

EAL Progression in Building Services Engineering (Level 2)

Practical Project Pack - Sample

Version 1.1 – September 2022



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Version information

Version and publication date	Changes
v1 June 2021	Original document
v1.1 September 2022	Electrical assessment: MI Cable replaced with alternate cable, and minor updates to drawings/task

1. Introduction for assessors

This pack contains the project brief and practical tasks for supporting Planning tasks and the Performing section of the project.

Assessors must provide candidates with the relevant project briefs and planning tasks for the learners chosen trade area at the start of the project assessment.

Learners must adhere to all relevant health and safety rules and procedures at all times.

2. Project guidance, tasks and grading

The following Planning and Evaluation guidance and tasks apply to all trades within this qualification, these must be paired with the relevant trade brief to structure and support assessment.

Learner guidance

This project has three elements: planning, performing, and evaluating.

You have:

- **14 hours** allocated for the planning of all three tasks (planning)
- **40 hours** allocated to carry out the three tasks (performing)
- **6 hours** to evaluate the three tasks in the project (evaluating).

You may not use the time you have been given for each element for another element, i.e. If you complete your planning in 12 hours you may not use the other two hours for either the performing or the evaluating.

You will be required to devise plans for all 3 tasks showing the approach you will take to undertake the work required in the tasks, underpinned by an overall schedule of works.

Once the task has been completed you will be required to evaluate your work.

You must adhere to all relevant health and safety procedures at all times.

Planning task

This will be undertaken in a classroom environment where you will have access to IT equipment and appropriate resources to carry out your research. These materials may include guidance notes, regulations, and manufacturers' instructions/literature.

You will be required to produce the following:

- a resource list including tools, materials and equipment needed to complete each task (refer to the task specifications provided)
- a risk assessment
- a method statement including a schedule of works (with timelines) - your plan must indicate how long you estimate you will take on each task, identifying the key activities/phases of work within each task and how long you expect these to take, any potential dependencies between activities/phases of work, any milestones you wish to achieve – for example the main activities in tasks
- drawings/diagrams (if indicated in the task specification)
- a customer estimate for each task (see the project costs information provided below)
- a set of success criteria that you have set yourself for the performance tasks. Your success criteria can relate to whatever you think is appropriate for the work, for example the quality of the installation/finish, ways of working (e.g. measuring and marking out, drilling, fixing, bending, fabricating, clipping etc.). Think about why you have set the success criteria and how these will support a quality output.

Think about:

**‘What does a good build/installation look like in my trade area?
How can I achieve this?’**

Your learning provider will provide proformas to support your responses to this task.

You must include this information above in your plans.

Project costs task

For this element you are required to produce an estimate for a customer for **each of the tasks within the trade brief provided by your assessor.**

You are self-employed and work alone; your overheads include insurances, van running costs, and admin costs that total £6.25 per working hour, your hourly rate is £25 per hour, and your business operates on a 25% profit margin.

Use the resource list and the timelines from the schedule of works you have produced to produce an estimate for a customer.

This estimate must include:

- an overview of the work to be undertaken
- the overall price to the customer for the task – including how this was determined (please show working)
- the duration of the task
- a resource list with costs

You will complete plans for all 3 tasks within the Practical Project, all 3 must meet the threshold pass mark for the planning element before moving on to the performing element of the Practical Project.

Two copies of each plan are required; one must be submitted to your assessor and one copy kept for use in the performing element of the project.

Performing task

Requirements for the performing element of each Practical Project can be found in the section 3 of this document which contains project briefs for each trade.

Evaluating

Upon completion of the performance element you are required to write **one** evaluation report which reflects **all tasks** undertaken as part of the project. Within this report you must evaluate the approaches taken towards completing the tasks and the quality of the outcomes, comparing the project outcomes with the task requirements and your plan including the success criteria you have previously set.

You will undertake this evaluation in a classroom environment.

When completing your project evaluation you will have access to your planning documentation to support this activity.

Your evaluation must answer the following:

- Did you meet the requirements of your plan?
- Did you meet your success criteria?
- Did you meet the requirements for all tasks?

Also consider as relevant:

- What went well? What were your strengths?
- What did not go well? Did you have any areas of improvement?
- What would you do differently if you were to complete the task(s) again? Would you use a different approach next time?
- How well did you plan? Should you have done more?
- What problems did you encounter? How did you overcome them?
- Did the practical tasks go to plan? (e.g. resources, time)
- If you carried out testing/commissioning what did your results mean?
- What did you learn from the project?

Presentation of work

Written responses are required for the tasks within the planning and evaluation section of the project.

Written responses must be provided as electronic, typed responses. You must ensure that your work is presentable, i.e. use a standard font in a readable size (for example Times New Roman, or equivalent, size 12), use double spacing and include adequate margins.

