

**T Level Technical Qualification in  
Building Services Engineering for  
Construction**

**8710-356 Plumbing Engineering**

**Grade Standard Exemplification Material**

**Distinction - Summer 2023**

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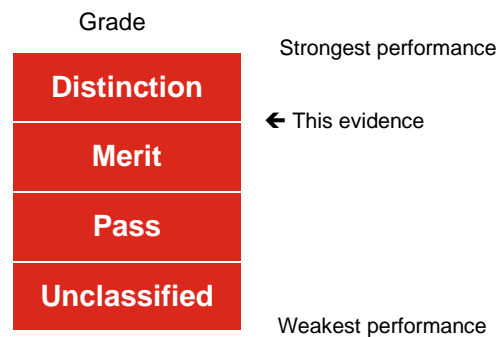
# Introduction

## Summer 2023 Results

This document is aimed at providers and learners to help understand the standard that was required in the summer 2023 assessment series to achieve a distinction grade for the 8710-356 Plumbing Engineering Occupational Specialism (OS).

The aim of these materials is to provide examples of knowledge, skills and understanding that attested to distinction competence in summer 2023. It is important to note that in live assessments a candidate's performance is very likely to exhibit a spikey profile and standard of performance will vary across tasks.

The Occupational Specialism is graded Distinction, Merit, Pass or Unclassified.



The distinction grade boundary is based on a synoptic mark across all tasks. The materials in this Grade SEM are separated into two sections as described below. Materials are presented against a number of tasks from the assignment.

## Task

This section details the tasks that the candidate has been asked to carry out. What needs to be submitted for marking and any additional evidence required including any photograph/video evidence. Candidate evidence that was or was not included in this Grade SEM has also been identified within this section.

In this Grade SEM there is candidate evidence from:

- Task 1 - Planning the installation
- Task 2 - Installation, Commission and Decommission
- Task 3 - Carry out maintenance

## **Candidate evidence**

This section includes exemplars of candidate work, photographs of the work in production (or completed) and practical observation records of the assessment completed by provider assessors. This was evidence that was captured as part of the assessment and then internally marked by the provider assessor.

The Occupation Specialism brief and tasks can be downloaded from [here](#).

## **Important things to note:**

- We discussed the approach to standard setting/maintaining with Ofqual and the other awarding organisations before awarding this year. We have agreed to take account of the newness of qualifications in how we award this year to recognise that students and teachers are less familiar with the assessments (Vocational and technical qualifications grading in 2023 – Ofqual blog), whilst also recognising the standards required for these qualifications.
- The evidence presented, as a whole, was sufficient to achieve the distinction grade. However, performance across the tasks may vary (i.e. some tasks completed to a higher/lower standard than distinction grade).

## Grade descriptor

**To achieve a distinction, a candidate will be able to:**

Demonstrate an exemplary performance that fully meets the requirement of the brief and is able to enter the industry to begin to work in the occupational area.

Demonstrate exemplary technical skills in cutting, bending, fixing pipework and installing components that is in line with industry standards.

Demonstrate relevant and comprehensive knowledge and understanding of plumbing principles and processes through the tasks completed.

Work safely and make informed and appropriate use of tools, materials and equipment within the plumbing environments that they are working in.

Competently and independently interpret information and apply the technical skills to practical tasks and procedures to an exemplary standard as recognised by industry, producing an excellent quality of work that meets acceptable tolerances, regulations and standards.

Confidently attempt some complex tasks and the level of performance meets an exemplary level.

Identify causes and diagnose plumbing faults and have a thorough understanding and the skills to be able to repair and rectify them.

Consistently use accurate industry terminology in both written and verbal contexts.

## Task 1 - Planning the installation

<b>Assessment number (eg 1234-033)</b>	8710-356
<b>Assessment title</b>	Plumbing Engineering Occupational Specialism

<b>Candidate name</b>	<first name> <surname>
<b>City &amp; Guilds candidate No.</b>	ABC1234

<b>Provider name</b>	<provider name>
<b>City &amp; Guilds provider No.</b>	999999a

<b>Task(s)</b>	1
<b>Evidence title / description</b>	Materials list Method statement Risk assessment Installation diagram
<b>Date submitted by candidate</b>	DD/MM/YY

# Task

## Task 1 – Planning the installation

### Assessment themes:

- Health and safety
- Design and planning
  - Documents
  - Drawings and diagrams
- Systems and components
  - Installation of systems and components
  - Decommissioning systems and components

The purpose of this task is for you to demonstrate that you can correctly plan the installation, produce a detailed material list, complete a detailed method statement, assess the risks involved in the installation activity and produce an accurate installation diagram showing the pipework layout, pipe clips and components.

### **a) Plan the installation of the toilet facilities and the macerator following the client brief.**

You should produce the following:

- Materials list.
- Method statement planning your 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 are provided.

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

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

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

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

You must measure and mark out your work area as detailed in your diagram.

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

If your plan is not fit for purpose your tutor/assessor will intervene and provide necessary feedback and corrections to the plans prior to you carrying out the installation. However, this will be commented on in the marking documentation and reflected in marks awarded.

**Conditions of assessment:**

- The time allocated for this task is **5 hours**.
- You must carry out the task on your own, under controlled conditions.

**What must be produced for marking:**

- Risk assessment.
- Method statement with justifications.
- Installation diagram with pipework layout, pipe clips and associated components.
- Materials list.

