

Employer confirmation guide

EAL Building Services Engineering (Level 3) – Refrigeration, Air Conditioning and Heat Pumps

Form A and Form B to be completed by the learner's employer.

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Introduction

Employers have an enhanced role in the delivery of the new apprenticeship suite of qualifications in the construction and building service engineering sector.

The employer confirmation provides guidance to employers and training providers on how the occupational competency statements set by the industry have been met. By completing the following evidence documents and all required methods of assessment, the learner is able to apply for and attain the relevant industry competency card.

The purpose of the employer confirmation is to provide centres and trade bodies with the assurance that the learner is occupationally proficient and has covered the full range of relevant standards. The collection of evidence allows the training provider to check that 'Form A Employer Confirmation' and 'Form B Employer Checklist' are both valid. Upon completion there will be an audit trail to support the decision which will then allow the learner to proceed to their final assessment, the professional discussion.

Employer role

- They will work with and support learners throughout their apprenticeship.
- Attend an initial meeting with the training provider to identify the range of tasks required to meet industry competency statements, work-based project and completion of 'Form A Employer Confirmation' and 'Form B Employer Checklist'.
- Provide opportunities for the learner to carry out the activities outlined within the occupational competency statements set by industry.
- Meet with training providers to review and record learner's progress throughout their apprenticeship.
- Support the learner in gathering evidence to confirm proficiency in the activities that they carried out.
- In limited circumstances simulated activities can take place in a workshop environment to gather evidence subject to the criteria listed below being fully met.
- Support the learner in documenting their evidence, eg through a journal or diary.
- Confirm when the learner has met the required standard for the trade, and is ready to progress to their final qualification assessment (the Professional Discussion), confirmed by completing 'Form A Employer Confirmation' and 'Form B Employer Checklist'.
- Support the learner in applying for their relevant industry competency card.

Training provider role

- The training provider will work with employers to guide and support the learner throughout their journey.
- They will attend an initial meeting with the employer to identify the range of activities required to meet industry competency statements and the work-based project.
- Ensure the quality of 'Form A Employer Confirmation' and 'Form B Employer Checklist' which will allow the learner to progress onto their final qualification assessment, the Professional Discussion.
- Ensure evidence gathered by all of their learners is appropriate and complete by carrying out and recording internal quality assurance sampling (confirmed by signing/dating section 3 of 'Form A Employer Confirmation').
- Support the employer and learner in documenting the evidence, eg. a journal or diary, as referenced in the occupational competency statements.

- Will provide training and support to training providers and employers through webinars and information on the Skills for Wales website.
- Ensure training providers have suitable and robust quality and assessment processes in place through our quality assurance department.
- Certificate learners upon successful completion of all assessment components.

Portfolio of evidence requirements

Compiling the learner's evidence should only start once the employer is satisfied the learner is consistently working at or above the criteria set out in the occupational competence statements. That is to say they are deemed to have achieved occupational proficiency. In making this decision, the employer may take advice from the learner's training provider. The overall decision must ultimately be made by the employer(s).

- Learners must document their evidence during the on-programme period of the apprenticeship.
- It must contain sufficient evidence, gathered within the workplace, to demonstrate the occupational competency statements.
- It will typically contain 15 pieces of evidence, and could take the format of a journal or diary.
- Evidence must be mapped against the occupational competency statements.
- Evidence sources might include (this is not a definitive list):
 - workplace documentation, for example job cards/job sheets, check sheets/quality check records, accident records, equipment check, maintenance records, commissioning documentation
 - annotated specifications, for example drawings, work instructions
 - annotated photographs
 - video clips (maximum duration 10 mins) supported by clear timestamps detailing when key pieces of evidence occur.
- Evidence should not include any methods of self-reflection or self-assessment.
- Any employer contributions should focus on direct observation (for example witness statements) of proficiency rather than opinions.
- The evidence must be authenticated by an employer and have been recently gathered. There should be enough evidence documented to show the site based performance statements have been met.
- The evidence provided must be valid and attributable to the learner; the documented evidence must be complete - the employer's signature on the confirmation document confirms this is the case.

Simulation

Simulated evidence is only acceptable where indicated in the competency statement checklist. Units and assessment criteria where simulation is permitted are shown in bold italic.

All simulated evidence must be:

- authentic and recently gathered.
- sufficiently documented to demonstrate that the occupational competency statements have been met.

Where permitted, simulation can take place in a workshop environment. The simulated activity and setting must, as far as possible, reflect the conditions found on site, including:

- PPE
- supervision
- safety protocols
- realistic timescales; as would be reasonably expected on the job
- quality standards.

Form A Employer confirmation

This form is split into three sections and has been contextualised for each trade within the construction and building services engineering sectors. It is the responsibility of the employer to complete this form in collaboration with the training provider and learner.

Section 1

- Completed at the start of the learner journey following an initial meeting with the training provider.
- Identifies the range of activities required to meet the industry competency statements and work-based project.