You must make sure that each piece of work is clearly labelled with your name, centre number, learner number and the assignment reference.

All electronic files must be saved in the following format: SURNAME_FIRST NAME_NAME OF ASSESSMENT_DATE _VERSION NUMBER

Assessor guidance

Planning task

The learner will need to devise a plan for each of the tasks within their chosen trade's project brief.

Learners must complete their planning within a classroom environment monitored by centre staff who have undergone invigilation training. Learners must have access to IT facilities with access to the internet, manufacturers' information, wholesalers' catalogues, HSE guidance notes and any other material that would be available to them as if this project was to be carried out in the workplace.

No set recording forms have been provided for written documentation such as risk assessments or method statements. Centres must provide proformas to learners for the planning element of the project.

Once the learner has completed the planning task a copy of their plan must be submitted to the assessor for assessment purposes and a copy retained by the learner to be used in the performing element of the project. As per the guidance provided to learners, this must be provided as an electronic copy.

To support ongoing assessment, the assessor must mark the planning element and **confirm that a minimum threshold for a pass has been achieved in all 3 task plans before the learner may progress to the performing element of the Practical Project**. This ensures that learners only progress when they have identified sufficient health and safety requirements, as well as the necessary materials and equipment for the tasks.

Only the mark from the highest scoring plan will contribute to the overall project mark.

Assessment decisions and confirmation of next steps must be provided to the learner within one week of completion of the planning element.

In order to support the manageability of the practical tasks, a tools and materials list has been provided as part of the project brief for each trade. **Please note that these lists are for centre-use only and must not be provided to learners** – learners must use their own developed material and equipment list from their planning.

Learners will be required to produce the following:

- a resource list including tools, materials and equipment needed to complete each task (refer to the task specifications provided) **(marking grid reference a)**
- a risk assessment **(marking grid reference b)**
- a method statement including a schedule of works (with timelines) identifying the key activities/phases of work within each task and how long learners expect these to take, any potential dependencies between activities/phases of work, any milestones they wish to achieve – for example the main activities in tasks **(marking grid reference b & d)**

- drawings/diagrams (if indicated in the task specification) **(marking grid reference b)**
- a customer estimate for each task (see the project costs information provided below) **(marking grid reference c)**
- success criteria for each task. This can relate to whatever they think is appropriate for the tasks, for example the quality of the installation, ways of working (e.g. measuring and marking out, drilling, fixing, bending, fabricating, clipping etc.). Learners should be able to justify why they have set the success criteria they have and how they support quality outputs/outcomes. **(marking grid reference e).**

Project cost task

This element of the assessment requires the learner to develop an estimate for the customer **for each of the tasks from the trade brief of their chosen trade**. The project brief for the chosen trade must be provided to the learner before they begin this assessment.

The learner will complete the following task:

You are self-employed and work alone; your overheads include insurances, van running costs, and admin costs that total £6.25 per working hour, your hourly rate is £25 per hour, and your business operates on a 25% profit margin.

Use the resource list and the timelines from the schedule of works you have produced for one of the tasks to produce an estimate for a customer for the chosen task.

This estimate must include:

- an overview of the work to be undertaken
- an overall price for the customer for the task – including how this was determined (please show working)
- the duration of the task
- a resource list with costs.

They have **14 hours** to complete the planning element. If they complete in less time, they cannot use the extra time in the other elements of this project or take time from other elements to add time here.

Performing task

Requirements for the performing element of each Practical Project can be found in the section 3 of this document which contains project briefs for each trade.

They have **40 hours** to complete the performing element. If they complete in less time, they cannot use the extra time in the other elements of this project or take time from other elements to add time here.

Evaluation

Once learners have completed the performing element of the project, they must produce **one** evaluation report which reflects on the whole project and includes all tasks. Within this report learners must evaluate the approaches they took towards completing the tasks and the quality of the outcomes, comparing the results/outcomes of their project with the task requirements and their plan including the success criteria set.

This will be undertaken in a classroom environment under supervision from centre staff, ensuring learners have access to their planning documentation to support their review and evaluation activity.

They will have **6 hours** to complete this element.

Marking and grading

Using the grading grid

For the **planning element** of the project, assessors must use the planning marking grid within each trade brief to award a mark of 1-3 for elements a – e, based on the performance level of the learner. If the learner fails to meet the marking criteria for a particular element a score of 0 must be awarded. Learners will plan the practical element for **all 3 tasks**, in line with marking criteria a - e. However, whilst all task plans will be required to be marked by the assessor, **it will only be the marks from the learners highest scoring task plan that will contribute towards the final assessment mark.**

For the **practical ('performing') element**, assessors must use the project brief and marking grid for the relevant trade to determine the provisional grade achieved, these can be found in the Trade Project Briefs section below.

