apprenticeship framework, the apprenticeship framework must specify the acceptance of a recognised proxy qualification for Communication and Application of Number.

Communication

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

Does this framework require Communication achievement above the minimum SASW requirement? **YES** **NO**

If YES, please state the grade/level required for English and give a brief **REASON** as to why this is required:

Enter alternative grade/level requirements and reasons here.

Application of Number

For the current list of acceptable proxy qualifications and appropriate **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

Does this framework require Application of Number achievement above the minimum SASW requirement? **YES** **NO**

If YES, please state the grade/level required for Maths and give a brief **REASON** as to why this is required:

Enter alternative grade/level requirements and reasons here.

Inclusion of Digital Literacy (ICT)

Digital Literacy (ICT) is an **optional** framework requirement.

Is Digital Literacy a requirement in this framework? **YES** **NO**

Digital Literacy (ICT)

Please note that there are currently no acceptable proxy qualifications for Digital Literacy (ICT).

For the current **minimum** grade/level requirements, please refer to the most recent version of [SASW](#) on the [gov.wales](#) website. Additional guidance materials can be found on the [Knowledge Base](#) section of the [ACW](#) website.

Does this framework require Digital Literacy (ICT) achievement above the minimum SASW requirement? YES NO

If YES, please state the grade/level required for **Digital Literacy (ICT)** and give a brief **REASON** as to why this is required:

Enter alternative grade/level requirements and reasons here.

Progression routes into and from this pathway

Progression routes into this pathway:

Applicants may come from a range of routes including:

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

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

Progression routes from this pathway

On successful completion of the Apprenticeship (Level 3) framework in Building Services Engineering Technology and Project Management, an apprentice will have the skills, knowledge and qualifications to:

- Register on an appropriate Certification Scheme
- Progress onto relevant Level 4/5 qualifications e.g. Level 4 Building Services Engineering Technology & Project Management, Higher National Certificate in Construction and the Built Environment or Foundation Degree in Building Services Engineering
- Progress onto the Level 6 Apprenticeships in Building Services Engineering Technology & Project Management
- Take a relevant Trade Test to demonstrate competence to work in other UK countries
- Progress in their career with further training into job roles such as Technician, System Designer, Estimator, Project/Contracts Manager, Site/Workshop Supervisor/Manager, Chartered Engineer, Sales Engineer or Commercial Manager
- Gain recognition with a professional body ie. the Engineering Councils UK Standards for Professional Engineering Competence <http://www.engc.org.uk/>

Please refer to the Instructus Skills website for more information: www.instructus-skills.org

UCAS points for this pathway:

N/A

Employee rights and responsibilities

Please note that for Apprenticeship starts from 14/10/2016 onwards ERR is no longer a **mandatory** requirement in all frameworks.

However, it may still be included in some frameworks and where it is not explicitly stated that ERR is not a requirement then confirmation of an Apprentice's ERR achievement will still remain a requirement for Apprenticeship certification purposes.

Is ERR a requirement for this framework? **YES** **NO**

Delivery and assessment

The Employee Rights and Responsibilities component of the apprenticeship can be achieved through either:

1. A ERR Qualification/Unit:

- The L/506/1905 Employee rights and responsibilities unit - this is an optional unit included within the combined qualification
- The Level 2 Award in Employee Rights and Responsibilities - this qualification is offered by a range of organisations
- Any other approved unit or qualification listed in Instructus Skills FAQ.

2. ERR Workbook:

- The Instructus Skills ERR workbook, available from the Instructus Skills E-learning portal (elearning.instructus.org) - The workbook has been designed to enable apprentices to work their way through a series of questions and activities which will bring ERR to life, making the learning more meaningful and long lasting and enhance the employability skills of the apprentice.

ERR National Outcomes

1. knows and understands the range of employer and employee statutory rights and responsibilities under Employment Law. This should cover the apprentice's rights and responsibilities under the Employment Rights Act 1996, Equality Act 2010, and Health and Safety legislation, together with the responsibilities and duties of employers;
2. knows and understands the procedures and documentation in their organisation which recognise and protect their relationship with their employer. Health & Safety and Equality & Diversity training must be an integral part of the apprentice's learning programme;

3. knows and understands the range of sources of information and advice available to them on their employment rights and responsibilities. Details of Access to Work and Additional Learning Support must be included in the programme
 4. understands the role played by their occupation within their organisation and industry;
 5. has an informed view of the types of career pathways that are open to them;
 6. knows the types of representative bodies and understands their relevance to their skill, trade or occupation, 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 organisation's principles of conduct 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 Building Services Engineering Technology and Project Management Sector is not a traditional career choice for women, but women do qualify and work successfully in the industry and this is encouraged. We are continuing to work with the UK Resource Centre for Women in Science, Engineering and Technology and the Platform 51 (formerly YWCA) to promote the opportunities for women working within the building services engineering sector.

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

There should be open recruitment of apprentices who meet the selection criteria, regardless of gender, ethnic origin, religion/belief, sexual orientation or disability .

All partners involved in the delivery of the apprenticeship and employers must be committed to a policy of equal opportunities and must have a formal equal opportunities policy and procedure in place. Employers/providers must be able to demonstrate that there are no overt or covert discriminatory practices in selection and employment. All promotional, selection and training activities must comply with relevant legislation such as the Equality Act 2010.

