Guide to marking the T Level Occupational Specialism Assessment

Plumbing engineering (8710-36) (356)

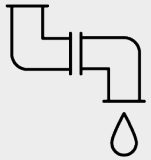
Heating engineering (8710-35/36) (355)

Gas engineering (8710-34) (354)

Thank you for accessing these support materials.

Please note that the Practical Observation form has been updated since the publication of these materials. The Practical Observation form included in the live assessment materials is the version that must be used when assessing the Occupational Specialism.

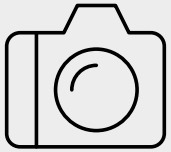
Aims and objectives



To gain a general overview of the requirements of the T Level Occupational Specialism assessment requirements

To become familiar with the assessment documentation

To be able to apply the marking process using the marking grid



To become familiar with typical evidence types

Agenda

1	Overview of typical assessment for Occupational Specialism
2	Overview of Assessment Themes
3	Using the Assessor Pack
4	Using the Marking Grid
5	How to complete a Practical Observation form
6	How to complete the Candidate Record Form
7	Making a marking decision
8	Declaration of Authenticity

Introduction

- The occupational specialism practical assessments for the T Levels are externally-set summative assessments which are internally marked by centre assessors.
- During this session we will give an overview of how the marking should be approached using the marking grid.
- If there is more than one assessor carrying out marking at the centre, this process should be carried out as part of a group activity to ensure assessors are clear and in agreement about what sorts of evidence are relevant for assessment and which assessment theme they fit into.

We have created a guide to marking process video which is available to watch online **here**.

Assessment

The assessment for this component consists of a practical assignment that includes a project brief and then a number of tasks for the candidate to complete.

The tasks set produce assessment themes that cover a range of knowledge and skills from the performance outcomes in the qualification specification.

Each candidate will receive a total mark for each assessment theme. The total for each assessment theme is accumulated, giving a total.

Assessment overview

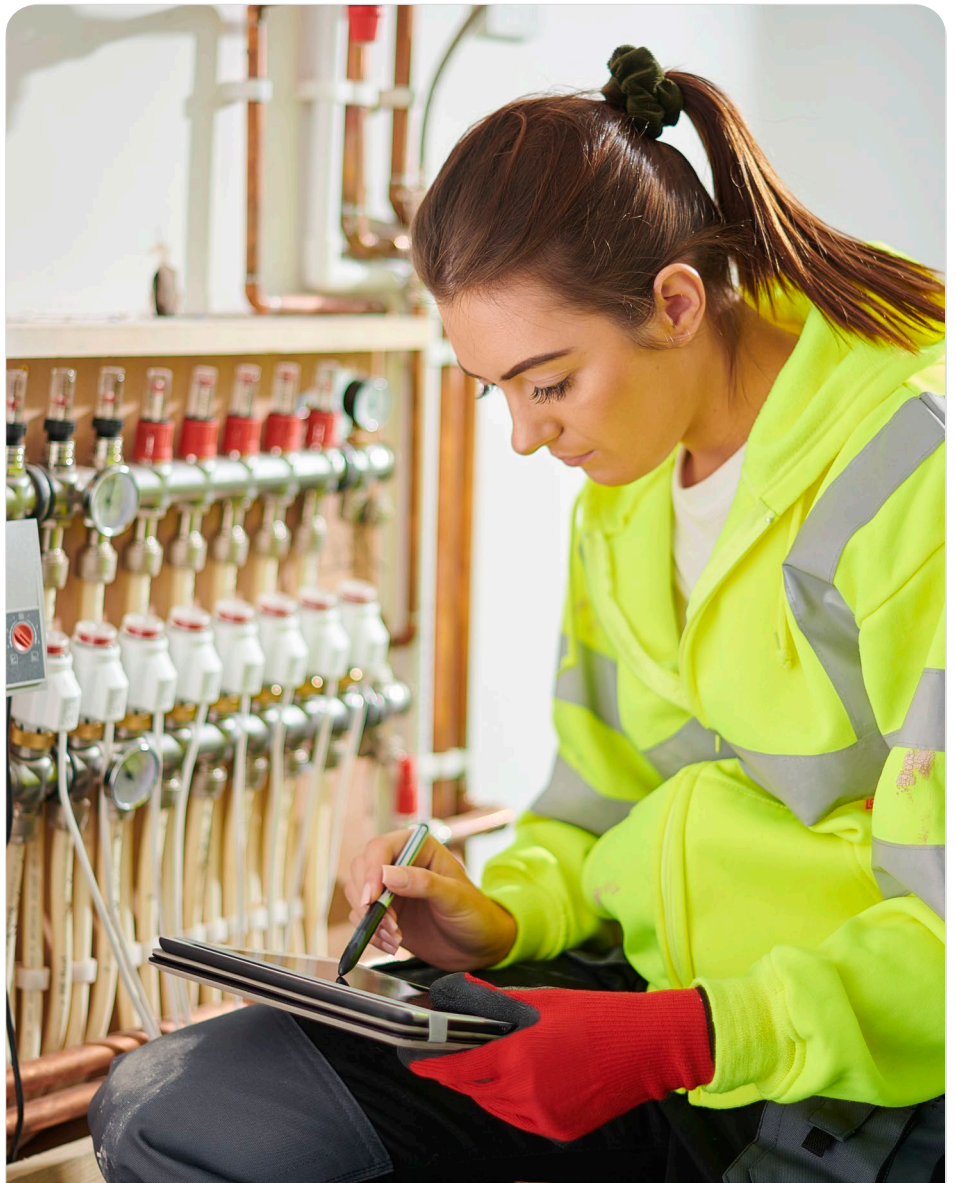
Candidates will be assessed against the following assessment themes:

- Health and Safety
- Design and planning
- Systems and components
- Reports and information#
- Inspecting and testing of systems and components
- Handover and communication
- Working with faults

Assessment pack key information

Assessors must read the Assessor Pack to ensure familiarity and compliance with:

- Time allocation
- Resources
- Conditions of assessment
- What must be produced for marking
- Additional evidence of candidate performance that must be captured



Assessment information

The Practical Assignment is based around a work-based scenario and is made up of 3 Tasks

Task 1

Planning the installation

Task 2

Installation, commissioning and decommissioning

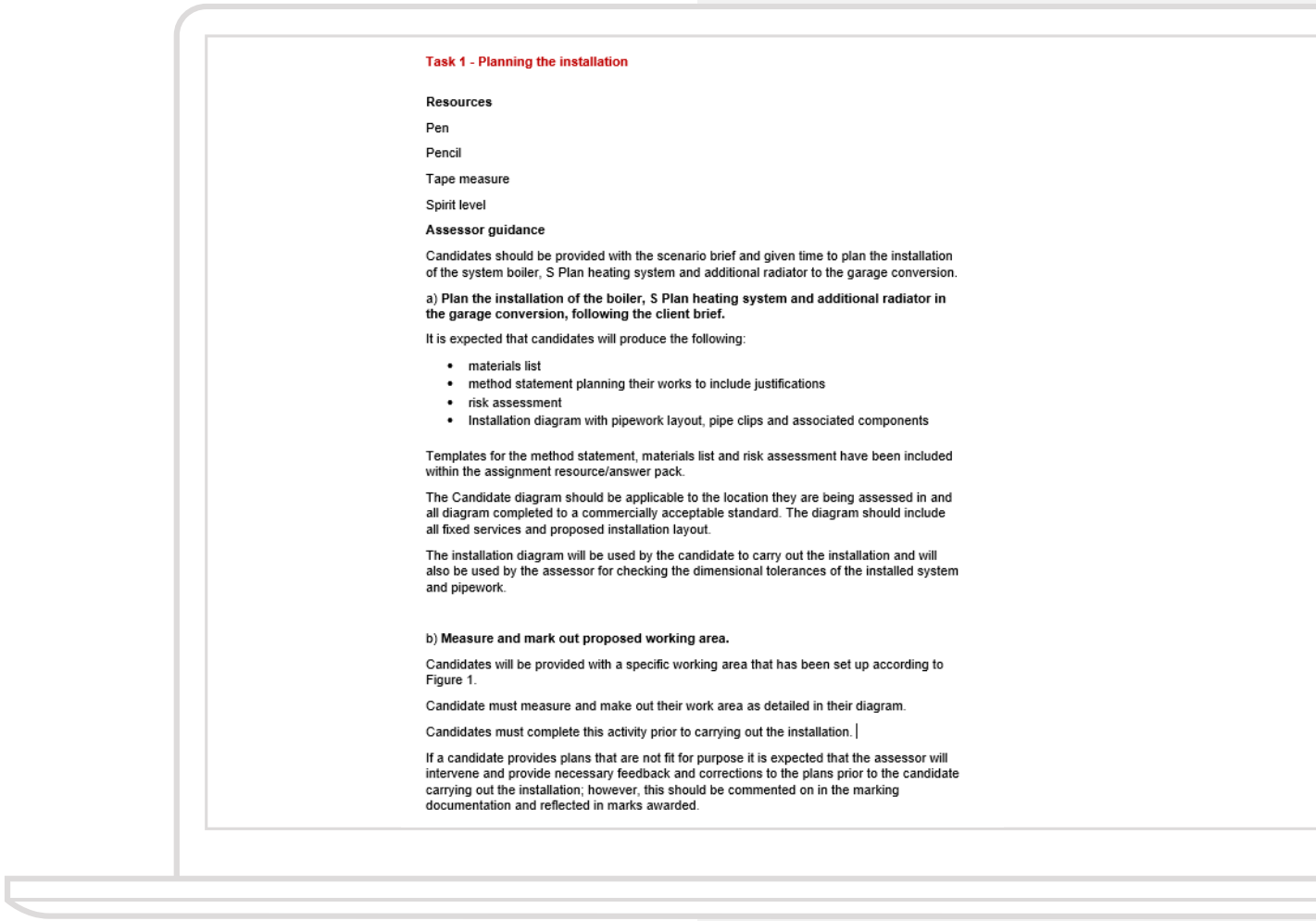
Task 3

Carrying out maintenance

Assessment information

Tasks contain:

- Resources needed
- Tasks to be completed by the candidate
- Conditions of assessment
- What must be produced for marking
- Additional evidence of candidate performance that must be captured



Task 1 - Planning the installation

Resources

Pen

Pencil

Tape measure

Spirit level

Assessor guidance

Candidates should be provided with the scenario brief and given time to plan the installation of the system boiler, S Plan heating system and additional radiator to the garage conversion.

a) **Plan the installation of the boiler, S Plan heating system and additional radiator in the garage conversion, following the client brief.**

It is expected that candidates will produce the following:

- materials list
- method statement planning their works to include justifications
- risk assessment
- Installation diagram with pipework layout, pipe clips and associated components

Templates for the method statement, materials list and risk assessment have been included within the assignment resource/answer pack.

The Candidate diagram should be applicable to the location they are being assessed in and all diagram completed to a commercially acceptable standard. The diagram should include all fixed services and proposed installation layout.

The installation diagram will be used by the candidate to carry out the installation and will also be used by the assessor for checking the dimensional tolerances of the installed system and pipework.

b) **Measure and mark out proposed working area.**

Candidates will be provided with a specific working area that has been set up according to Figure 1.

Candidate must measure and make out their work area as detailed in their diagram.

Candidates must complete this activity prior to carrying out the installation.