**Additional evidence of your performance that must be captured for marking:**

- Tutor/assessor observation of measurements and marking out of space allocation/ work area checked against scale drawing.
- Practical Observation form completed by your tutor/assessor, to include how well you were able to accurately measure out the work area to ensure installation was accurate to plan using a datum line (soil stack) and how accurately the recording of dimensions was completed.
- Photographs taken by your tutor/assessor at various stages of the task.



# Candidate evidence

## Completed materials list

Equipment/Materials	Quantity
15mm Copper Pipe	2 lengths
15mm Copper Elbow	8
15mm Copper Tee	6
15mm Copper Coupling	2
15mm Isolation valves	6
TMV (Thermostatic Mixing Valve)	1
Spirit Level	1
Boat Level	1
Basins	2
Toilets	2
Macerator	1
32mm Waste pipe	2 lengths
40mm Waste pipe	2 lengths
32mm Plastic 45	2 Lengths
Adjustable Spanner	1
Tap Spanner	1
Drill	1
screws	15
15mm clips	15
Drain off valves	2
olives	18
Grips	1
Pipe bender	1
Guide	1
ruler	1
pencil	1
marker	1
Tape measure	1
Silicone spray	1
Strap on boss	1
40mm rubber adaptor	2
Soil stack	1
110mm soil stack clip	1
54mm drill bit	1
Hi visibility jacket	1
Steel toe cap boots	1
Blow torch	1
Flux	1

Soldier	1
Magnetic Level	1
Unswitched fused spur	1
Pipe slice	1

## Completed method statement

To begin the project, I would first review the client's requirements before creating a plan that includes pipelines, appliances, and waste pipes to provide an overview of the project's layout. I would then mark the walls where my clips, appliances, and waste pipes would go to visualize the project's appearance.

I would have Personal Protective Equipment (PPE), which includes gloves, goggles, steel-toed boots, a high-visibility jacket, and overalls. My aim is to reduce the likelihood of injury and guarantee my safety while I am on the job.

Afterward, I would place signs in the area to inform others that work is in progress and that entering without personal protective equipment is hazardous. Dust sheets and tarps would also be placed down to ensure my workspace stays tidy. I would install a clip every 600mm to support the pipework, maintain neatness, and facilitate the pipeline layout. Following that, I would install the basins, which would be positioned at a height of 750mm to comply with the Department for Education's school output specifications for primary schools.

Once the basins are in place, I will get a level to make sure they are both on well and I would double check the heights, so they look good and the spill over level is at 750mm. I would secure the two toilets to the ground and attach a macerator to the toilet on the left, making sure it is on properly so there are no leaks. Prior to wiring the macerator, I would ensure safe isolation and test for electricity to avoid electrocution.

I will then use an elbow out of the macerator to run the waste pipe up the wall and down at an adequate fall into the stap on boss that I would've drilled into the stack. I will clip the waste pipe along the wall to keep it neat and will use 45's to offset out to the stack so the pipe stays neat throughout. I will then dismantle it once it looks good and solvent weld it all together, so it doesn't leak.

After that, I would attach traps to the basins, install the waste pipe with an adequate fall and kick the waste pipe into the wall so it can go into clips. I would leave enough space off the wall so I can run my cold pipe behind it without it touching the waste pipe and altogether take up less space and have a good-looking system. I will then solvent weld the waste pipe to prevent leaks. Next, I would follow the pipelines and clips to install sections of the cold water. I would connect the mains to the left cold tap and then connect it to the right tap, ensuring the hot pipe sits above the cold pipe and has 100mm distance centre to centre. Next, I will be connecting the mains to the toilets and ensuring isolation valves are on all appliances. They would be in accessible locations so it's easy to shut on and off if needed.

