Employer confirmation guide

EAL Building Services Engineering (Level 3) – Plumbing and Heating

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

Version	Date	Reason for change
1.0	Aug 2021	
1.1	Aug 2022	Generic minor updates, portfolio replaced with documented evidence
2.0	Feb 2025	Added a statement to the electrical unit referencing simulation of safety critical aspects of electrical work

The City and Guilds of London Institute.
Incorporated by Royal Charter. Founded 1878.
Registered Charity in England and Wales 312832 and in Scotland SC039576.

EAL (Excellence, Achievement & Learning Limited)
Registered in England and Wales number 02700780

Contents

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 site based performance requirements have been met. By providing evidence through the completion of the following documents and completing all methods of assessments within the qualification and the required framework components, will allow the learner to apply and attain the relevant industry card at the appropriate grade.

The purpose of the employer confirmation is to provide centres and trade bodies with the assurance that the learner has covered the range of the 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 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 the performance requirements, 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 performance requirements.
- 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.
- 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'.

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 the site based performance requirements and 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 journal or diary.

City & Guilds | EAL

- 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.

Requirements of evidence

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 performance 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 site based performance 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 site based performance statements.
- Evidence sources might include (this is not a definitive list):
  - workplace documentation, for example job cards/job sheets, commissioning documentation, maintenance records
  - 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.

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 on the learner journey following an initial meeting with the training provider.
- Identifies the range of activities required to meet the site based performance requirements and work-based project.

Section 2

- Identifies the unit headings of the site based performance requirements that the learner will have to complete.
- The employer will tick and initial the unit an 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.

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.
- Upon completion the learner can be entered for their final qualification 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 log highlights the units that an learner will have to complete for their trade. It is the responsibility of the employer(s) to complete 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 performance 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.
- The learner will gather and retain evidence to demonstrate how they have achieved the activity criteria inline with the site based performance requirements.

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 performance requirements and work based project.

Step 3

Develop and agree quality assurance checks for employer confirmation process.

Step 4

Periodic reviews of learner's 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 qualification assessment. (Professional Discussion).

Step 8

Upon successful completion of all components EAL will certificate the qualification.

Form A Employer confirmation

Employer confirmation is confirming the learner is occupationally proficient and has met all the performance requirements of the units and 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: Performance requirements

Performance requirements met in units for	✓	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 Plumbing and Heating Systems	☐	
Performing Plumbing and Heating Systems Installation, Commissioning, 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

Performance requirements checklist: Plumbing and Heating

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:				
Information management	Evidenced by completing unit 321PH			
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:				
Hazards and risks (internal and/or external):				
Domestic	Evidenced by completing unit 321PH			
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:				
New build construction – building or structure	Evidenced by completing unit 321PH			
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
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	Evidenced by completing unit 321PH			
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:				
Information management	Evidenced by completing unit 321PH			
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
Produce a risk assessment and method statement for the work to be carried out on the identified building services engineering system:				
Domestic	Evidenced by completing unit 321PH			
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)				
The learner must be able to:				
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	☐	☐	☐	☐

(range continued on next page)

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 Plumbing and Heating Systems (Unit 320PH) 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				
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 plumbing and domestic heating 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 (plumbing and heating) 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:				
Live	☐	☐	☐	☐
Dead	☐	☐	☐	☐
The safe isolation of electrical equipment and components associated with the electrical supply of the plumbing and domestic heating system: Electrical equipment: 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 Plumbing and Heating Systems (Unit 320PH) Safety critical aspects of electrical work may be simulated in a controlled environment supervised by a competent person	Employer			
	E1	E2	E3	E4
The safe isolation of electrical equipment and components associated with the electrical supply of the plumbing and domestic heating 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 plumbing and domestic heating 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 safe isolation of electrical equipment and components associated with the electrical supply of the plumbing and domestic heating system: Components: learners must be witnessed on **six** of the following:				
Boiler	☐	☐	☐	☐
Central heating controls; zone valves (2 port, 3 port, mid position and diverter), programmer, timer, thermostats, programmable room stat, optimizer, frost stat, wiring centre, cylinder stat, Wi-fi routers, Wi-Fi range extenders	☐	☐	☐	☐
Wiring centres	☐	☐	☐	☐
Immersion heater	☐	☐	☐	☐
Instantaneous shower	☐	☐	☐	☐
Shower pump	☐	☐	☐	☐
Jacuzzi bath/hot tub	☐	☐	☐	☐
Macerator WC	☐	☐	☐	☐