If a candidate provides plans that are not fit for purpose it is expected that the assessor will intervene and provide necessary feedback and corrections to the plans prior to the candidate carrying out the installation; however, this should be commented on in the marking documentation and reflected in marks awarded.

Evidence to be collected

Candidate produced evidence

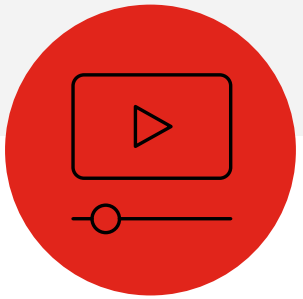
Design calculations, inspection and testing documentation, fault reports.

Practical Observation (PO) Forms

Descriptive and differentiating

Photographic evidence

As specified in the Assessor Guidance



Video evidence

As specified in the Assessor Guidance

Evidence to be collected

Method statement

Risk assessment

Materials lists

Method statement

Cloakroom installation

Ensure you have the correct PPE which includes steel toe cap boots, boiler suit and heat proof hi visibility vest to ensure risk of personal injury is limited and in line with risk assessment.
I will then carry out a visual inspection to make sure my workspace is safe; I will move anything that is unwanted out of the way. I will also put a dust sheet down in my working area to keep it protected and tidy.
Indicate the component and pipework layout in pencil on the work surface to the correct measurements in line with drawing and ensuring the use of a datum line and spirit level to ensure all components and pipe-runs will be accurate. Fit the components to the correct height in line with specification and also meet the correct recommend installation heights for example the wash hand basin at 900mm.
Collect all pipework, fittings and necessary tools required to complete the installation in line with my materials list, also checking that all the fittings and materials are British standard kite marked. This is an imprint on each fitting and show that they are of the right quality for purpose. I will put them in a safe place in the working area where they are easily accessible but do not cause a trip hazard.
Measure from the centre line for the WC and the WHB brackets and erect the brackets and basin in according to the specification and install all the appropriate pipe clips at equal distancing to both provide support and ensure the installation is aesthetically pleasing.
Carefully and accurately measure the pipe lengths and make allowance for any X dimensions to allow for pipe gain and then cut the copper pipe, then continue to pull any angles, kicks, or Passovers needed for the task.