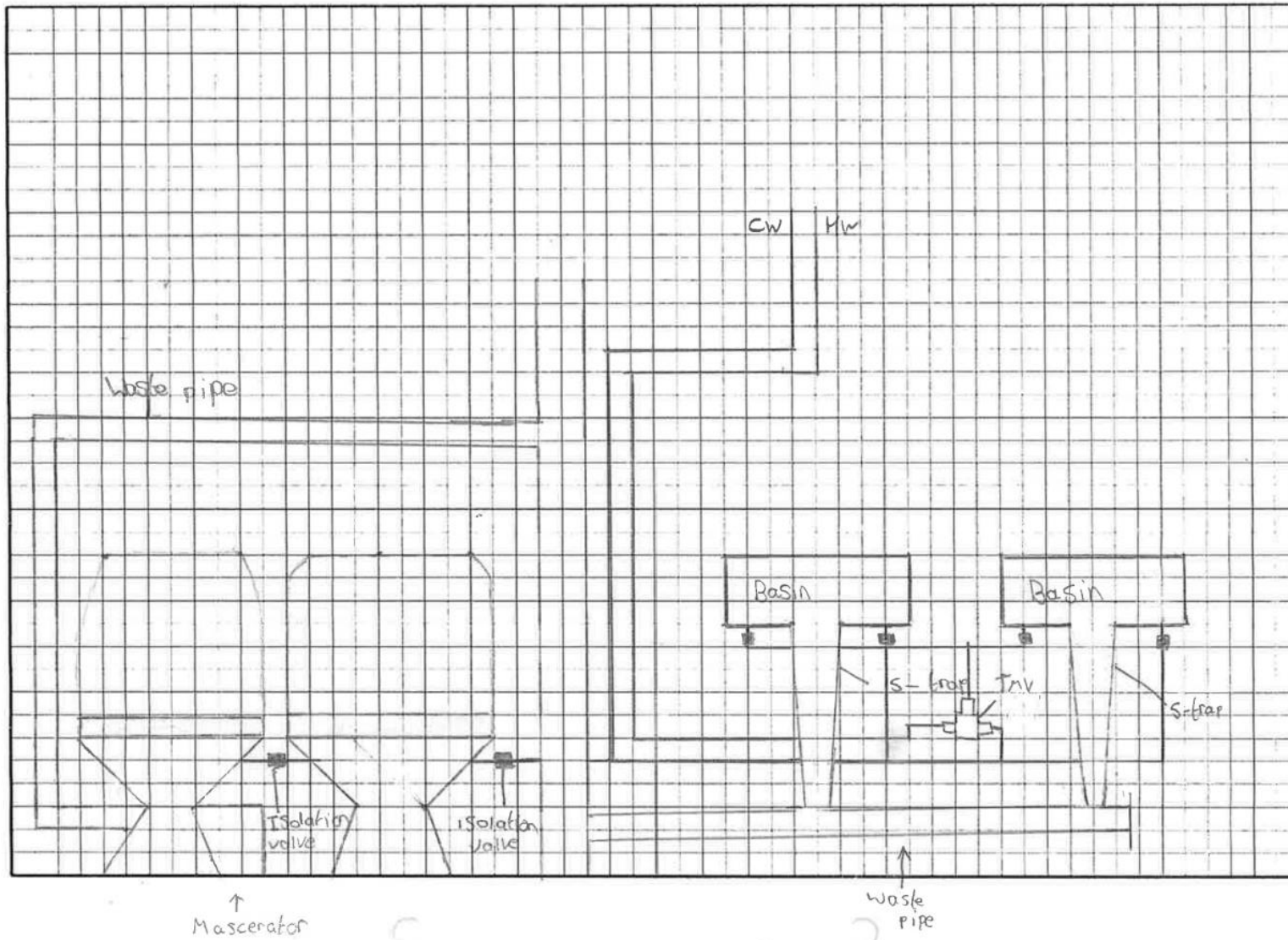
Finally, I would install a thermostatic mixing valve (TMV) close to the basins to reduce the chances of dead legs and prevent the blended water from cooling down as it travels through the pipes. The TMV will sit in the middle of the 2 basins so it's easy to connect blended water to the hot taps and it allows it to look aesthetically pleasing. A pipe will come from the top of the TMV, and a tee will be on the top to run the blended water to the taps. I will do a Passover the cold pipe and then an elbow up into the tap, which will have an isolation screwed into the basin as a tap connector.

The system will then be tested and filled with pressure to make sure all fittings are soldered; waste pipe can hold water and system runs smoothly.

## Completed risk assessment

Activity: Installation of Plumbing system Location: ---		Date: DD/MM/YY Position: Student					
<b>SEVERITY (S):</b> Degree of harm which may be caused (including numbers affected) 1 Minor Injury    2 Major Injury    3 Fatality  <b>LIKELIHOOD (L):</b> Probability that event will occur 1 Remote            2 Possible            3 Likely					<b>RISK RATING (RR):</b> 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
1	Soldering	Burning myself, others or any objects like fittings or walls.	Myself and others	Using heat mats to reduce burns, safe PPE that includes goggles, gloves and steel toe cap boots so I don't injure myself. Have a fire extinguisher near by incase of any outbursts.	2	1	2
2	Running cables	Potentially tripping on loose wires, falling off a ladder or hop up.	Myself and others	Ensure wires are taped down or out of the way with cable guards. When working on heights make sure the ladder is supported well.	2	1	2
3	Macerator installation	Electrocution	Myself and others	The macerator runs on electricity, ensure you isolate the electrical supply before working on it. it will be checked to see if it is correctly installed. It would be PAT tested so it's safe to be used in the primary school.	3	2	4
4	Solvent welding/ harmful substances	breathing issues and skin irritation	Myself	Wear correct PPE including goggles, mask and gloves to reduce any injury as solvent weld is very harmful if it was to get onto your hands or if you were to breathe it in.	1	2	2
5	Manual handling	Cuts or injury from using tools like screwdrivers and saws and lifting equipment and materials.	Myself	Wearing correct PPE including gloves, goggles and steel toe cap boots. Test all tools before use to reduce the chance of any potential accidents. Always use correct lifting techniques and ask for help if something is too heavy	2	2	4
6	Spilt water	Slipping	Myself and others	Making sure my workspace is clean and tidy and get rid of any water spillages to reduce accidents.	2	3	6

# Completed installation diagram



# Practical Observation (PO) Form (Task 1)

8710-36 T Level Technical Qualification in Building Services Engineering for Construction

8710-356 Plumbing Engineering (Summer 2023)

<b>Candidate name</b>	<first name><surname>
<b>City &amp; Guilds candidate No.</b>	ABC1234
<b>Date</b>	DD/MM/YY

<b>Provider name</b>	<provider name>
<b>City &amp; Guilds Provider No.</b>	999999a

## Task 1 assessment themes:

- Health and safety
- Design and planning
  - Documents
  - Drawings and diagrams
- Systems and components
  - Installation of systems and components
  - Decommissioning systems and components

Record observation notes below to inform internal marking and external moderation. Notes must be detailed, accurate and differentiating which use terminology from the mark grid along with specific examples observed. Notes must identify areas of strength and weakness, distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.