For the **evaluation element**, assessors must use the evaluation section of the marking grid below to award a mark of 1-3 for elements a and b based on the level of performance demonstrated by the learner. If the learner fails to meet the marking criteria for a particular element a score of 0 must be awarded.

Please note that scaling factors are applied to the planning and evaluating elements of this assessment, these include multiplying the score achieved by the number indicated in the marking grid below. These must be applied once marks have been awarded for each criterion within the relevant elements.

3. Trade project briefs

3.1 Plumbing and heating

3.2 Electrical

3.1 Plumbing and heating assessment brief

A customer is having various works carried out on their property. This includes a single-storey extension on the rear of a detached residential two-storey dwelling and repurposing two existing garden buildings into a garden office and a workshop.

Your firm has been contracted to install a downstairs cloakroom within the extension, incorporating a toilet and wash hand basin, in an adjacent cupboard a new hot water cylinder and the boiler relocated with a radiator fitting in the new cloakroom.

This project has three elements: planning, performing, and evaluating.

You have:

- **14 hours** allocated for the planning of all three tasks (planning)
- **40 hours** allocated to carry out the three tasks (performing)
- **6 hours** to evaluate the three tasks in the project (evaluating).

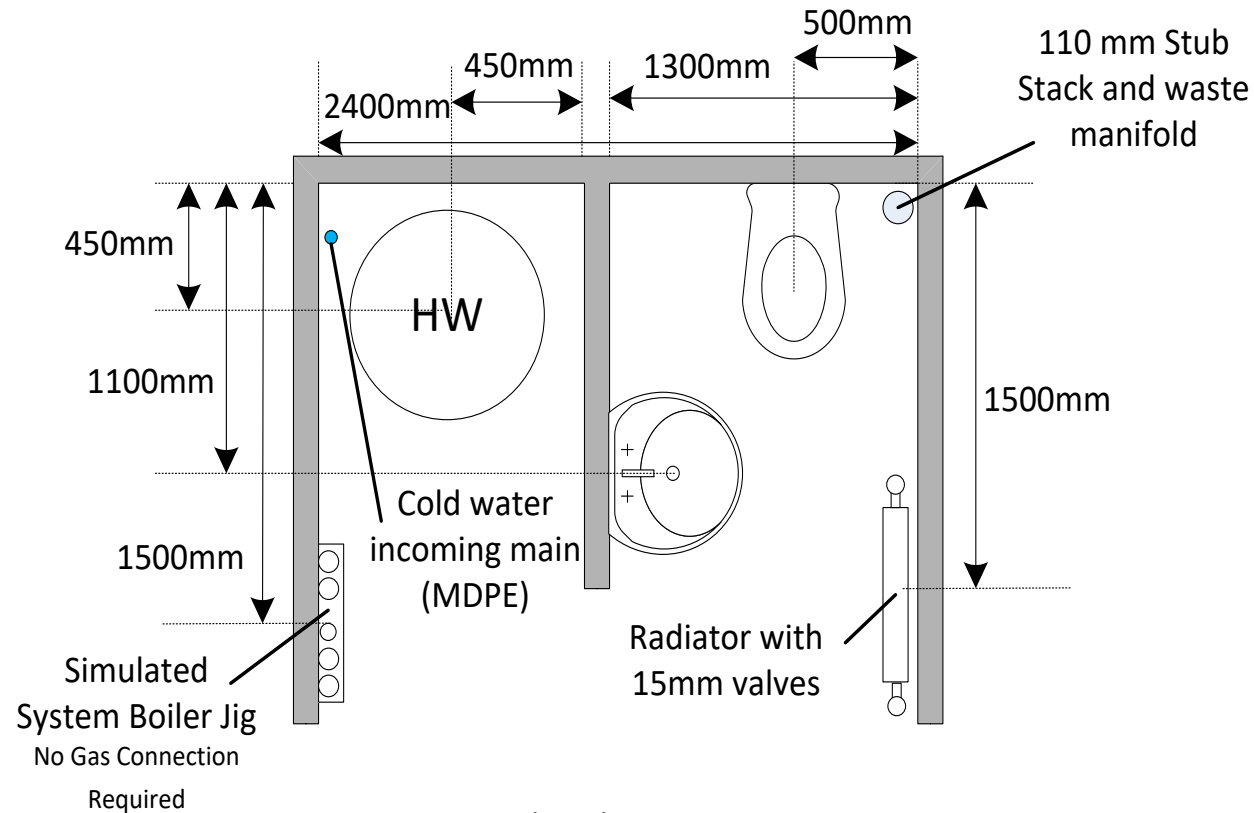
You may not use the time you have been given for each element for another element, i.e. If you complete your planning in 12 hours you may not use the other two hours for either the performing or the evaluating.

You will be required to devise a plan showing the approach you will take to undertake the work required in the performance tasks, underpinned by an overall schedule of works.

Once the installation has been completed you will be required to evaluate your work.