Once all pipework is prefabricated Install the pipework and add the fittings tightening any compression joints to provide some stability. When happy with the fit of the installation pipework dismantle all joints and clean and apply flux to all the surfaces that are to be soldered, this will allow the solder to run smoothly once heat is applied and ensure that the installation is water tight and free from leaks. Solder all the copper joints ensuring all surfaces are protected from damage using a suitable heat mat or shield.

Using the clips already installed place the waste pipework into position and tighten all the mechanical joints to ensure the waste is all connected and free from leaks. Test all copper pipework for leaks with a hydraulic pressure tester to ensure the joints are free from leaks when pressurised and once completed turn on the water supplies.

Following on from this I would commission the system and complete the associated paperwork

Risk assessment

Activity: Installation of pipework Location: Centre A	Date: 31/01/21 Position: Candidate							
SEVERITY (S): Degree of harm which may be caused (including numbers affected) 1 Minor Injury 2 Major Injury 3 Fatality LIKELIHOOD (L): Probability that event will occur 1 Remote 2 Possible 3 Likely							RISK RATING (RR): Severity x Likelihood 1-2 Low 3-5 Medium 6-9 High	
Item No:	Activity:	Hazard	Persons at Risk	Existing Controls (Mitigation)	S 1-3	L 1-3	RR	Are the Risks Controlled?
1	Soldering	Burn/ fire/ damage to property/ damage to person	Self	Handle soldering equipment with care Use wet rag to cool hot pipework Water fire extinguisher	2	1	2	Yes
2	Electrical wiring	Death Shock	Self	Carry out safe isolation procedure under supervised conditions and ensure appliance is locked off	3	1	3	Yes
3	Spilt water	Slipping	Self Others	Keep working area clean and tidy clear away any spillages to	2	1	2	Yes

Materials list (Cloakroom Installation)

Equipment/Materials	Quantity
Pencil	1
Spirit level	1
Tape measure	1
Dust sheets	1
Pipe slice	1
Pipe bending machine	1
Philips screwdriver	1
Adjustable spanners	2
Pipe	3 metres
Basin wrench	1
Wire Wool	1
Flux/flux brush	1
Heat proof mat	1
Blow torch	1
Waste pipe	2
Boss strap	1
Solder	1
Power drill	1
Flat file	1
Waste Clips	3
Screws	20
15mm clips	10
15mm pipe	6
WHB	1
WC	1
Taps and waste	1
Clean cloths	2
15mm End feed elbow	2
15mm End feed tee	1
22mm End feed elbow	5
15mm End feed tee	1
15mm Drain off valve	1
22mm x 15 mm reducer	1
PPE	

Evidence to be collected

Practical Observation (PO) Forms

PO Forms should be descriptive and describe how the candidate approached the tasks and clearly describe performance.

Generalisations and confirmation of tasks completed should be avoided and must be based on the candidate's performance.

Strengths and weaknesses should be recorded giving examples of the observed performance.

Task	What went well?	What could be improved?
Interpreting symptoms and preparation • clear decisions based on symptoms • symptoms fully understood • selection of correct equipment • safe procedures followed • risks assessed • secure isolation performed	After prompting Ian became aware of the need for the self-isolation procedure and where it fitted into the fault-finding process and could verbally explain the stages involved to ensure a circuit is safe to work on. Ian had no difficulty to identify the correct circuits and was very confident around the consumer unit and its circuits. Ian correctly identified the test instruments to be used in the fault diagnosis of each circuit, demonstrating sound knowledge and understanding.	Secure isolation was not carried out because of an oversight by the tutor, which will be rectified going forward.
Fault diagnosis • use of instruments and connections • correct methods applied • clear judgements made based on data • logical sequence followed	Ian used the correct test methods and demonstrated a confidence and competency with the test instruments nulling the test leads and selecting the appropriate settings. Ian followed the logical sequence to identify the faults and showed sound judgement when interpreting the readings form the tests to make the correct diagnosis.	Ian struggled to find the fault for OA10 and got a little frustrated because he did not fully understand what was required. It is quite a tricky fault and can be a little misleading in how it is presented, nevertheless with some more experience such a challenge would be more readily understood by Ian.
Rectification • Consideration of factors • Suitable plan of action • Equipment identified correctly	Ian confidently explained factors involved in the rectification process and he answered confidently when questioned on how to identify where the fault was located on a circuit. He explained well what materials would be required to rectify the circuits correctly and the testing necessary before reenergising the circuit.	Ian was a little nervous at times and he just needs to be a little more confident in his ability to answer questions and provide a little more detail on the written report.