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

On and off the job training

Summary of on- and off-the-job training

Overview of Technician pathway

Knowledge Qualification Total - 720 hrs

Competence Qualification Total - 190-224 hrs (depending on pairs chosen)

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

Mentoring - 322 hrs (based on 46 wks x 2 hrs per full year over 42 months)

Minimum recommended total Training Hours for this framework is 1367-1401 hrs

Overview of Design Technician pathway

Knowledge Qualification Total - 720 hrs

Competence Qualification Total - 334 hrs

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

Mentoring - 322 hrs (based on 46 wks x 2 hrs per full year over 42 months)

Minimum recommended total Training Hours for this framework is 1511 hrs

In addition to these hours we would encourage further practice take place in the work place.

Apprenticeships should normally require employment of at least 30 hrs per week as part of their Apprenticeship Agreement.

All training hours must be delivered during contracted working hours under an Apprenticeship Agreement or during a period less than 5 years before the date of application for an Apprenticeship certificate.

Training Hours:

- must be planned, reviewed and evaluated jointly between the apprentice and tutor, teacher, mentor or manager
- must allow access as and when required by the apprentice either to a tutor, teacher, mentor or manager
- must be delivered through one or more of the following methods: individual and group teaching, e-learning, distance learning, coaching, mentoring, feedback and assessment, collaborative/networked learning with peers, guided study.

The framework delivery:

- Must be planned to make full and effective use of the duration, including the opportunity for apprentices

to embed and extend their learning through repeated workplace practice

- Some of the Training Hours may be offset through Recognition of Prior Learning (RPL) of suitable qualifications and demonstrable experience gained within 5 years of apprenticeship certificate application
- When claiming the Apprenticeship certificate, training providers will be required to sign the Apprenticeship Certificate Claim form, stating that the total training hours have been met by the learner. The Claim Form can be downloaded from ACW: <https://acwcerts.co.uk/web/forms-documentation>

Off-the-job training

Technician pathway

Minimum recommended total off-the-job Training Hours is 1045 hrs over 42 months (depending on pairs chosen, up to an additional 34 training hours will be required on top of the figures below):

- Yr 1 - 298 hrs
- Yr 2 - 298 hrs
- Yr 3 - 298 hrs
- Yr 4 - 151 hrs (based on 6 months)

Design Technician pathway

Minimum total off-the-job Training hours is 1189 hrs over 42 months:

- Yr 1 - 340 hrs
- Yr 2 - 340 hrs
- Yr 3 - 340 hrs
- Yr 4 - 169 hrs (based on 6 months)

How this requirement will be met

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

Training Hours will be delivered through one or more of the following methods: individual and group teaching; e-learning; distance learning; feedback and assessment; guided study.

All Training Hour delivery will take place during contracted working hours and while working under an Apprenticeship Agreement. Off the job training hours will be away from the immediate pressures of the workplace e. g. day release, block release, web based learning, mentoring etc This will be recorded and evidenced by training provider attendance statistics, assessment reports and apprentice diary/portfolio.

Recognition of prior learning (RPL) can be made if achieved within the previous 5 years. As examples of previous experience will vary it will be the responsibility of the Awarding Bodies to agree adjustments to the learning programmes with Training Providers and Employers. Instructus Skills reserves the right to audit centres regarding RPL and recommend further training if it is felt the adjustments are not suitable.

When claiming the Apprenticeship certificate, training providers will be required to sign the Apprenticeship Certificate Claim form, stating that the total training hours have been met by the learner. The Claim Form can be downloaded from ACW: <https://acwcerts.co.uk/web/forms->

[documentation](#) |

On-the-job training

Technician pathway

Minimum recommended total on-the-job Training Hours is 322 hrs over 42 months:

- Yr 1 - 92
- Yr 2 - 92
- Yr 3 - 92
- Yr 4 - 46 (based on 6 months)

Design Technician pathway

Minimum total on-the-job Training Hours is 322 hrs over 42 months:

- Yr 1 - 92 hrs
- Yr 2 - 92 hrs
- Yr 3 - 92 hrs
- Yr 4 - 46 hrs (based on 6 months)

These are the minimum number of Training Hours that should be allocated for the apprentice to gather evidence in accordance with the requirements of the competence qualification and mentoring.

How this requirement will be met

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

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

Training hours will be delivered through one or more of the following methods: individual and group teaching, e-learning, distance learning, coaching, mentoring, feedback and assessment, collaborative/networked learning with peers.

All Training hours delivery will take place during contracted working hours and while working under an Apprenticeship Agreement.

On the job Training Hours must be recorded e. g. in a diary/portfolio checked by an assessor, logs of peer review discussions, performance reviews etc

This will be evidenced by apprentices portfolio, employer dialogue, qualification assessment

records and reports.

Recognition of prior learning (RPL) can be made if achieved within the previous 5 years. As examples of previous experience will vary it will be the responsibility of the Awarding Bodies to agree adjustments to the learning programmes with Training Providers and Employers. Instructus Skills reserves the right to audit centres regarding RPL and recommend further training if it is felt the adjustments are not suitable.

As part of the evidence requirements for Apprenticeship Completion certification, a copy of a completed Apprentice Consent Form may be requested. ACW:

<https://acwcerts.co.uk/web/form s-documentation> |

Wider key skills assessment and recognition

While Wider Key Skills are not a **mandatory** part of the framework, training providers are encouraged to provide apprentices the opportunity to achieve them.

For this framework, there are natural opportunities for Wider Key Skills to be embedded within the mandatory units of the following qualifications:

[Enter Qualification Names]

Improving own learning and performance

[Give examples - signpost to specific units in framework qualifications that would meet these requirements]

Working with others

[Give examples - signpost to specific units in framework qualifications that would meet these requirements]

Problem solving

[Give examples - signpost to specific units in framework qualifications that would meet these requirements]

apprenticeship **FRAMEWORK**

For more information visit-
www.acwcerts.co.uk/framework_library