Assessment Themes	Assessor observation notes
<b>Health and safety</b> <ul style="list-style-type: none"> <li>• Risk assessment</li> <li>• Risk mitigation</li> <li>• Harm and probability factors</li> <li>• Adherence to health and safety</li> </ul>	The risk assessment has been comprehensively conducted, outlining all potential risk factors and associated details. Mitigation methods have been carefully identified for each identified risk. Potential harm and probability factors have been thoroughly evaluated throughout the assessment. Health and safety protocols have been followed diligently during preparation and task execution to ensure safe completion of the work. Any hazards or risks that emerged during the tasks have been appropriately addressed and mitigated against.
<b>Design and planning (documents)</b> <ul style="list-style-type: none"> <li>• Quality of documentation</li> <li>• Adherence to brief</li> </ul>	The documents exhibit a high level of detail and showcase extensive technical expertise, presented in a well-organised manner. The instructions for task performance are accompanied by clear justifications that align with the assignment brief and task requirements. Furthermore, all necessary materials, quantities, and personal protective equipment (PPE) have been meticulously identified, taking into account the aesthetic aspect of the final installation.

<p><b>Design and planning (drawings and diagrams)</b></p> <ul style="list-style-type: none"> <li>• Accuracy</li> <li>• Positioning</li> </ul>	<p>The installation drawings have been thoroughly executed and are precise. The placement of the components has been verified as accurate, while taking into account both aesthetics and performance factors.</p>
<p><b>Systems and components (installation)</b></p> <ul style="list-style-type: none"> <li>• Marking out</li> <li>• Measurements</li> <li>• Sequencing</li> <li>• Tolerances</li> <li>• Tools</li> <li>• Skills</li> </ul>	<p>The marking out process is executed with exceptional precision, utilising the correct technique. The measurements for pipework and component installation are exact, adhering to the design specifications, and meeting all tolerance requirements without unnecessary wastage or excessive use of joints. The installation progresses in a logical sequence as outlined in the method statement, leading to the timely completion of all tasks. The accuracy of all tolerances is within a 2 mm margin. The utilisation of tools is outstanding, producing a flawless finish. The expertise applied to the pipework is so advanced that minimal material is wasted, and the occurrence of off-cuts is rare.</p>
<p><b>Systems and components (decommissioning)</b></p> <ul style="list-style-type: none"> <li>• Sequencing</li> <li>• Disposal</li> <li>• Waste removal</li> <li>• Techniques and finish</li> </ul>	<p>The decommissioning task was efficiently carried out with a strong emphasis on meeting the specified timeline. The individual demonstrated proficiency in identifying all components deemed unsuitable for further use, and appropriately disposed of them in designated recycling bins. The utmost care was taken during waste removal to safeguard the customer's property. The candidate's remarkable dedication to the task is evident from the use of suitable techniques to restore the work area to a high-quality finish.</p>

**Any other aspects**

Not the fastest of installations, but the candidate worked well to produce excellent work.

Internal assessor signature	Date
<p>X _____</p>	<p>DD/MM/YY</p>

If completing electronically, double click next to the 'X' to add an electronic signature once the record is **finalised**.

## Task 2 - Installation, Commission and Decommission

<b>Assessment number (eg 1234-033)</b>	8710-356
<b>Assessment title</b>	Plumbing Engineering Occupational Specialism

<b>Candidate name</b>	<first name> <surname>
<b>City &amp; Guilds candidate No.</b>	ABC1234

<b>Provider name</b>	<provider name>
<b>City &amp; Guilds provider No.</b>	999999a

<b>Task(s)</b>	2
<b>Evidence title / description</b>	Commissioning record
<b>Date submitted by candidate</b>	DD/MM/YY



# Task

## Task 2 – Installation, Commission and Decommission

### Assessment themes:

- Health and safety
- Systems and components
  - Installation
  - Decommissioning
- Reports and information
- Inspecting and testing of systems and components
- Handover and communication

You will have access to your drawings and plans from Task 1.

Systems must be fully decommissioned, and walls prepared, prior to you beginning installation.

### **a) Install the sanitary appliances and macerator in accordance with your drawing and as agreed by your tutor/assessor.**

Hot and cold pipework should be 100 mm centre unless otherwise stated.

All pipework is to be clipped directly to the wall surface with the pipe brackets to be adequately spaced to manufacturer's instructions.

All pipe bends must be carried out with the correct size pipe bending tool.

Marking out and final measuring of installed components and pipework is to be within +/- 2mm.

The macerator to be installed as per manufacturer's instructions.

Waste pipes installed to the correct fall.

Hot and cold supplies to be installed level and plumb.

WC to be installed as per manufacturer's instructions.

WHB to be installed to recommended height for the setting (600mm) and as per manufacturer's instructions. Hot water must be supplied via a thermostatic mixing valve appropriately set for the location.

No burn, scorch or excessive marking to walls/property.

Finished product should be aesthetically pleasing.

Good housekeeping to be maintained throughout assessment.

**b) Connect the electrical supply to the macerator from a suitably supplied unswitched fused spur connection following the safe isolation procedure.**

You must connect the electrical supply to the macerator from a suitably supplied isolator.

The safe isolation procedure should be followed and directly observed.

All power, interconnecting and control wiring must be in accordance with manufacturer's requirements and meet current UK regulations.