Evidence to be collected

Photographic and video evidence

What must be produced for marking that marks will be awarded for:

- Photographs of the installation process to include:
  - A photograph of the whole installation area every 2 hours which will show how the installation progressed over the time period, detail of the standard of workmanship and state of the general work area.
  - On completion of the work if the time taken extended beyond the allowed time.
  - A close-up photo of the connected distribution board
  - Notes: Photographs should not feature the candidate and should focus on the produced work. Each photo of the work area should contain a notice indicating the candidate's name and the time each photo was take, e.g., 2 hours, 4 hours.
- Completed Electrical Installation Certificate, together with a Schedule of Inspections, and a Schedule of Test Results, accompanied by a copy of the Guidance for recipients.

Evidence to be collected

Photographic

The types of photographs to collate are included within the assessor pack

Video

Video evidence may be required to capture some aspects of the practical activities. Assessors must refer to the assessor pack guidance. Videos should be no longer that stipulated.

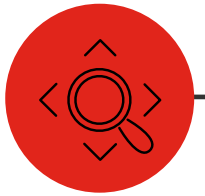
Installation
Photographic evidence which shows:

- Tolerances have been met for the measurement of pipework. Photos may show any excess/ waste materials caused by inaccurate measurements
- Finished installation showing finished pipework and component positioning which demonstrates the aesthetics of the completed installation. Visible signs of pipework damage that are not straight or horizontal/vertical and bends that are not properly formed. None of which stops the system operating correctly.
- Use of tools (bending and cutting equipment) and piping skills. Photos may show pipework cut offs.
- Results of tool usage. Photos may show tooling marks
- Soldering/soldered fittings to show that heat mats have been used and no burn/scorch marks to the wall/or burn marks to the wall to support the assessors making of the jointing process
- Use/type of clips. Photos may show clips that are not equally spaced or installed in line.

How to mark the evidence

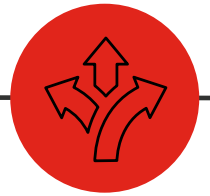
Marking of each Assessment Theme

Step 1



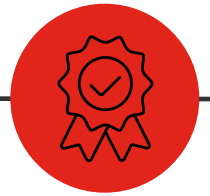
Identify
the evidence within the assignment that supports the assessment theme

Step 2



Select
the Band using the band descriptors

Step 3



Award
mark within the band that is supported by the evidence

Step 4

Justify
the awarding of marks

Assessment theme – Health & Safety marking grid

Marking grid

There is a marking grid for each assessment theme that must be assessed as part of this occupational specialism assessment.

Assessment theme - Health and Safety

Note: where there is insufficient evidence to award a mark, a zero mark may be given	Band 1 descriptor	Band 2 descriptor	Band 3 descriptor	Total marks per sub assessment theme	Total marks per assessment theme
Indicative content	**Typical knowledge, understanding and skills:** • Completion of a comprehensive assessment of risk and risk management. • Identification of main hazards which include major danger of death or major injury hazards. • Analysis of the risk to produce appropriate mitigation against these hazards for the planned task • Probability of each of the hazards occurring. • Identification of minor injury or delay hazards and provide appropriate mitigation for such risks. • Correctly prepare tools, PPE and materials lists for the proposed installation. • Work area to be kept tidy throughout the tasks. • Wearing the correct PPE at all time, as identified in their risk assessment and/ or materials list. Correct PPE must be worn at all times and as designated in their risk assessment (If unsafe working occurs the assessment is to be stopped immediately).				

Assessment theme identified focus

Indicative content

Marking Grid

Marks per band		
1-3	4-6	7-9
Risk assessment is complete and covers the key risk/hazard factors. Risk mitigation methods are limited. Likelihood against probability has been attempted but lacks reasoning. Health and safety is followed during preparation and throughout all tasks so that all work is completed safely but when working some low-risk hazards were missed.	Risk assessment is complete and covers a good range of risk/hazard factors. Risk mitigation methods have been identified for some of the potential risks/hazards, but not all. Consideration is given to potential for harm and probability factors. Health and safety is followed during preparation and throughout tasks and all work completed safely.	Risk assessment is complete, detailed and clearly identifies all the associated risk/hazard factors. Risk mitigation methods are detailed and have been clearly identified for all potential risks/hazards. Potential for harm and probability factors have been identified throughout. Health and safety is followed during preparation and throughout tasks and all work completed safely. Risks and hazards that occur during the tasks are correctly mitigated against as they are arise.

Guidance for markers

The following evidence from Task 1, Task 2 and Task 3 should be used to assess performance against this assessment theme.