Section 2

- Identifies the unit headings of the occupational competency statements that the learner will have to complete.
- The employer will tick and initial the occupational competency unit a learner achieves while under their guidance.
- Provision has been made to allow for more than one employer to complete this section. This is to allow provision when an learner is employed through the shared apprenticeship scheme and more than one employer becomes involved.
- When more than one employer is involved with the same learner, this section will be completed by the employer who confirms the final activity in Form B has been carried out.
- When simulation has been carried out and is acceptable for a unit(s), the occupationally competent assessor will complete this section to confirm the activities in Form B have been completed.

Section 3

- This section is to be completed where a change of employer has occurred.
- This section is completed by each of the employers involved in supporting and guiding the learner, as well as the training provider, internal quality assurer and learner.
- When simulation is acceptable the occupationally competent assessor will complete this section.
- Upon completion the learner can be entered for their final assessment (the Professional Discussion).

Form B Employer checklist

This form has been contextualised for each trade within the construction and building service engineering sectors. The occupational competency statement log highlights the occupational competency units that an learner will have to complete for their trade. It is the responsibility of the employer(s) to complete Form B in collaboration with the training provider and learner.

- Each unit consists of a title, activity and provision for the employer(s) to confirm the learner is proficient by placing a tick within the corresponding employer box.
- Each occupational unit has provision for up to four employers to provide confirmation that the learner is proficient within each criteria.
- When an learner has more than one employer, the employer who signs as employer one will continue as employer one when completing documentation. Additional employers will complete the corresponding sections for additional employers.
- Employers are making judgements that in their view the learner can complete the activity to a satisfactory industry standard and in a timely and safe manner.
- Different employers may confirm the learner is proficient on the same activity which is acceptable.
- When simulation is acceptable for a unit(s), the occupationally competent assessor will make a judgement that in their view the learner can complete the activity to a satisfactory industrial standard and in a timely manner.
- The learner will gather and retain evidence to demonstrate how they have achieved the activity criteria in line with the occupational competency statement.

Employer and Provider 8 Step Delivery Guide

This 8 step guide gives employers and providers an overview of the learner support that will be required for the delivery of the level 3 apprenticeship suite of Construction and Building Services Engineering qualifications in Wales.



Step 1

Learner secures employment and starts their learning journey.



Step 2

Providers meets with employer to identify the range of tasks required to meet the industry competency statements and work based project.



Step 3

Develop and agree quality assurance checks for employer confirmation process.



Step 4

Periodic reviews of learner progress and quality checks of evidence from industry.



Step 5

Observation of practical industry project.



Step 6

Final review meeting with employer and learner. Employer completes confirmation documentation, learner completes their documented evidence.



Step 7

Learner progresses to the final assessment. (Professional Discussion.)



Step 8

Upon successful completion of all components EAL will certificate the qualification and the learner can apply for an industry competency card.

Form A Employer confirmation

Employer confirmation is confirming the learner is occupationally proficient and has met all the occupational competency statements can now continue to their final qualification assessment, the Professional Discussion.

- The confirmation document is the responsibility of the employer with the support of the training provider.
- Quality assurance of the process will be the responsibility of the internal quality assurer.
- The awarding body will check the process as part of external quality assurance.

Section 1: Learner details

Learner name	
Learner registration number	
Qualification title and number	
Centre name	

Section 2: Occupational competency statements

Occupational competency statements met	Yes	Employer initial
Apply Health and Safety and Environmental Legislation in the Building Services Engineering Sector	☐	
Establish and Maintain Relationships in the Building Services Engineering Sector	☐	
Coordinate a Work Site in the Building Services Engineering Sector	☐	
Performing Electrical Work on Refrigeration, Air Conditioning and Heat Pumps Systems	☐	
Performing Refrigeration, Air Conditioning and Heat Pump System Installation, Commissioning and Decommissioning Techniques	☐	
Performing Refrigeration, Air Conditioning and Heat Pump System Service and Maintenance Techniques	☐	

Form A Continued

Upon completion the learner can now be entered for their final assessment, the Professional Discussion.

Section 3: Employers confirmation

Role	Company name	Employee name	Position in company	Signature (which may be typed)	Initial	Date
Employer 1						
Employer 2						
Employer 3						
Employer 4						
Internal Quality Assurer						

Form B Employer checklist

Occupational competency statement checklist: Refrigeration, Air Conditioning and Heat Pumps

Learner Name

Apply Health and Safety and Environmental Legislation in the Building Services Engineering Sector. (Unit 312)	Employer			
	E1	E2	E3	E4
The learner must be able to:				
Identify the appropriate industry standards and regulations	☐	☐	☐	☐
Apply relevant organisational procedures: learners must be witnessed on seven of the following:				
Information management	☐	☐	☐	☐
Method statement	☐	☐	☐	☐
Project management	☐	☐	☐	☐
Risk assessment	☐	☐	☐	☐
Implementing and monitoring health and safety requirements and issues	☐	☐	☐	☐
Implementing and monitoring issues relating to the natural environment	☐	☐	☐	☐
Customer services	☐	☐	☐	☐
Accident reporting	☐	☐	☐	☐
Emergencies	☐	☐	☐	☐
Communication with relevant people	☐	☐	☐	☐
Identify hazards and risks (internal and/or external): learners must be witnessed on at least one of the following:				
Domestic	☐	☐	☐	☐
Non-domestic (commercial, industrial, agricultural, horticultural, leisure and entertainment, residential medical and care facilities, public highways and parks, public services establishments, pre-1919 traditional/historic buildings)	☐	☐	☐	☐
Site: learners must be witnessed on at least one of the following:				
New build construction – building or structure	☐	☐	☐	☐
Existing building or structure	☐	☐	☐	☐