**c) Commission the system and handover to customer**

Once the installation has been completed, you must commission the system and handover to customer.

The system must then be commissioned as per the commissioning document provided, with all the data recorded in full.

Your tutor/assessor must observe you carrying out the commissioning checks detailed in the commissioning document.

You must record all data in full on the commissioning document provided.

Following commissioning and testing you will handover to the customer. The handover should include:

- Demonstration of systems.
- Macerator service requirements.
- Maintenance requirements.

Your tutor/assessor should act as the customer during the handover and will provide feedback on your performance.

#### **d) Decommission the system**

Once your tutor/assessor has checked and verified the system and handover is complete, you must decommission the system.

Decommissioning of the system must include:

- Isolation of the fuel/electricity supply to the system as appropriate.
- Isolate water supply.
- Apply warning notices and signs.
- Drain system to a suitable location.
- Capping of pipework sections as required.
- Make good to building fabric.

#### **Conditions of assessment:**

- The time allocated for this task is **13 hours**.
- You must carry out the task on your own, under controlled conditions.

#### **What must be produced for marking:**

- Commissioning checklist

#### **Additional evidence of your performance that must be captured for marking:**

- Tutor/assessor observations:
  - Use of tools.
  - Installation of components.
  - Measurements of pipework are to within a tolerance of +/- 2mm.
  - Safe isolation process.
  - Commissioning.
  - Handover to client.
  - Decommissioning.
- Photographs taken by your tutor/assessor at various stages of the task.

# Candidate evidence

## Completed commissioning record

Sanitation Commissioning Sheet		
<b>Address</b>	---	
<b>Engineer's Name</b>	<first name><surname>	
<b>Date</b>	DD/MM/YY	
<b>Soundness Test Record pressure and duration</b>	6 bar for 1 hour	
<b>Air Test: AGDS Record pressure and duration</b>	38mm for 3 mins	
<b>Appliance 1:</b> Basin	<b>Flow Rate:</b> Hot – 10L / pm Cold – 8L / pm	<b>Outlet Temperature:</b> Hot – 40° Cold – 16°
<b>Appliance 2:</b> Basin	<b>Flow Rate:</b> Hot – 10L / pm Cold – 9L / pm	<b>Outlet Temperature:</b> Hot – 44° Cold – 18.4°
<b>Appliance 3:</b>	<b>Flow Rate:</b>	<b>Outlet Temperature:</b>
<b>Appliance 4:</b>	<b>Flow Rate:</b>	<b>Outlet Temperature:</b>
<b>Appliance 5:</b>	<b>Flow Rate:</b>	<b>Outlet Temperature:</b>
<b>Check appliances for self-siphonage Y/N</b>	Yes	
<b>Check appliances for induced siphonage Y/N</b>	Yes	
<b>Performance test Satisfactory Y/N</b>	Yes	
<b>Notes:</b> I would have the lever valves partially closed to reduce the flow rate.		

## Practical Observation (PO) Form (Task 2)

8710-36 T Level Technical Qualification in Building Services Engineering for Construction

8710-356 Plumbing Engineering (Summer 2023)

<b>Candidate name</b>	<first name><surname>
<b>City &amp; Guilds candidate No.</b>	ABC1234
<b>Date</b>	DD/MM/YY

<b>Provider name</b>	<provider name>
<b>City &amp; Guilds Provider No.</b>	999999a

### Task 2 assessment themes:

- Health and safety
- Systems and components
  - Installation
  - Decommissioning
- Reports and information
- Inspecting and testing of systems and components
- Handover and communication

Record observation notes below to inform internal marking and external moderation. Notes must be detailed, accurate and differentiating which use terminology from the mark grid along with specific examples observed. Notes must identify areas of strength and weakness, distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.

<b>Assessment theme</b>	<b>Assessor observation notes</b>
<b>Health and safety</b> <ul style="list-style-type: none"><li>• Risk assessment</li><li>• Risk mitigation</li><li>• Harm and probability factors</li><li>• Adherence to health and safety</li></ul>	The risk assessment has been conducted in a comprehensive manner, encompassing an examination of all possible risk factors and their corresponding details. Each identified risk has been meticulously matched with appropriate mitigation methods. Throughout the assessment process, the potential harm and likelihood of occurrence have been carefully evaluated. The implementation of health and safety protocols has been diligently followed during both preparation and execution of the tasks, ensuring the safe completion of the work. Any hazards or risks that arose during the tasks have been promptly acknowledged and effectively mitigated.