Task 1
Risk Assessment

Task 2
Assessor observation

- Installation of components
- Decommissioning
- Safe isolation

Task 3

Assessor observation

- Fault diagnosis
- Repair and rectify fault

Candidate Record Form (CRF)

	Band 1			Band 2			Band 3		
	1	2	3	4	5	6	7	8	9
Band	**Band justification** The candidate has demonstrated that they meet the requirements of the lowest marking band: Document are brief but correct in process but with minor inaccuracies in technical knowledge and sequencing. No reasoning provided to justify choices made. Key materials, quantities and PPE required to meet the brief have been identified with some consideration given to the aesthetics of the finished installation. Therefore the mark to be awarded sits within the lower marking band.								
Mark	**Mark justification** The candidate demonstrates a good understanding of the sequencing of activities in relation to the given tasks, marking out tasks, collecting materials and installing components before clipping out. The methods given follow the logical stages of the installation, cutting and bending before soldering and pressure testing. The method statements identify all the key steps, the steps are brief but accurate, however no reasoning or justification has been given to support the methods given. The candidate shows good knowledge and understanding of the different resources required to carry out the tasks and meet the requirements of the assignment brief. The candidate has selected the minimum materials and equipment required to allow for a successful installation in line with the assignment brief. The candidate has identified quantities that are accurate and relevant to the tasks. The candidate demonstrates good understanding of health and safety and listed the PPE required to carry out the tasks safely, as well as including heat proof mats and dust sheets which demonstrate consideration to the customer property. Due to the reasons outlined here – the response has been determined to be in the middle marking band and a mark of 3 has been awarded.								

Marking of each Assessment Theme – Health & Safety

Task 1: Risk Assessment

The candidate demonstrates a thorough knowledge and understanding of the different types of risk and hazards associated with heating activities. The candidate has identified all hazards and associated risks for each of the tasks.

The candidate demonstrates excellent understanding of the mitigations that can be used to minimise the identified risks and hazards, and has identified and provided thorough detail for the identified control/s.

The probability of each of the hazards/ risks occurring has been accurately identified for each of the hazards.

Risk assessment

Activity: Installation of pipework Location: Centre A	Date: 31/01/21 Position: Candidate							
SEVERITY (S): Degree of harm which may be caused (including numbers affected) 1 Minor Injury 2 Major Injury 3 Fatality LIKELIHOOD (L): Probability that event will occur 1 Remote 2 Possible 3 Likely					RISK RATING (RR): Severity x Likelihood 1-2 Low 3-5 Medium 6-9 High			
Item No:	**Activity:**	**Hazard**	**Persons at Risk**	**Existing Controls (Mitigation)**	**S 1-3**	**L 1-3**	**RR**	**Are the Risks Controlled?**
1	Soldering	Burn/ fire/ damage to property/ damage to person	Self	Handle soldering equipment with care Use wet rag to cool hot pipework Water fire extinguisher	2	1	2	Yes
2	Electrical wiring	Death Shock	Self	Carry out safe isolation procedure under supervised conditions and ensure appliance is locked off	3	1	3	Yes
3	Spilt water	Slipping	Self Others	Keep working area clean and tidy clear away any spillages to	2	1	2	Yes

Marking of each Assessment Theme – Health & Safety

Task 2: Safe isolation – Practical Observation Form

Candidate demonstrated an excellent knowledge and understanding of the safe isolation process and was able to identify all steps and carried the process out confidently in the correct sequence.

Task	Notes Detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
Safe isolation	• The candidate was confident in describing the industry safe isolation procedure, and how they planned to proceed with the task and described a clear logical sequence giving reasons to the process that would eliminate any risk of injury. • Candidate correctly selected all the equipment required, including voltage indicator, lock off kit, correct signage. • The candidate correctly checked the testing equipment and confirmed operation before continuing with tests to prove supply was DEAD. The candidate could clearly articulate the purpose of each step in ensuring the electrical supply was correctly isolated. Candidate correctly identified signage and placed notices to advise the system was isolated and tested.

Assessment theme – Health and safety

Band 3 descriptor
9-12
Risk mitigation methods are detailed and have been clearly identified for all potential risks. Potential for harm and probability factors have been identified throughout. Health and safety is followed during preparation and throughout tasks and all work completed safely. Risks and hazards that occur during the tasks are correctly mitigated against as they arise.

	Band 1				Band 2				Band 3			
	1	2	3	4	5	6	7	8	9	10	11	12
Band	**Band justification** The candidate has demonstrated that they have exceeded the requirements of the middle marking band: Risk assessment is detailed and clearly identifies all of the associated risk factors. Risk mitigation methods are detailed and have been clearly identified for all potential risks. Potential for harm and probability factors have been identified throughout. Health and safety is followed during preparation and throughout tasks and all work completed safely. Risks and hazards that occur during the tasks are correctly mitigated against as they arise. Therefore the mark to be awarded sits within the upper marking band.											
Mark	**Mark justification** The candidate demonstrates a thorough knowledge and understanding of the different types of risk and hazards associated with heating activities. The candidate has identified all hazards and associated risks for each of the tasks. The candidate demonstrates excellent understanding of the mitigations that can be used to minimise the identified risks and hazards, and has identified and provided thorough detail for the identified control/s. The probability of each of the hazards/risks occurring has been accurately identified for each hazard. Due to reasons outlines here – the response has been determined to be at the upper end of the highest marking band and a mark of 11 has been awarded.											