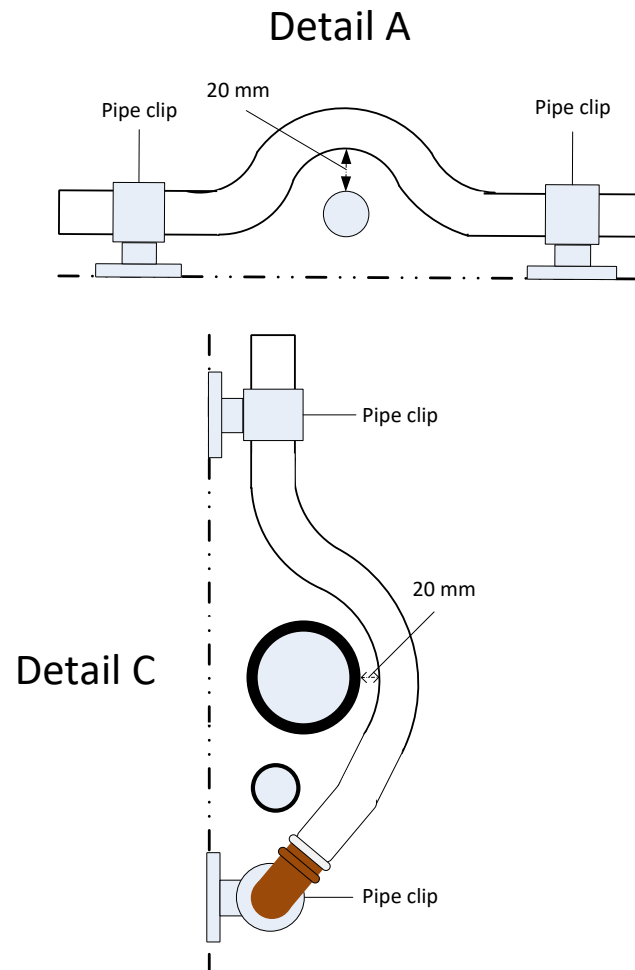
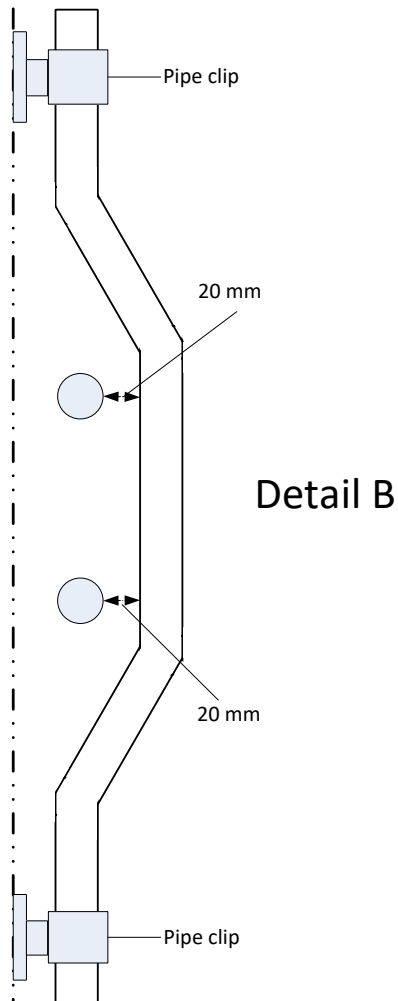
You must adhere to all relevant health and safety rules and procedures at all times.