<p><b>Systems and components (installation)</b></p> <ul style="list-style-type: none"> <li>• Marking out</li> <li>• Measurements</li> <li>• Sequencing</li> <li>• Tolerances</li> <li>• Tools</li> <li>• Skills</li> </ul>	<p>The marking process is carried out with remarkable precision, employing the appropriate technique. The pipework and component installation measurements are precise, in line with the design specifications, and meet all tolerance requirements without any needless waste or excessive use of joints. The installation proceeds in a logical order as specified in the method statement, resulting in the timely completion of all tasks. The accuracy of all tolerances is within a margin of 2 mm. The use of tools is exceptional, yielding a flawless final result. The expertise applied to the pipework is highly advanced, resulting in minimal material waste and rare occurrence of off-cuts.</p>
<p><b>Systems and components (decommissioning)</b></p> <ul style="list-style-type: none"> <li>• Sequencing</li> <li>• Disposal</li> <li>• Waste removal</li> <li>• Techniques and finish</li> </ul>	<p>The decommissioning process was executed with great efficiency, placing a strong emphasis on adhering to the designated timeline. The person responsible displayed exceptional skill in identifying all components that were deemed unsuitable for future use, ensuring their proper disposal in assigned recycling bins. The utmost care was taken during the removal of waste to ensure the protection of the customer's property. The candidate's remarkable commitment to the task is evidence in their adept utilisation of appropriate techniques to restore the work area to a pristine and superior state.</p>
<p><b>Reports and information</b></p> <ul style="list-style-type: none"> <li>• Quality of documentation</li> <li>• Justifications / reasoning</li> </ul>	<p>The reports/checklists exhibit meticulous attention to detail and precision, consistently employing accurate terminology. They provide clear and well-founded justifications and reasoning for the necessary tasks or actions.</p>
<p><b>Inspecting and testing of systems and components</b></p> <ul style="list-style-type: none"> <li>• Commissioning tests</li> <li>• Commissioning checks</li> <li>• Reference to / follows manufacturer's instructions</li> </ul>	<p>The commissioning tests are successfully conducted with confidence. The commissioning checks are executed accurately in the correct sequence, ensuring a prompt completion. The candidate diligently adheres to the manufacturer's instructions throughout the entire task.</p>
<p><b>Handover and communication</b></p> <ul style="list-style-type: none"> <li>• Customer Care</li> <li>• Demonstration of system</li> <li>• Communication</li> </ul>	<p>The candidate exhibited excellent customer care skills by effectively interacting with customers, adapting to their specific needs, and using appropriate language to ensure clear communication. They demonstrated their ability to check if the customer understood the information provided. The candidate conducted a comprehensive demonstration of the system, covering all its functions and providing detailed information. They proactively confirmed the customer's understanding, ensuring that all aspects were clearly explained. During the discussion, the candidate maintained a clear and direct communication style. They asked relevant questions pertaining to the task at hand, ensuring a productive conversation with the customer.</p>

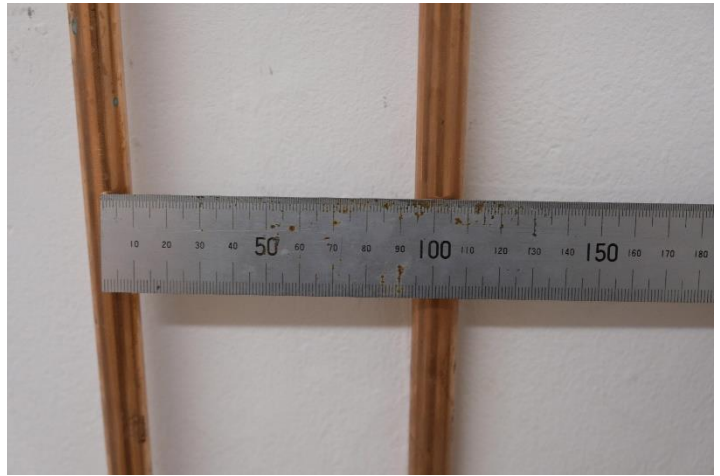
### Any other aspects

The candidate isn't the quickest plumber out there and he needs to think carefully before he does anything, but in the end the result is very good.