Marking of each Assessment Theme – Health & Safety

Task 1: Risk Assessment

The candidate demonstrates a good knowledge and understanding of the different types of risk and hazards associated with heating activities. The candidate has identified the major hazards and associated risks for each of the tasks.

The candidate demonstrates some understanding of the mitigations that can be used to minimise the identified risks and hazards and has attempted to identify controls, although these are somewhat brief the candidate does demonstrate some understanding by making links to the correct use of PPE, and use of wet rag to cool hot pipework.

The probability of each of the hazards/ risks occurring has been attempted and mostly accurate and realistic.

Risk assessment

Activity: Installation of pipework **Location: Centre A**				**Date: 31/01/21** **Position: Candidate**				
SEVERITY (S): Degree of harm which may be caused (including numbers affected) **1 Minor Injury 2 Major Injury 3 Fatality** **LIKELIHOOD (L): Probability that event will occur** **1 Remote 2 Possible 3 Likely**					**RISK RATING (RR): Severity x Likelihood** **1-2 Low** **3-5 Medium** **6-9 High**			
Item No:	**Activity:**	**Hazard**	**Persons at Risk**	**Existing Controls (Mitigation)**	**S 1-3**	**L 1-3**	**RR**	**Are the Risks Controlled?**
1	Soldering	Burn/ fire/ damage to property/ damage to person	Self	Handle soldering equipment with care Use wet rag to cool hot pipework Water fire extinguisher	2	1	2	Yes
2	Electrical wiring	Death Shock	Self	Carry out safe isolation procedure under supervised conditions and ensure appliance is locked off	3	1	3	Yes
3	Spilt water	Slipping	Self Others	Keep working area clean and tidy clear away any spillages to	2	1	2	Yes

Marking of each Assessment Theme – Health & Safety

Task 2: Safe isolation – Practical Observation Form

Candidate carried out all necessary steps in the safe isolation process. The safe isolation process was correct in method.

Task	Notes Detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.
Safe isolation	• Candidate took some time starting the task and although was correct in performing the process some initial prompting was required to ensure they were aware of the time. It was clear there was a lack of awareness from the candidate about managing their time effectively throughout the process. • Candidate correctly sourced all the equipment needed and gained permission to proceed from the assessor. • The candidate correctly checked the testing equipment and confirmed operation and continued to isolate supply correctly. • Tests to prove supply was DEAD had been carried out with accuracy and confirmed the installation was safe.