(range continued on next page)

Form B Continued

Performing Electrical Work on Plumbing and Heating Systems (Unit 320PH) Safety critical aspects of electrical work may be simulated in a controlled environment supervised by a competent person	Employer			
	E1	E2	E3	E4
Heat producing or cooling appliances	☐	☐	☐	☐
Pumps	☐	☐	☐	☐
Fans	☐	☐	☐	☐
The work on electrical equipment, cables/wiring and components associated with the electrical supply and control of the plumbing and domestic heating system: learners must be witnessed on **six** of the following:				
Boiler	☐	☐	☐	☐
Central heating controls; zone valves (2 port, 3 port, mid position and diverter), programmer, timer, thermostats, programmable room stat, optimizer, frost stat, wiring centre, cylinder stat, Wi-fi routers, Wi-Fi range extenders	☐	☐	☐	☐
Wiring centres	☐	☐	☐	☐
Immersion heater	☐	☐	☐	☐
Instantaneous shower	☐	☐	☐	☐
Shower pump	☐	☐	☐	☐
Jacuzzi bath/hot tub	☐	☐	☐	☐
Macerator WC	☐	☐	☐	☐
Heat producing or cooling appliances	☐	☐	☐	☐
Pumps	☐	☐	☐	☐
Fans	☐	☐	☐	☐
The electrical equipment, cables/wiring and components are in accordance with the requirements of the plumbing and domestic heating system	☐	☐	☐	☐
The electrical equipment, cables/wiring and components are of proper construction in accordance with the requirements of the plumbing and domestic heating system: learners must be witnessed on **all** of the following:				
Insulation	☐	☐	☐	☐
Mechanical strength	☐	☐	☐	☐
Protection	☐	☐	☐	☐

Form B Continued

Performing Electrical Work on Plumbing and Heating Systems (Unit 320PH) Safety critical aspects of electrical work may be simulated in a controlled environment supervised by a competent person	Employer			
	E1	E2	E3	E4
Interpret diagrams and drawings for the mechanical building services system to identify the location of the: • site services • electrical equipment, accessories and components				
The electrical equipment, cables/wiring and components are in accordance with the requirements of the plumbing and domestic heating system	☐	☐	☐	☐
Interpret diagrams and drawings for the mechanical building services system to identify the location of the: • site services • electrical equipment, accessories and components				
The electrical equipment, cables/wiring and components are of proper construction in accordance with the requirements of the plumbing and domestic heating 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				
How to rectify electrical faults and deficiencies on plumbing and domestic heating 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 Plumbing and Heating Systems (Unit 320PH) Safety critical aspects of electrical work may be simulated in a controlled environment supervised by a competent person	Employer			
	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**				
How to rectify electrical faults and deficiencies on plumbing and domestic heating systems: Control components: learners must be witnessed on **two** of the following:				
Thermostats	☐	☐	☐	☐
Programmers / timers	☐	☐	☐	☐
Electrically operated control valves	☐	☐	☐	☐
Wiring centres	☐	☐	☐	☐
How to rectify electrical faults and deficiencies on plumbing and domestic heating 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 Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	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	☐	☐	☐	☐
Routes free from obstruction	☐	☐	☐	☐
Follow safety signs and notices	☐	☐	☐	☐
Emergency exit routes in place	☐	☐	☐	☐
Appropriate barriers	☐	☐	☐	☐
The learner must be able to:				
Confirm that the site services and system supply are compatible with the plumbing and heating system's design	☐	☐	☐	☐
Produce a risk assessment and method statement for the work to be carried out, including the identification and use of 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	☐	☐	☐	☐