Form B Continued

Apply Health and Safety and Environmental Legislation in the Building Services Engineering Sector. (Unit 312)	Employer			
	E1	E2	E3	E4
The learner must be able to:				
Complete documentation in accordance with the requirements of the organisational procedures	☐	☐	☐	☐
Review the organisational procedures to ensure that they will not cause potential hazards and risks: learners must be witnessed on six of the following:				
Disposal of substances and materials	☐	☐	☐	☐
Installation and/or maintenance methods and techniques	☐	☐	☐	☐
Lifting and handling (manual and mechanically assisted)	☐	☐	☐	☐
Presence of vehicle thoroughfares	☐	☐	☐	☐
Storage of liquids, substances and materials	☐	☐	☐	☐
Use of appliances, tools and equipment	☐	☐	☐	☐
Use of access equipment	☐	☐	☐	☐
Use of personal protective equipment (PPE)	☐	☐	☐	☐
Working in a potentially hazardous atmosphere (e.g. presence of asbestos, dust, fumes or vapour)	☐	☐	☐	☐
Working at height	☐	☐	☐	☐
Working in confined spaces	☐	☐	☐	☐
The learner must be able to:				
Implement organisational procedures, suppliers' and manufacturers' instructions appropriate to the safe use, maintenance, handling, transport and storage of:				
- tools, plant and access equipment - equipment and components - materials and substances	☐	☐	☐	☐

Form B Continued

Apply Health and Safety and Environmental Legislation in the Building Services Engineering Sector. (Unit 312)	Employer			
	E1	E2	E3	E4
The learner must be able to:				
Report to the relevant people in accordance with organisational procedures potential hazards and risks, potentially harmful materials and substances:				
Relevant people: learners must be witnessed on at least one of the following:				
Customers/clients	☐	☐	☐	☐
Client representatives	☐	☐	☐	☐
Supervisors	☐	☐	☐	☐
Site/contract manager	☐	☐	☐	☐
Other contractors/trades	☐	☐	☐	☐
Members of the public	☐	☐	☐	☐
Work colleagues	☐	☐	☐	☐
The learner must be able to:				
Confirm that the conduct of people when undertaking the installation and/or maintenance activity does not cause potential hazards and risks	☐	☐	☐	☐
Comply with organisational procedures in the event of: injuries to self and/or others, emergencies, evacuation procedures:				
Injuries/emergencies/evacuation: learners must be witnessed on two of the following: (due to the nature of the range, it is expected that the two activities will NOT be naturally occurring and should be covered via oral questioning)				
Fire	☐	☐	☐	☐
Flood	☐	☐	☐	☐
Explosion	☐	☐	☐	☐
Toxic atmosphere	☐	☐	☐	☐
Electric shock	☐	☐	☐	☐
Injury to person(s)	☐	☐	☐	☐
The learner must be able to:				
Implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers' and manufacturers' instructions	☐	☐	☐	☐

Form B Continued

Establish and Maintain Relationships in the Building Services Engineering Sector. (Unit 313)	Employer			
	E1	E2	E3	E4
The learner must be able to:				
Identify the clients and customers that need to be supplied with technical and functional information	☐	☐	☐	☐
Obtain the current and relevant technical and functional information that needs to be provided to the clients and customers	☐	☐	☐	☐
Provide accurate guidance and advice to the clients and customers on technical and functional matters associated with the building services engineering system that has been installed and/or maintained in terms of: - health and safety issues - safe and effective operation	☐	☐	☐	☐
Provide information in accordance with organisational procedures:				
Organisation procedures: learners must be witnessed on seven of the following):				
Information management	☐	☐	☐	☐
Method statement	☐	☐	☐	☐
Project management	☐	☐	☐	☐
Risk assessment	☐	☐	☐	☐
Implementing and monitoring health and safety requirements and issues	☐	☐	☐	☐
Implementing and monitoring issues relating to the natural environment	☐	☐	☐	☐
Customer services	☐	☐	☐	☐
Accident reporting	☐	☐	☐	☐
Emergencies	☐	☐	☐	☐
Communication with relevant people	☐	☐	☐	☐
Demonstrate to the clients and customers, as appropriate, the operation of the building services engineering system that has been installed and/or maintained:				
Working environment of the system (internal and/or external): learners must be witnessed on at least one of the following:				
Domestic	☐	☐	☐	☐
Non-domestic (commercial, industrial, agricultural, horticultural, leisure and entertainment, residential medical and care facilities, public highways and parks, public services establishments, pre-1919 traditional/historic buildings)	☐	☐	☐	☐