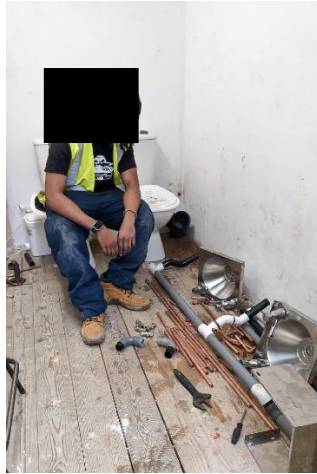
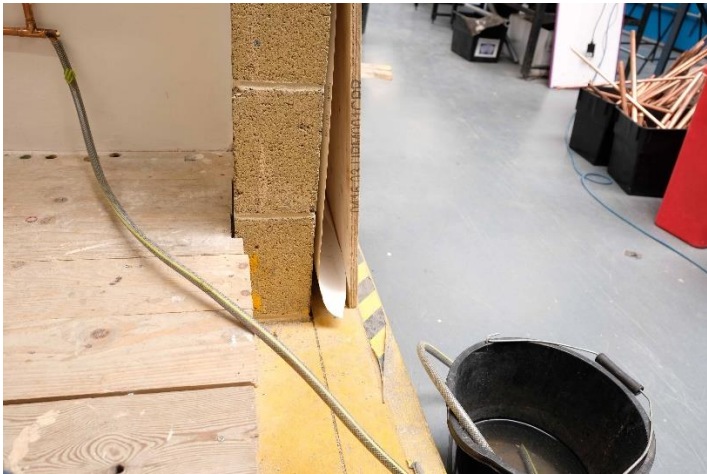
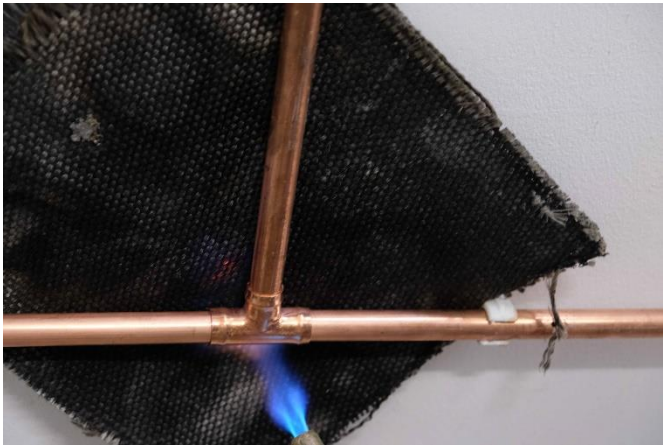
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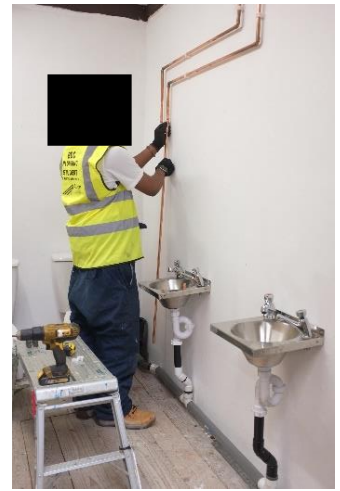
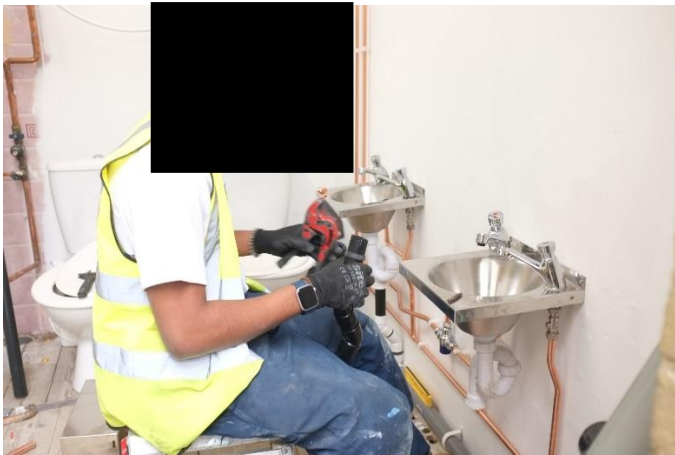
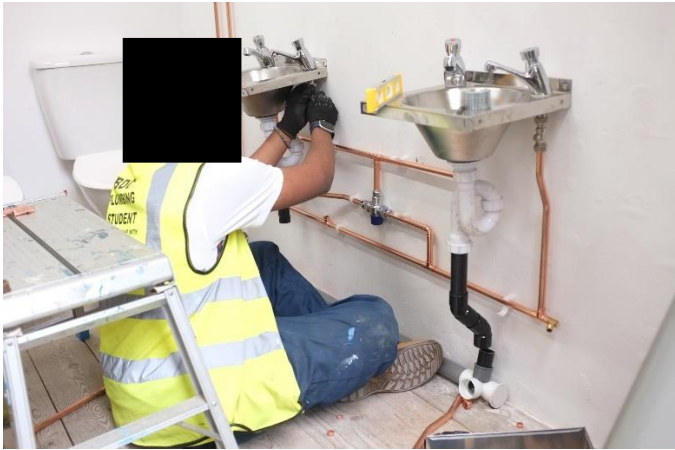
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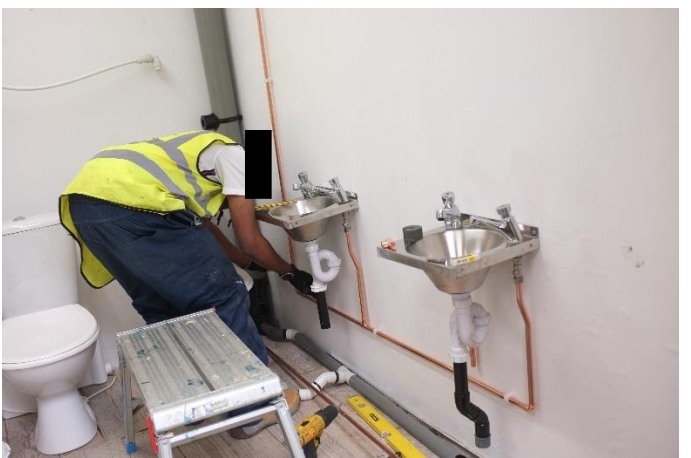
## Photographic evidence











## Task 3 - Carry out maintenance

<b>Assessment number (eg 1234-033)</b>	8710-356
<b>Assessment title</b>	Plumbing Engineering Occupational specialism

<b>Candidate name</b>	<first name> <surname>
<b>City &amp; Guilds candidate No.</b>	ABC1234

<b>Provider name</b>	<provider name>
<b>City &amp; Guilds provider No.</b>	999999a

<b>Task(s)</b>	3
<b>Evidence title / description</b>	Written report of the maintenance activity
<b>Date submitted by candidate</b>	DD/MM/YY

# Task

## Task 3 – Carry out maintenance

### Assessment themes:

- Health and safety
- Reports and information
- Handover and communication
- Working with faults

### a) Discuss fault with customer, investigate and diagnose fault

You must discuss the macerator fault with your tutor/assessor to determine the cause of the fault and suggest appropriate methods for repair. You will be assessed on your ability to ask relevant questions to determine fault and to select a suitable solution.

Your tutor/assessor should act as the customer during the maintenance discussion and record any feedback on the tutor/assessor feedback form.

You should inspect a macerator with faults placed within the installation for you to diagnose and locate.