Overall project plan

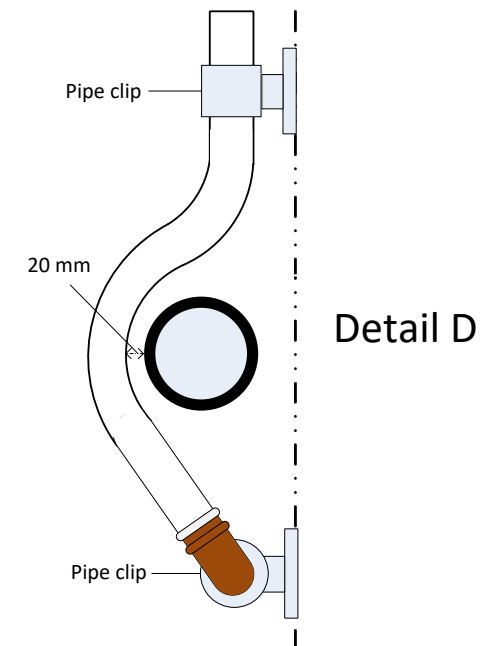


Bay needs to be set out to simulate both a cloakroom and cylinder cupboard

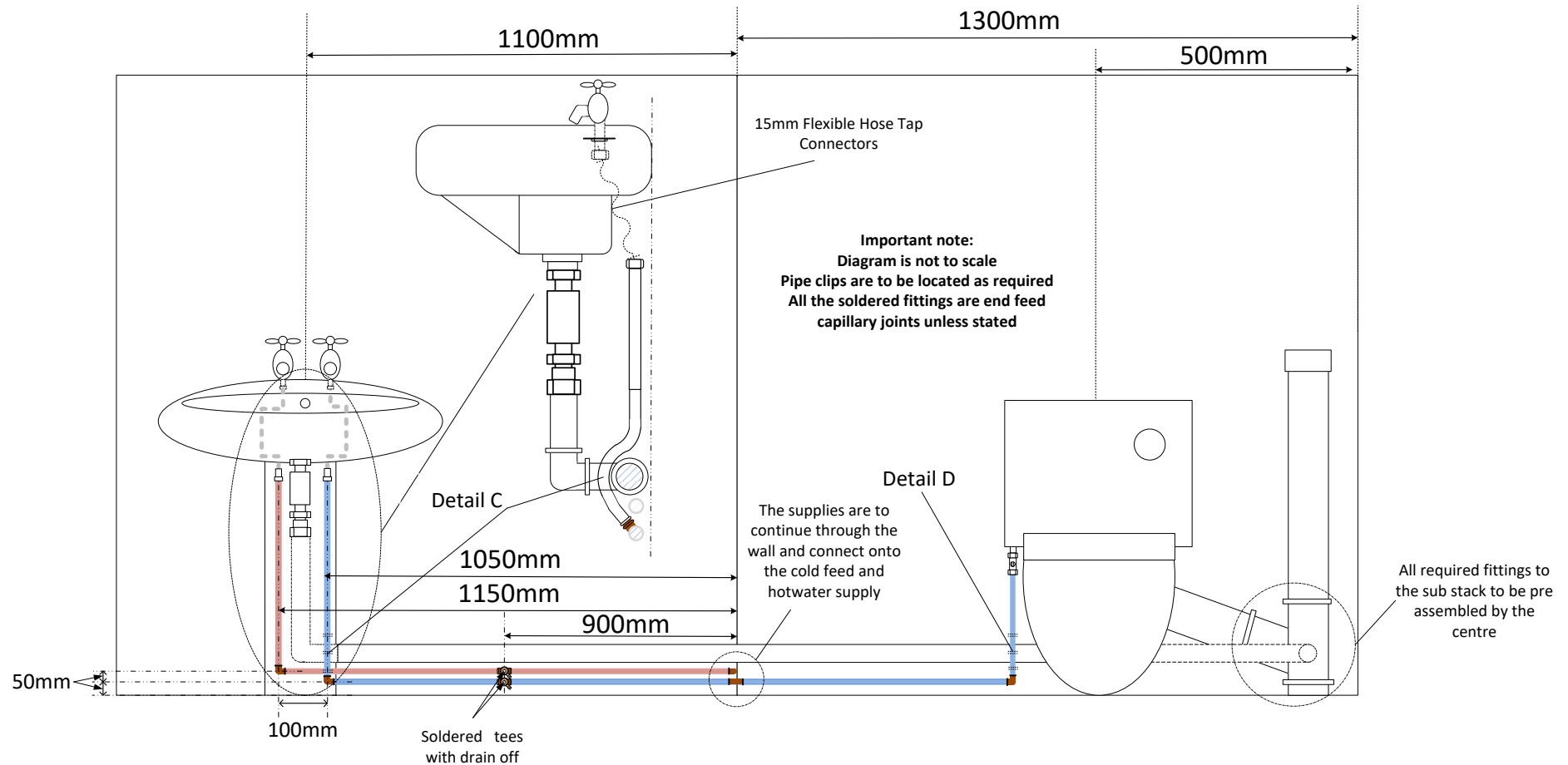
Project detail information



Important note:
Diagram is not to scale
Pipe clips are to be located
as required



Task 1 Specification: Wash hand basin and WC



Assessor task 1 guidance

Centre information

This must be completed on a 'live' installation for hot, cold water and sanitation system, to be eventually secured and fixed to a suitable surface.

Centres to provide a workshop space that realistically represents a domestic cloakroom with a stub stack in the right hand rear corner and a cylinder cupboard.

Centres to provide a cloakroom suite (comprising of a basin and WC).

Centres to provide materials and fittings to complete the assessment (the learner will determine the materials and fittings to be used as part of the assessment).

Installation requirements

- Refer to Task 1 plan for information
- Centres to determine pipework configurations based on the dimensions provided in Task 1 plan

Sanitation

- Provision to be made for a connection to drain

Commission and test sanitation system.

If it is not feasible to assess testing on the completed bay installation, centres should devise their own test rig to include waste connections for WC, and WHB. The configuration of this test rig must be confirmed with EAL.