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Core Skills				
Select appliances, components and accessories and confirm that they are: • of the right type and size • fit for purpose in accordance with the plumbing and heating system's design • suitable for the working environment in which they are to be installed:				
System design: learners must be witnessed on central heating and then **two** from the remaining four:				
Cold water				
Calculate system requirements used in dwellings				
Storage requirements, pipe size, outlet size and type	☐	☐	☐	☐
Select components in accordance with calculations from predetermined data				
Storage requirements, pipe size, accumulator, safety device, booster pump	☐	☐	☐	☐
Hot water				
Calculate system requirements used in dwellings				
Storage requirements, pipe size	☐	☐	☐	☐
Select components in accordance with calculations from predetermined data				
storage vessel, pipe, pump, expansion vessel, safety device	☐	☐	☐	☐
Central Heating				
Calculate central heating system requirements used in dwellings				
Total heat load, emitter load, hot water allowance, pipe size, pump size, emitter size, expansion	☐	☐	☐	☐
Select components in accordance with calculations from predetermined data				
Storage requirements, pipe size, accumulator, safety device, booster pump	☐	☐	☐	☐
Rainwater				
Calculate system requirements used in dwellings	☐	☐	☐	☐
Select components in accordance with calculations from predetermined data	☐	☐	☐	☐
Sanitation				
Calculate system requirements used in dwellings				
Gradient, diameter, length, material, system type	☐	☐	☐	☐
Select components in accordance with calculations from predetermined data	☐	☐	☐	☐

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Core Skills				
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	☐	☐	☐	☐
Inspect and pre commission	E1	E2	E3	E4
The learner must be able to:				
Confirm appliances, components and accessories installed are: • of the right type and size • fit for purpose in accordance with the plumbing and heating system's design • suitable for the working environment in which they are installed	☐	☐	☐	☐
Determine that the appliances, components and accessories have been fitted in accordance with: • **the plumbing and heating system's design** • **the working environment** • **manufacturer instructions:**				
Preparatory work: learners must be witnessed on **all** of the following:				
Safe and unobstructed access to work areas	☐	☐	☐	☐
Safe storage of materials tools and equipment	☐	☐	☐	☐
Reporting pre-existing damage	☐	☐	☐	☐
Protecting the building fabric	☐	☐	☐	☐
Drilling walls or floors	☐	☐	☐	☐
Cutting holes and notches in timber floor joists	☐	☐	☐	☐
Cutting chases in wall or floor surfaces	☐	☐	☐	☐

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Inspect and pre commission				
The learner must be able to:				
Inspect and pre-commission appliances, components and accessories in accordance with: • the plumbing and heating system's design • manufacturer instructions	☐	☐	☐	☐
Decommission	E1	E2	E3	E4
The learner must be able to:				
Decommission appliances, components and accessories in accordance with industry practices and organisational procedures	☐	☐	☐	☐
Ensure that the plumbing and heating system cannot be accidentally reactivated or become dangerous	☐	☐	☐	☐
Install	E1	E2	E3	E4
Determine at the outset, that the plans for positioning and fixing the appliances, components and accessories are in accordance with: • **the plumbing and heating system's design** • **the working environment** • **manufacturer instructions**				
Systems: learners must be witnessed **on** cold and hot water systems and then **one** from the remaining three:				
Cold water systems	☐	☐	☐	☐
Hot water systems	☐	☐	☐	☐
Central heating systems	☐	☐	☐	☐
Sanitation systems	☐	☐	☐	☐
Gravity rainwater systems	☐	☐	☐	☐

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Install				
Measure and mark out the locations for fitting and fixing the selected appliances, components and accessories in accordance with: • **the plumbing and heating system's design** • **manufacturer instructions**				
Systems: learners must be witnessed **on** cold and hot water systems and then **one** from the remaining three:				
Cold water systems	☐	☐	☐	☐
Hot water systems	☐	☐	☐	☐
Central heating systems	☐	☐	☐	☐
Sanitation systems	☐	☐	☐	☐
Gravity rainwater systems	☐	☐	☐	☐
The Pipework: learners must be witnessed on **three** of the following:				
Copper	☐	☐	☐	☐
Plastic pressure pipe	☐	☐	☐	☐
Steel (screwed or pressed)	☐	☐	☐	☐
Stainless steel	☐	☐	☐	☐
Plastic (sanitary)	☐	☐	☐	☐
Rainwater	☐	☐	☐	☐