You should carry out testing to identify **one** fault as given by your tutor/assessor and replace the faulty component. If you do not initially identify the fault component, you are allowed to be prompted by your tutor/assessor but this must be reflected in the marking.

Once you have diagnosed the fault, you should check with your tutor/assessor to ensure this has been done correctly. Should you require additional feedback and guidance this should be reflected in the marking.

Once fault diagnosis is confirmed, you must produce a written report detailing the maintenance activity.

### b) Produce a written report of the maintenance activity to include:

- Details of the fault.
- Method chosen for repair.
- Detailed process of how you will repair the system.

### c) Repair and rectify fault

This task requires you to:

- Isolate and/or drain down the system safely.
- Apply temporary continuity bonding as required.
- Install replacement component as required.
- Refill system and commission.
- Re-commission system in line with manufacturer's instructions.

**Conditions of assessment:**

- The time allocated for this task is **3 hours**.
- You must carry out the task on your own, under controlled conditions.

**What must be produced for marking:**

- A written report of the maintenance activity.

**Additional evidence of your performance that must be captured for marking:**

- Tutor/assessor observations:
  - Discussion with customer.
  - Use of tools.
  - Fault diagnosis.
  - Rectification of fault.
- Photographs taken by your tutor/assessor at various stages of the task.

# Candidate evidence

## Completed written report of the maintenance activity

**Fault:** Not clearing waste

### **Description of fault diagnosis**

The customer has informed me that their mascerator is not flushing correctly. I believe it could be to do with a faulty float switch.

### **Possible solutions**

Changing the switch

Cleaning the mascerator

### **Actions taken to rectify fault**

Safely isolate from the unswitched fused spur. Open the mascerator and change the switch inside so the mascerator can flush down any waste. Then reconnect it to the unswitched fused spur.

# Practical Observation (PO) Form (Task 3)

8710-36 T Level Technical Qualification in Building Services Engineering for Construction

8710-356 Plumbing Engineering (Summer 2023)

<b>Candidate name</b>	<first name><surname>
<b>City &amp; Guilds candidate No.</b>	ABC1234
<b>Date</b>	DD/MM/YY

<b>Provider name</b>	<provider name>
<b>City &amp; Guilds Provider No.</b>	999999a

## Task 3 assessment themes:

- Health and safety
- Reports and information
- Handover and communication
- Working with faults

Record observation notes below to inform internal marking and external moderation. Notes must be detailed, accurate and differentiating which use terminology from the mark grid along with specific examples observed. Notes must identify areas of strength and weakness, distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.

Assessment theme	Assessor observation notes
<b>Health and safety</b> <ul style="list-style-type: none"><li>• Risk assessment</li><li>• Risk mitigation</li><li>• Harm and probability factors</li><li>• Adherence to health and safety</li></ul>	The candidate conducted a thorough evaluation of all potential risks, encompassing a wide range of factors. Clear and defined strategies were devised to address and minimise these risks. Every conceivable aspect, including the likelihood and potential severity of harm, was meticulously scrutinised. The candidate adhered strictly to the principles of health and safety during both the preparation and execution of the task, ensuring the implementation of safe work practices. Any risks or hazards that emerged during the task were swiftly identified and effectively mitigated.
<b>Reports and information</b> <ul style="list-style-type: none"><li>• Quality of documentation</li><li>• Justifications / reasoning</li></ul>	The candidate's reports and checklists exemplify a remarkably level of precision and thoroughness, consistently employing precise and accurate terminology. They adeptly articulate a transparent rational and justification for each essential task.



<p><b>Handover and communication</b></p> <ul style="list-style-type: none"> <li>• Customer Care</li> <li>• Demonstration of system</li> <li>• Communication</li> </ul>	<p>The candidate demonstrated exemplary customer care skills by effectively communicating with the customer and ensuring their understanding of the provided information. Throughout the system demonstration, the candidate displayed a remarkable attention to detail and delivered a thorough explanation of all functions and features. Additionally, the candidate took the initiative to confirm that the customer had comprehended the presented information. The conversation with the customer was characterised by clarity, conciseness, and a strong focus on the task at hand, with all questions asked being pertinent and relevant.</p>
<p><b>Working with faults</b></p> <ul style="list-style-type: none"> <li>• Systematically / logically</li> <li>• Knowledge of fault-finding techniques</li> <li>• Reference to / follows manufacturer's instructions</li> <li>• Fault rectification</li> <li>• Efficiency / accuracy</li> <li>• Use of tools</li> </ul>	<p>The candidate exemplified a systematic and logical methodology when it came to identifying faults, showcasing a deep comprehension of the applicable techniques. Their examination and evaluation of the problem were exhaustive and logical, and they meticulously adhered to the manufacturer's guidelines throughout the diagnostic process. The resolution of the issue was carried out with precision and effectiveness, devoid of any mistakes. The candidate's utilisation of tools was exceptional, resulting in a flawless and top-notch outcome achieved right from the initial endeavour.</p>

**Any other aspects**

The candidate is an excellent student who maintains a positive attitude to his work at all times.

Internal assessor signature	Date
<p>X</p> <hr/>	

If completing electronically, double click next to the 'X' to add an electronic signature once the record is **finalised**.

## Photographic evidence



## Get in touch

The City & Guilds Quality team are here to answer any queries you may have regarding your T Level Technical Qualification delivery.

Should you require assistance, please contact us using the details below:

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