Resource List

Task 1	Quantity
Close coupled toilet	1
Bent pan connector	1
soil pipe	600mm
1/2" x 15mm service mans valve (WC connector)	1
WHB	1
1/2" basin taps	2
Basin waste	1
Straight through basin trap	1
1 1/4" waste pipe	3m
1 1/4" elbow	2
1 1/4" M&F elbow	1
1/2" x 15mm comp flexible tap connectors	2
15mm end feed elbow	4
15mm end feed tee	3
15mm soldered drain off	2
15mm compression inline service valve	2
15mm Cu pipe	6m

Sundries

Flux, solder, cleaning pads

Plugs, screws and clips to support pipework (copper tube and waste pipe) and appliances

Jointing compound, PTFE

Connections for the final soil pipe to be determined by the centre to fit in with their pre-plumbed stub stack

Tools and equipment:

- Selection of appropriate plumber's hand tools
- Hacksaw
- Pipe cutters 15/22mm
- Pipe bender 15/22 mm
- Blow lamp
- Drill and bits.

Learner task 1 guidance

You will:

Install all the systems and relevant components, ensuring that:

- All incoming supplies are adequate for the new installations
- All sanitary appliances to have waste and terminal fittings assembled prior to fixing
- Sanitary appliance installation to conform with industry standards and manufacturers installation instructions
- All pipework installation to conform to centre specification and comply with regulations, industry standards (i.e. tolerances + or – 2mm) and codes of practice
- All pipework to be clipped to BS specification
- All pipework to be insulated to BS specification, as appropriate
- All components and pipework systems cannot be brought into operation before the work has been fully complete

Cold water:

- Incoming cold water service pipe in MDPE connected to copper using compression fitting
- All cold water supply pipework in copper using a range of capillary and compression fittings, couplings, bends, elbows and tees
- The cold feed will be connected to the mains via the balancing valve as part of task 2
- System pipework tested to BSEN 806.

Hot water:

- All hot water supply pipework to sanitary appliances in copper using a range of capillary and compression fittings, couplings, bends elbows and tees.
- The hot water system will be connected to the cylinder as part of task 2
- System pipework tested to BSEN 806.

Sanitation:

- All pipework in plastic using a range of fittings to include ring seal joints, solvent welded joints, compression joints (traps) and a pan connector to the WC
- All waste pipework connections to stub stack made through manifold

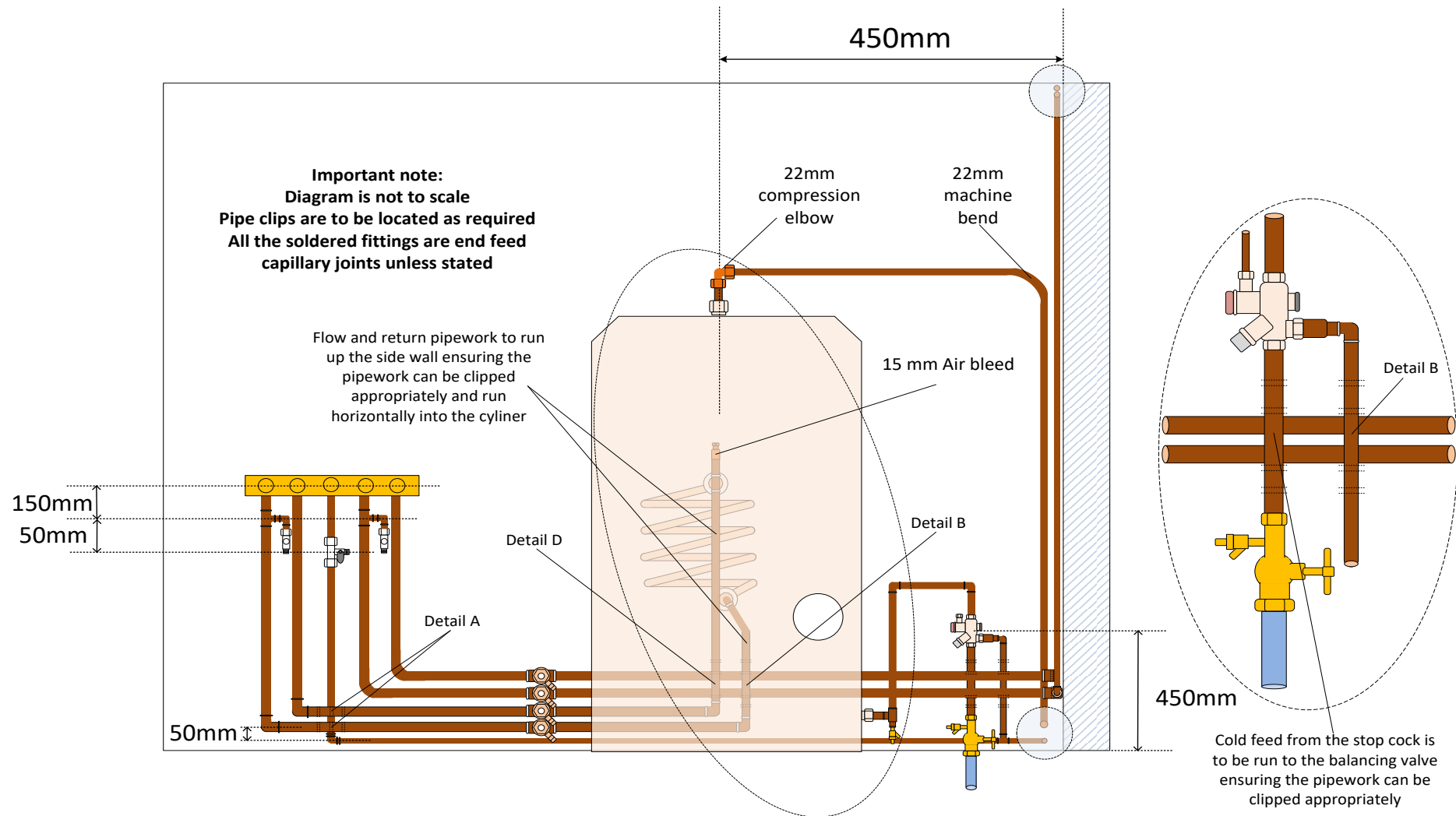
Testing the systems:

- Inspect the systems after installation ensuring they meet all the relevant industry standards and soundness test all *system types as per the relevant industry standard.

*Hot and cold systems will be formally tested when all the relevant tasks have been completed.

You must always work safely when carrying out this task.

Task 2 Specification: Hot water cylinder



Assessor task 2 guidance

Centre information

Centres to determine pipework configurations based on the specifications provided in the Task 2 plan.

Hot water storage vessel and relevant controls to comply with industry standards, capacities appropriate to the drawing dimensions and have the safety controls/components pre plumbed, the learner is only to connect the cold feed, hot supply and flow and return from the system boiler jig.

Manufacturer's fixing and installation procedures and specifications are fully met.

Appropriate British Standards, Building Regulations G3 and Water Regulations are complied with.

Health and safety relevant to the assessment is supervised at all times.

Ensure all work carried out conforms to:

Building Regulations G3, Water Regulations and appropriate British Standards, Manufacturer's instructions.

Resource list

Task 2	Quantity
Unvented indirect cylinder	1
Cold water balancing valve - complete	1
filling loop	1
15mm compression inline service valve	1
straight 22mm cylinder connections	4
22mm compression elbow	1
1/2" drain off	4
15mm end feed drain off	1
15mm air bleed	1
22mm end feed equal tee	5
22mm end feed elbow	7
22mm x 15mm reducer	5
15mm end feed elbow	5
22mm tee with 1/2" on the branch tee	4
15mm Cu pipe	8m
22mm Cu pipe	6m

Sundries

Flux, solder, cleaning pads

Plugs, screws and clips to support pipework (copper tube and waste pipe) and appliances

Jointing compound, PTFE

Tools and equipment:

- Selection of appropriate plumber's hand tools
- Hacksaw
- Pipe cutters 15/22mm
- Pipe bender 15/22 mm
- Blow lamp
- Drill and bits

Learner task 2 guidance

You will:

Check and confirm the safety of the work location/immediate work area.

Select appropriate tools, materials, components and fixings to carry out the installation as per the unvented hot water system and components task 2 template supplied by the assessor.

Carry out the unvented hot water installation job as per the unvented hot water system and components task 2 template supplied by the assessor to include:

Installation pre checks:

- Unvented cylinder is of an approved type and is in good condition
- Installed pipework meets the statutory requirements
- Pipework components fitted are in good condition and suitable for the cylinder and system to which they are being installed

Install the unvented hot water system and inspect the installation for compliance and confirm:

- The cold feed is supplied via a balancing valve and the balancing valve is installed in the correct position
- The cylinder is installed in the correct position, is adequately supported level and plumb
- The correct identity of all the installation supply pipework and its purpose
- All pipework installation to conform to centre specification and comply with regulations, industry standards (i.e., tolerances + or – 2mm) and codes of practice
- All pipework to be clipped to BS specification
- All pipework to be insulated to BS specification, as appropriate
- All components and pipework systems cannot be brought into operation before the work has been fully complete

Testing the systems:

- Inspect the systems after installation ensuring they meet all the relevant industry standards and soundness test all *system types as per the relevant industry standard
- System pipework tested to BSEN 806