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Install				
Fit, fix and connect the selected appliances, components and accessories in accordance with: • **the plumbing and heating system's design** • **the working environment** • **manufacturer instructions**				
Systems : learners must be witnessed **on** cold and hot water systems and then **one** from the remaining three:				
Cold water systems	☐	☐	☐	☐
Hot water systems	☐	☐	☐	☐
Central heating systems	☐	☐	☐	☐
Sanitation systems	☐	☐	☐	☐
Gravity rainwater systems	☐	☐	☐	☐
The Pipework : learners must be witnessed on **three** of the following:				
Copper	☐	☐	☐	☐
Plastic pressure pipe	☐	☐	☐	☐
Steel (screwed or pressed)	☐	☐	☐	☐
Stainless steel	☐	☐	☐	☐
Plastic (sanitary)	☐	☐	☐	☐
Rainwater	☐	☐	☐	☐
Jointing methods : learners must be witnessed on **four** of the following:				
Compression	☐	☐	☐	☐
Push fit plastic pressure	☐	☐	☐	☐
Push fit waste	☐	☐	☐	☐
Threaded/screwed	☐	☐	☐	☐
Soft soldered	☐	☐	☐	☐
Crimped	☐	☐	☐	☐
Glues/adhesives	☐	☐	☐	☐
Fusion welded	☐	☐	☐	☐

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Install				
Fit, fix and connect the selected appliances, components and accessories in accordance with: • **the plumbing and heating system's design** • **the working environment** • **manufacturer instructions**				
Components: learners must be witnessed on **six** components with at least **three** on more than one occasion:				
Bath	☐ ☐	☐ ☐	☐ ☐	☐ ☐
WC	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Wash hand basin	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Sink	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Shower and tray	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Cylinder	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Boiler (connections)	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Soil stack system	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Rain water/guttering system	☐ ☐	☐ ☐	☐ ☐	☐ ☐
F&E/CWSC Cistern	☐ ☐	☐ ☐	☐ ☐	☐ ☐

(range continued on next page)

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Install				
Pump	☐	☐	☐	☐
	☐	☐	☐	☐
Motorised valves	☐	☐	☐	☐
	☐	☐	☐	☐
Radiator	☐	☐	☐	☐
	☐	☐	☐	☐
Water conditioners/filters	☐	☐	☐	☐
	☐	☐	☐	☐
Components: learners must be witnessed on **one** component:				
Urinal	☐	☐	☐	☐
Bidet	☐	☐	☐	☐
Underfloor heating circuit and underfloor manifold	☐	☐	☐	☐
Fan convector	☐	☐	☐	☐
Low loss header	☐	☐	☐	☐
Macerator or waste water lifter/pump	☐	☐	☐	☐
Greywater/rainwater station	☐	☐	☐	☐
Water softener/filter	☐	☐	☐	☐
Refrigerator cold connection	☐	☐	☐	☐

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Install				
Fit, fix and connect the selected appliances, components and accessories in accordance with: • **the plumbing and heating system's design** • **the working environment** • **manufacturer instructions** Components: learners must be witnessed on **all** components:				
Washing machine/dishwasher	☐	☐	☐	☐
Booster pump/shower pump	☐	☐	☐	☐
Accumulators/expansion vessels	☐	☐	☐	☐
Outside tap installation	☐	☐	☐	☐
Backflow protection components i.e. ea, eb, ec or ed back flow protection	☐	☐	☐	☐
The learner must be able to:				
Confirm the integrity of the installed system using appropriate testing procedures	☐	☐	☐	☐
Commission	E1	E2	E3	E4
Confirm appliances, components and accessories installed are: • **of the right type and size** • **fit for purpose in accordance with the plumbing and heating system's design** • **suitable for the working environment in which they are installed**	☐	☐	☐	☐
A visual inspection of the plumbing and heating system to confirm that it is ready to be soundness tested	☐	☐	☐	☐
The learner must be able to:				
Perform visual and manual checks to ensure that the appliances, components and accessories have been fixed, fitted and connected in accordance with: • the plumbing and heating system's design • the working environment • manufacturers' instructions	☐	☐	☐	☐
Confirm the integrity of the installed system using appropriate testing procedures	☐	☐	☐	☐