Form B Continued

Establish and Maintain Relationships in the Building Services Engineering Sector. (Unit 313)	Employer			
	E1	E2	E3	E4
The learner must be able to:				
Confirm in relation to the installation and/or maintenance activity:				
- the client and customer expectations and requirements - the building services engineering system is in a satisfactory condition - the hand over process	☐	☐	☐	☐
Establish and maintain productive working relationships with clients and customers, including dealing with disagreements in an amicable and constructive way, so that good relationships are maintained	☐	☐	☐	☐
Respond effectively to requests for technical and functional information from clients and customers	☐	☐	☐	☐
Report, record and recommend, in accordance with organisational procedures and as appropriate, any variation to the installation and/or maintenance activity to the clients, customers and other relevant people:				
Relevant people: learners must be witnessed on at least one of the following:				
Customers/clients	☐	☐	☐	☐
Client representatives	☐	☐	☐	☐
Supervisors	☐	☐	☐	☐
Site/contract manager	☐	☐	☐	☐
Other contractors/trades	☐	☐	☐	☐
Members of the public	☐	☐	☐	☐
Work colleagues	☐	☐	☐	☐
The learner must be able to:				
Comply with organisational standards for appearance and behaviour	☐	☐	☐	☐

Form B Continued

Coordinate a Work Site in the Building Services Engineering Sector. (Unit 314)	Employer			
	E1	E2	E3	E4
The learner must be able to:				
Produce a risk assessment and method statement for the work to be carried out on the identified building services engineering system. Working environment of the system (internal and/or external). Learners must be witnessed on at least one of the following:				
Domestic	☐	☐	☐	☐
Non-domestic (commercial, industrial, agricultural, horticultural, leisure and entertainment, residential medical and care facilities, public highways and parks, public services establishments, pre-1919 traditional/historic buildings)	☐	☐	☐	☐
Allocate duties and responsibilities to operatives, when appropriate, to make best use of their competence (Guidance: examples of operatives include; delivery driver, merchant, other trades and company colleagues)	☐	☐	☐	☐
Instruct the operatives, where relevant, about their duties and responsibilities clearly and concisely (Guidance: examples of instructions include; material orders, H&S brief and site entry)	☐	☐	☐	☐
Confirm that any instructions given are understood	☐	☐	☐	☐
Coordinate effectively, when relevant, the work of other contractors	☐	☐	☐	☐
Monitor, as appropriate, that the work of operatives is safe, fit-for- purpose, cost effective and in accordance with: - industry recognised working practices - the specification - the current versions of appropriate industry standards and regulations	☐	☐	☐	☐
Ensure that safe and appropriate action is taken promptly where a non-compliance is identified during the programme of work	☐	☐	☐	☐
Ensure that all documentation associated with the installation and/or maintenance work is in accordance with organisational procedures, the current versions of appropriate industry standards and regulations:				
Organisation procedures: learners must be witnessed on at least three of the following:				
Information management	☐	☐	☐	☐
Method statement	☐	☐	☐	☐
Maintenance (planned and reactive)	☐	☐	☐	☐
Project management	☐	☐	☐	☐
Risk assessment	☐	☐	☐	☐
Implementing and monitoring health and safety requirements and issues	☐	☐	☐	☐
Implementing and monitoring issues relating to the natural environment	☐	☐	☐	☐

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Form B Continued

Coordinate a Work Site in the Building Services Engineering Sector. (Unit 314)	Employer			
	E1	E2	E3	E4
Customer services	☐	☐	☐	☐
Accident reporting	☐	☐	☐	☐
Emergencies	☐	☐	☐	☐
Communication with relevant people	☐	☐	☐	☐
Liaise with the relevant people to resolve issues which are outside the scope of your job role:				
Relevant people: learners must be witnessed on two of the following:				
Customers/clients	☐	☐	☐	☐
Client representatives	☐	☐	☐	☐
Supervisors	☐	☐	☐	☐
Site/contract manager	☐	☐	☐	☐
Other contractors/trades	☐	☐	☐	☐
Members of the public	☐	☐	☐	☐
Work colleagues	☐	☐	☐	☐
The learner must be able to:				
Verify that the equipment, accessories, and components are:				
- compatible to the working environment - in accordance with the specification - of the required and correct type - delivered on time and undamaged - suitable and safely stored	☐	☐	☐	☐
Confirm that the installation and/or maintenance work completed is in accordance with:				
- the specification - the current versions of appropriate industry standards and regulations	☐	☐	☐	☐

Form B Continued

Performing Electrical Work on Refrigeration, Air Conditioning and Heat Pump Systems (Unit 307RACHP). Safety critical aspects of electrical work may be simulated in a controlled environment supervised by a competent person.	Employer			
	E1	E2	E3	E4
Inspect and pre commission				
The learner must be able to:				
Identify methods for selecting electrical equipment, cables/wiring, accessories and components to ensure that they are fit for purpose:				
The electrical supply is suitable for the refrigeration, air conditioning and heat pump systems	☐	☐	☐	☐
Decommission/Install	E1	E2	E3	E4
Carryout the methods and techniques for disconnecting, installing and/or connecting electrical equipment, cables/wiring, accessories and components in accordance with: - the mechanical building services (refrigeration, air conditioning and heat pump) system's design - manufacturers' instructions - the correct procedures for safe isolation				
The correct means of electrical isolation prior to commencing work:				
Disconnection	☐	☐	☐	☐
Installation	☐	☐	☐	☐
Connection	☐	☐	☐	☐
The status of the electrical supply:				
Proving unit	☐	☐	☐	☐
Live	☐	☐	☐	☐
Dead	☐	☐	☐	☐
The safe isolation of electrical equipment and components associated with the electrical supply of the refrigeration, air conditioning and heat pump system: Electrical equipment and components: learners must be witnessed on at least one of the following:				
Isolators	☐	☐	☐	☐
Circuit breakers	☐	☐	☐	☐
Control devices – electrical; electronic; electro-mechanical	☐	☐	☐	☐
Switches	☐	☐	☐	☐
Motor control equipment	☐	☐	☐	☐
Control panels – environmental control	☐	☐	☐	☐