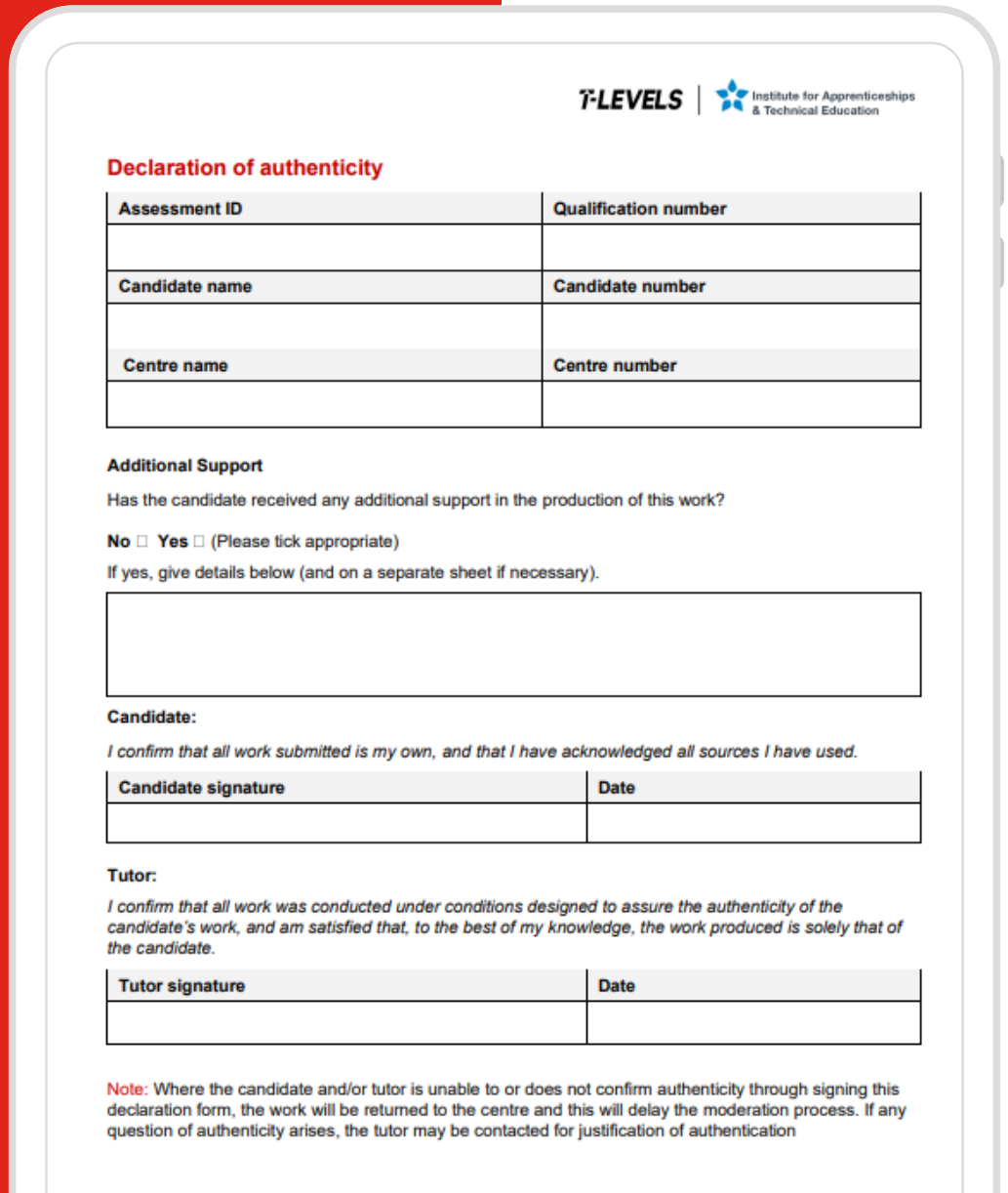
Assessment theme – Health and safety

Band 2 descriptor
5-8
Risk assessment is complete and covers a good range of risk factors. Risk mitigation methods identified for some of the potential risks, but not all. Consideration given to potential for harm and probability factors. Health and safety is followed during preparation and throughout tasks and all work completed safely.

	Band 1				Band 2				Band 3			
	1	2	3	4	5	6	7	8	9	10	11	12
Band	**Band justification** The candidate has demonstrated that they have exceeded the requirements of the lowest marking band: Risk assessment is complete and covers a good range of risk factors. Risk mitigation methods have been identified for some of the potential risks, but not all. Consideration is given to potential risks, but not all. Health and safety is followed during preparation and throughout tasks and all work completed safely. Therefore the mark to be awarded sits within the middle marking band.											
Mark	**Mark justification** The candidate demonstrates a good knowledge and understanding of the different types of risk and hazards associated with heating activities. The candidate has identified the major hazards and associated risks for each of the tasks. The candidate demonstrates some understanding of the mitigations that can be used to minimise the identified risks and hazards and has attempted to identify controls, although these are somewhat brief the candidate does demonstrate some understanding by making links to the correct use of PPE, and use of wet rag to cool hot pipework. The probability of each of the hazards/risks occurring has been attempted and mostly accurate and realistic. Due to reasons outlines here – the response has been determined to be at the upper end of the middle marking band and a mark of 7 has been awarded.											

Declarations of Authenticity

Declarations of Authenticity are required and must be signed by the candidate and tutor



T-LEVELS | Institute for Apprenticeships & Technical Education

Declaration of authenticity

Assessment ID	Qualification number
Candidate name	**Candidate number**
Centre name	**Centre number**

Additional Support

Has the candidate received any additional support in the production of this work?

No ☐ **Yes** ☐ (Please tick appropriate)

If yes, give details below (and on a separate sheet if necessary).

Candidate:

I confirm that all work submitted is my own, and that I have acknowledged all sources I have used.

Candidate signature	Date

Tutor:

I confirm that all work was conducted under conditions designed to assure the authenticity of the candidate's work, and am satisfied that, to the best of my knowledge, the work produced is solely that of the candidate.

Tutor signature	Date

Note: Where the candidate and/or tutor is unable to or does not confirm authenticity through signing this declaration form, the work will be returned to the centre and this will delay the moderation process. If any question of authenticity arises, the tutor may be contacted for justification of authentication