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Commission				
Commission appliances, components and accessories, adjusting safely and effectively the control features in accordance with: • **the plumbing and heating system's design** • **the working environment** • **manufacturers' instructions**				
Systems: learners must be witnessed **on** cold and hot water systems and then **one** from the remaining three:				
Cold water systems	☐	☐	☐	☐
Hot water systems	☐	☐	☐	☐
Central heating systems	☐	☐	☐	☐
Sanitation systems	☐	☐	☐	☐
Gravity rainwater systems	☐	☐	☐	☐
Service and maintain	E1	E2	E3	E4
The learner must be able to:				
Determine at the outset, that the plans for servicing and maintaining the appliances, components and accessories are in accordance with: • the plumbing and heating system's design • the working environment • manufacturer instructions	☐	☐	☐	☐
Carry out service and maintenance activities and procedures in accordance with: • **the plumbing and heating system's design** • **the working environment** • **manufacturer instructions**				
Systems: learners must be witnessed **on** cold and hot water systems and then **one** from the remaining three:				
Cold water systems	☐	☐	☐	☐
Hot water systems	☐	☐	☐	☐
Central heating systems	☐	☐	☐	☐
Sanitation systems	☐	☐	☐	☐
Gravity rainwater systems	☐	☐	☐	☐
The learner must be able to:				
Accurately identify the cause of faults and those parts/components that need to be repaired/replaced	☐	☐	☐	☐

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Service and maintain				
Complete repairs/replacements as necessary				
Faults: learners must be witnessed on **all** the following common faults:				
System debris	☐	☐	☐	☐
Pump failure	☐	☐	☐	☐
Leakage	☐	☐	☐	☐
Trap seal loss	☐	☐	☐	☐
Expansion and contraction	☐	☐	☐	☐
Cistern failure	☐	☐	☐	☐
Pumping over/persistent venting	☐	☐	☐	☐
Emitter cold spots	☐	☐	☐	☐
TRV/ valve	☐	☐	☐	☐
Tap/valve failure	☐	☐	☐	☐
Faults: learners must be witnessed on **four** from the following system faults:				
Accumulator expansion vessel failure	☐	☐	☐	☐
Motorised valves not operating	☐	☐	☐	☐
Heat exchanger failure	☐	☐	☐	☐
Expansion valve	☐	☐	☐	☐
WC macerators/waste water lifter	☐	☐	☐	☐
Sink waste disposal units	☐	☐	☐	☐
Control failure	☐	☐	☐	☐
Pressure relief valve	☐	☐	☐	☐
Thermostat	☐	☐	☐	☐
Programmer	☐	☐	☐	☐

(range continued on next page)

Form B Continued

Performing Plumbing and Heating Systems Installation, Commissioning, Service and Maintenance Techniques (Unit 321PH)	Employer			
	E1	E2	E3	E4
Service and maintain				
Air admittance valves	☐	☐	☐	☐
Condensing boiler condensate	☐	☐	☐	☐
Component failure	☐	☐	☐	☐
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				

Contact us

City & Guilds
E: skillsforwales.customer@cityandguilds.com

EAL
E: skillsforwales.customer@eal.org.uk
T: 01924 930800
Lines open: Monday to Friday 08.00 to 18.00 GMT

About City & Guilds | EAL

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.

We bring over 140 years' experience of developing qualifications and assessments in the construction and built environment sector. City & Guilds and EAL have always shared a great relationship, so this really is a proven partnership that is truly focused on supporting the sector to meet the opportunity that the future holds.

We strongly believe in empowering people with opportunities for the future, and our aims of this new suite of qualifications are to help people get into a job, get on in the job and go further.

EAL (Excellence, Achievement & Learning Limited)
Registered in England and Wales number 02700780
Registered office: EAL, Unit 2, The Orient Centre, Greycaine Road, Watford, Herts, WD24 7GP

skillsforwales.wales

The City and Guilds of London Institute.
Incorporated by Royal Charter. Founded 1878.
Registered Charity in England and Wales 312832 and in Scotland SC039576.

EAL (Excellence, Achievement & Learning Limited)
Registered in England and Wales number 02700780