Form B Continued

Performing Electrical Work on Refrigeration, Air Conditioning and Heat Pump Systems (Unit 307RACHP). Safety critical aspects of electrical work may be simulated in a controlled environment supervised by a competent person.	Employer			
	E1	E2	E3	E4
The learner must be able to carry out:				
The safe isolation of electrical equipment and components associated with the electrical supply of the refrigeration, air conditioning and heat pump system: Electrical equipment: learners must be witnessed on all of the following:				
Fuses	☐	☐	☐	☐
Smart controls	☐	☐	☐	☐
Earthing protection	☐	☐	☐	☐
Socket-outlets/fused-spurs	☐	☐	☐	☐
The safe isolation of electrical equipment and components associated with the electrical supply of the refrigeration, air conditioning and heat pump system: Electrical supply extra low voltage and/or low voltage single -phase provision for: learners must be witnessed on three of the following:				
Control	☐	☐	☐	☐
Communication	☐	☐	☐	☐
Heating	☐	☐	☐	☐
Lighting	☐	☐	☐	☐
Power	☐	☐	☐	☐
The work on electrical equipment, cables/wiring and components associated with the electrical supply and control of the refrigeration, air conditioning and heat pump system: learners must be witnessed on six of the following:				
Compressor motors	☐	☐	☐	☐
Fan motors	☐	☐	☐	☐
Electro-magnetic solenoid valves	☐	☐	☐	☐
All in one combined refrigeration system/defrost controllers	☐	☐	☐	☐
Temperature controllers	☐	☐	☐	☐
Timers	☐	☐	☐	☐
Liquid level controllers	☐	☐	☐	☐
Ice makers (retail and industrial)	☐	☐	☐	☐

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Form B Continued

Performing Electrical Work on Refrigeration, Air Conditioning and Heat Pump Systems (Unit 307RACHP). Safety critical aspects of electrical work may be simulated in a controlled environment supervised by a competent person.	Employer			
	E1	E2	E3	E4
Refrigerant liquid pumps	☐	☐	☐	☐
Heaters	☐	☐	☐	☐
Condensate pumps	☐	☐	☐	☐
Centralised controllers	☐	☐	☐	☐
Probes and sensors	☐	☐	☐	☐
Leak detection	☐	☐	☐	☐
PCB	☐	☐	☐	☐
Electronic expansion devices	☐	☐	☐	☐
HP and LP switches	☐	☐	☐	☐
Defrost heater	☐	☐	☐	☐
Crank case heater	☐	☐	☐	☐
The electrical equipment, cables/wiring and components are in accordance with the requirements of the refrigeration, air conditioning and heat pump system	☐	☐	☐	☐
The electrical equipment, cables/wiring and components are of proper construction in accordance with the requirements of the refrigeration, air conditioning and heat pump system: learners must be witnessed on all of the following:				
Insulation	☐	☐	☐	☐
Mechanical strength	☐	☐	☐	☐
Protection	☐	☐	☐	☐

Form B Continued

Performing Electrical Work on Refrigeration, Air Conditioning and Heat Pump Systems (Unit 307RACHP) Safety critical aspects of electrical work may be simulated in a controlled environment supervised by a competent person.	Employer			
	E1	E2	E3	E4
The learner must be able to:				
Interpret diagrams and drawings for the mechanical building services system to identify the location of the:				
- site services - electrical equipment, accessories and components				
The common drawing conventions, symbols and markings found on refrigeration, air conditioning and heat pump diagrams and drawings	☐	☐	☐	☐
The electrical equipment, cables/wiring and components are in accordance with the requirements of the refrigeration, air conditioning and heat pump system	☐	☐	☐	☐
The electrical equipment, cables/wiring and components are of proper construction in accordance with the requirements of the refrigeration, air conditioning and heat pump system. Learners must be witnessed on all of the following:				
Insulation	☐	☐	☐	☐
Mechanical strength	☐	☐	☐	☐
Protection	☐	☐	☐	☐
Commission	E1	E2	E3	E4
The learner must be able to:				
Carryout Industry recognised methods and procedures for the functional testing of the electrical equipment, accessories and components associated with the electrical supply and/or control of the mechanical building services system	☐	☐	☐	☐
Maintain	E1	E2	E3	E4
Identify and rectify electrical faults in the mechanical building services system in accordance with:				
- industry recognised methods - the limitations of your responsibility				
The learner must be able to:				
- Test circuits and fault find. - Electrical testing: learners must be witnessed on two of the following:				
Continuity	☐	☐	☐	☐
Insulation resistance	☐	☐	☐	☐
Polarity	☐	☐	☐	☐
Functional testing	☐	☐	☐	☐
Current measurement	☐	☐	☐	☐
Voltage measurement	☐	☐	☐	☐

Form B Continued

Performing Electrical Work on Refrigeration, Air Conditioning and Heat Pump Systems (Unit 307RACHP) Safety critical aspects of electrical work may be simulated in a controlled environment supervised by a competent person.				
	Employer			
	E1	E2	E3	E4
The learner must be able to: Identify and diagnose common electrical faults, learners must be witnessed on two of the following:				
Short circuits	☐	☐	☐	☐
Open circuits	☐	☐	☐	☐
Poor wire terminators	☐	☐	☐	☐
Component failure	☐	☐	☐	☐
The learner must be able to: Carry out circuit testing, learners must be witnessed on one of the following:				
Dead testing	☐	☐	☐	☐
Live testing	☐	☐	☐	☐
RCCB/RCD testing	☐	☐	☐	☐
The learner must be able to: Apply of safety measures, learners must be witnessed on all of the following:				
Personal protective equipment (PPE)	☐	☐	☐	☐
Warning signs and notices	☐	☐	☐	☐
Barriers	☐	☐	☐	☐
The learner must be able to: Rectify electrical faults and deficiencies on refrigeration, air conditioning and heat pump systems: Appliance components: learners must be witnessed on two of the following:				
Micro switches	☐	☐	☐	☐
Relays	☐	☐	☐	☐
Pressure switches	☐	☐	☐	☐
Printed circuit boards	☐	☐	☐	☐
Pumps	☐	☐	☐	☐
Fans	☐	☐	☐	☐

Form B Continued

Performing Electrical Work on Refrigeration, Air Conditioning and Heat Pump Systems (Unit 307RACHP) Safety critical aspects of electrical work may be simulated in a controlled environment supervised by a competent person.				
	Employer			
	E1	E2	E3	E4
The learner must be able to: Rectify electrical faults and deficiencies on refrigeration, air conditioning and heat pump systems: Control components: learners must be witnessed on two of the following:				
Thermostats	☐	☐	☐	☐
Programmers/timers	☐	☐	☐	☐
Electrically operated control valves	☐	☐	☐	☐
Wiring centres	☐	☐	☐	☐
The learner must be able to: Rectify electrical faults and deficiencies on refrigeration, air conditioning and heat pump systems: Deficiencies: learners must be witnessed on two of the following (if the activities are NOT naturally occurring, they can be covered via oral questioning).				
Inadequate earthing provision	☐	☐	☐	☐
Defective cable routing	☐	☐	☐	☐
Defective termination	☐	☐	☐	☐
Incorrect polarity	☐	☐	☐	☐
Provision of inadequate circuit protection device	☐	☐	☐	☐

Form B Continued

Performing Refrigeration, Air Conditioning and Heat Pump System Installation, Commissioning and Decommissioning Techniques (Unit 310RACHP)	Employer			
	E1	E2	E3	E4
Core Skills				
The learner must be able to:				
Verify that the job information and documentation are current and relevant and that the plant, instruments, access equipment and tools are fit for purpose	☐	☐	☐	☐
Confirm before work starts that the work location and work area can be accessed safely and has been checked for the risk to other personnel on the site, and take appropriate action if a risk is present:				
The access and exit routes: learners must be witnessed on three of the following:				
Adequate lighting set up	☐	☐	☐	☐
Routes free from obstruction	☐	☐	☐	☐
Safety signs and notices (followed and in place)	☐	☐	☐	☐
Emergency exit routes in place	☐	☐	☐	☐
Appropriate barriers installed	☐	☐	☐	☐
The learner must be able to:				
Confirm that the site services and system supply are compatible with the system's design	☐	☐	☐	☐
Select appliances, components and accessories and confirm that they are: • of the right type and size • fit for purpose in accordance with the refrigeration, air conditioning and heat pump system's design • suitable for the working environment in which they are to be installed.				
System design: learners must be witnessed on one of the following systems:				
Refrigeration	☐	☐	☐	☐
Air conditioning	☐	☐	☐	☐
Heat pump	☐	☐	☐	☐
Learners must be witnessed on two of the following:				
Pipe sizing	☐	☐	☐	☐
Component selection	☐	☐	☐	☐
Calculations	☐	☐	☐	☐
Leak detection	☐	☐	☐	☐
Safety requirements (pressure relief valves)	☐	☐	☐	☐

Form B Continued

Performing Refrigeration, Air Conditioning and Heat Pump System Installation, Commissioning and Decommissioning Techniques (Unit 310RACHP)	Employer			
	E1	E2	E3	E4
Core Skills				
The learner must be able to:				
Produce a risk assessment and method statement for the work to be carried out, including the identification of hazards, use of suitable tools and equipment and personal protective equipment, in accordance with the working environment	☐	☐	☐	☐
Comply with industry practices and organisational procedures to ensure the coordination of site services and system supply and the activities of other trades	☐	☐	☐	☐
Confirm with the relevant people: - those necessary variations to the planned programme of work - the actions to be taken to ensure that any variations to the planned programme of work will minimise the potential for hazard and risk	☐	☐	☐	☐
Implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers' and manufacturers' instructions	☐	☐	☐	☐
Complete relevant documentation in accordance with organisational procedures:				
Documentation: learners must be witnessed on three of the following:				
Variation order	☐	☐	☐	☐
Timesheets	☐	☐	☐	☐
Work programme	☐	☐	☐	☐
Requisitions	☐	☐	☐	☐
Delivery note	☐	☐	☐	☐
Waste consignment note	☐	☐	☐	☐

Form B Continued

Performing Refrigeration, Air Conditioning and Heat Pump System Installation, Commissioning and Decommissioning Techniques (Unit 310RACHP)	Employer			
	E1	E2	E3	E4
Installation				
The learner must be able to: Determine at the outset, that the plans for positioning and fixing the appliances, components and accessories are in accordance with: - the refrigeration, air conditioning and heat pump system's design - the working environment - manufacturer instructions				
Systems: learners must be witnessed on one of the following systems:				
Refrigeration	☐	☐	☐	☐
Air conditioning	☐	☐	☐	☐
Heat pump	☐	☐	☐	☐
Measure and mark out the locations for fitting and fixing the selected appliances, components and accessories in accordance with: - the refrigeration, air conditioning and heat pump system's design - manufacturer instructions				
Systems: learners must be witnessed on one of the following systems:				
Refrigeration	☐	☐	☐	☐
Air conditioning	☐	☐	☐	☐
Heat pump	☐	☐	☐	☐
The Pipework: learners must be witnessed on two of the following:				
Copper	☐	☐	☐	☐
Plastic	☐	☐	☐	☐
Steel	☐	☐	☐	☐
Aluminium	☐	☐	☐	☐

Form B Continued

Performing Refrigeration, Air Conditioning and Heat Pump System Installation, Commissioning and Decommissioning Techniques (Unit 310RACHP)	Employer			
	E1	E2	E3	E4
Installation				
The learner must be able to: Fit, fix and connect the selected systems, components and accessories in accordance with: - refrigeration, air conditioning and heat pump system's design - the working environment - manufacturer instructions				
Systems: learners must be witnessed on one of the following systems:				
Refrigeration	☐	☐	☐	☐
Air conditioning	☐	☐	☐	☐
Heat pump	☐	☐	☐	☐
The Pipework: learners must be witnessed on two of the following:				
Copper	☐	☐	☐	☐
Plastic	☐	☐	☐	☐
Steel	☐	☐	☐	☐
Aluminium	☐	☐	☐	☐
Joining methods: learners must be witnessed on two of the following:				
Compression	☐	☐	☐	☐
Push fit	☐	☐	☐	☐
Threaded/screwed	☐	☐	☐	☐
Brazed	☐	☐	☐	☐
Flared	☐	☐	☐	☐
Crimped	☐	☐	☐	☐
Glues/adhesives	☐	☐	☐	☐
Fusion welded	☐	☐	☐	☐
Flange	☐	☐	☐	☐
Press fitting	☐	☐	☐	☐
Grooved	☐	☐	☐	☐
Soft soldering	☐	☐	☐	☐

Form B Continued

Performing Refrigeration, Air Conditioning and Heat Pump System Installation, Commissioning and Decommissioning Techniques (Unit 310RACHP)	Employer			
	E1	E2	E3	E4
Installation				
The learner must be able to: Fit, fix and connect the selected systems, components and accessories in accordance with: - the refrigeration, air conditioning and heat pump system's design - the working environment - manufacturer instructions				
Components: learners must be witnessed on five components:				
Evaporator	☐	☐	☐	☐
Condenser	☐	☐	☐	☐
Condensing unit	☐	☐	☐	☐
Branch box	☐	☐	☐	☐
Ref net	☐	☐	☐	☐
Dryer	☐	☐	☐	☐
Sight glass	☐	☐	☐	☐
Compressor	☐	☐	☐	☐
Solenoid valve	☐	☐	☐	☐
Expansion device	☐	☐	☐	☐
HP Switch	☐	☐	☐	☐
LP Switch	☐	☐	☐	☐
Controller	☐	☐	☐	☐
Sensor	☐	☐	☐	☐
Condensate pump	☐	☐	☐	☐
Unit bracket	☐	☐	☐	☐
Service valves	☐	☐	☐	☐
Condensing unit cage	☐	☐	☐	☐
PRV valves	☐	☐	☐	☐
Hydrobox	☐	☐	☐	☐

(range continued on next page)

Form B Continued

Performing Refrigeration, Air Conditioning and Heat Pump System Installation, Commissioning and Decommissioning Techniques (Unit 310RACHP)	Employer			
	E1	E2	E3	E4
Installation				
Leak detection system	☐	☐	☐	☐
Vacuum pump	☐	☐	☐	☐
Accumulators	☐	☐	☐	☐
Line and regulating valves	☐	☐	☐	☐
Grilles/diffusers/fans/filters	☐	☐	☐	☐
Liquid receivers	☐	☐	☐	☐
Air handling units	☐	☐	☐	☐
The learner must be able to:				
Confirm the integrity of the installed system using appropriate testing procedures	☐	☐	☐	☐
Commission				
The learner must be able to: Confirm systems, components and accessories installed are: • of the right type and size • fit for purpose in accordance with the refrigeration, air conditioning and heat pump system's design • suitable for the working environment in which they are installed				
The learner must be able to:				
Undertake a visual inspection of the refrigeration, air conditioning and heat pump system to confirm that it is ready to be soundness tested	☐	☐	☐	☐
Perform visual and manual checks to ensure that the systems, components and accessories have been fixed, fitted and connected in accordance with:				
• the refrigeration, air conditioning and heat pump system's design • the working environment • manufacturers' instructions	☐	☐	☐	☐
Confirm the integrity of the installed system using appropriate testing procedures	☐	☐	☐	☐
Commission systems, components and accessories, adjusting safely and effectively the control features in accordance with: • the refrigeration, air conditioning and heat pump system's design • the working environment • manufacturers' instructions				
Systems: Learners must be witnessed on one of the following systems:				
Refrigeration	☐	☐	☐	☐
Air conditioning	☐	☐	☐	☐
Heat pump	☐	☐	☐	☐

Form B Continued

Performing Refrigeration, Air Conditioning and Heat Pump System Installation, Commissioning and Decommissioning Techniques (Unit 310RACHP)	Employer			
	E1	E2	E3	E4
Decommission				
The learner must be able to: Decommission systems and safe isolation of associated electrical/electronic controls in accordance with: - the refrigeration, air conditioning and heat pump system's design - the working environment - manufacturers' instructions				
Undertake a visual inspection of the refrigeration, air conditioning and heat pump system to identify any hazards	☐	☐	☐	☐
Wear the correct personal protective equipment	☐	☐	☐	☐
Follow the procedures and techniques for the safe decommissioning of systems	☐	☐	☐	☐
Systems: Learners must be witnessed on one of the following systems:				
Refrigeration	☐	☐	☐	☐
Air conditioning	☐	☐	☐	☐
Heat pump	☐	☐	☐	☐
The learner must be able to:				
Record decommissioning activities	☐	☐	☐	☐

Form B Continued

Performing Refrigeration, Air Conditioning and Heat Pump System Service and Maintenance Techniques (Unit 311RACHP)	Employer			
	E1	E2	E3	E4
<i>Note: The core skills in Unit 310RACHP are relevant to this unit and may be evidenced when carrying out service and maintenance techniques.</i>				
Service and Maintain				
The learner must be able to:				
Determine at the outset, that the plans for servicing and maintaining the systems, components and accessories are in accordance with:				
- the refrigeration, air conditioning and heat pump system's design - the working environment - manufacturer instructions	☐	☐	☐	☐
The learner must be able to:				
Carry out service and maintenance activities and procedures in accordance with:				
- the refrigeration, air conditioning and heat pump system's design - the working environment - manufacturer instructions	☐	☐	☐	☐
Systems: learners must be witnessed on one of the following systems:				
Refrigeration	☐	☐	☐	☐
Air conditioning	☐	☐	☐	☐
Heat pump	☐	☐	☐	☐
The learner must be able to:				
Accurately identify the cause of faults and those parts/components that need to be repaired/replaced	☐	☐	☐	☐
Carry out repairs/replacements as necessary when faults are identified	☐	☐	☐	☐
Faults: learners must be witnessed on three faults:				
Compressor motor fault	☐	☐	☐	☐
Solenoid fault	☐	☐	☐	☐
HP fault	☐	☐	☐	☐
LP fault	☐	☐	☐	☐
Earth fault	☐	☐	☐	☐
Temperature controller setting incorrect	☐	☐	☐	☐
Communication errors	☐	☐	☐	☐
Water leaks	☐	☐	☐	☐

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Form B Continued

Performing Refrigeration, Air Conditioning and Heat Pump System Service and Maintenance Techniques (Unit 311RACHP)	Employer			
	E1	E2	E3	E4

Note: The core skills in Unit 310RACHP are relevant to this unit and may be evidenced when carrying out service and maintenance techniques.

Service and Maintain				
Fans	☐	☐	☐	☐
Fan motor	☐	☐	☐	☐
Refrigerant leaks	☐	☐	☐	☐
Defrost controller fault	☐	☐	☐	☐
Pressure relief valve	☐	☐	☐	☐
Thermostat setting	☐	☐	☐	☐
Programmer fault	☐	☐	☐	☐
Evaporator pressure regulator setting	☐	☐	☐	☐
Condenser pressure regulator setting	☐	☐	☐	☐
Motor overload setting	☐	☐	☐	☐
NTC/PTC probe setting and faults	☐	☐	☐	☐
Controller	☐	☐	☐	☐
PCB fault	☐	☐	☐	☐
The learner must be able to:				
Complete appropriate testing procedures in line with industry practices	☐	☐	☐	☐

Form B Continued

Employer	Company name	Employee name	Employee initial	Date
Employer 1				
Employer 2				
Employer 3				
Employer 4				

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City & Guilds and EAL are two awarding bodies who have come together to collaborate on the development of a suite of construction and building services engineering qualifications for Wales.

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