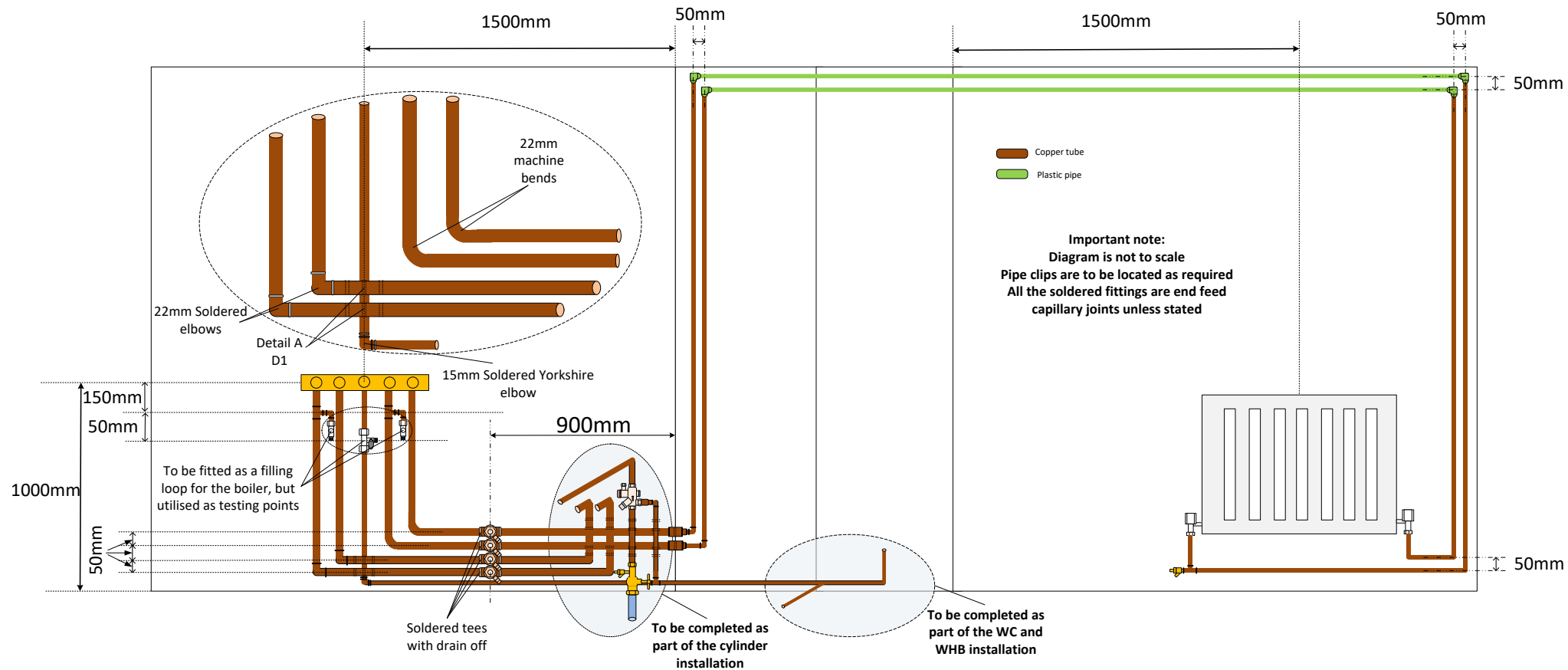
*Hot and cold systems will be formally tested when all the relevant tasks have been completed.

Ensure all work carried out conforms to:

Building Regulations G3, Water Regulations and appropriate British Standards, Manufacturer's instructions.

You must always work safely when carrying out this task.

Task 3 Specification: Central heating



Assessor task 3 guidance

Centre Information

Centres to determine pipework configurations based on the specifications provided in Task 3 plan.

Manufacturer's fixing and installation procedures and specifications are fully met.

Appropriate British Standards, Building Regulations and Water Regulations are complied with.

Task 3 should be used in conjunction with hot water rig for the cylinder connection Task 2.

Health and safety relevant to the assessment is supervised at all times.

Ensure all work carried out conforms to:

Building Regulations, Water Regulations and appropriate British Standards, Manufacturer's instructions.

Resource list

Task 3	Quantity
Boiler jig - this can be representative of what a manufacture would supply	1
22mm end feed elbow	9
15mm end feed elbow	5
15mm end feed tee	1
15mm soldered drain off	1
15mm push fit elbows	4
15mm inserts	4
Radiator (approximately 600mm x 600mm single)	1
15mm radiator valve	2
15mm plastic pipe	8m
15mm Cu pipe	16m
22mm Cu pipe	9m

Sundries

Flux, solder, cleaning pads

Plugs, screws and clips to support pipework (copper tube and plastic pipe) and appliances

Jointing compound, PTFE

Tools and equipment:

- Selection of appropriate plumber's hand tools
- Hacksaw
- Pipe cutters 15/22mm
- Pipe bender 15/22 mm
- Blow lamp
- Drill and bits

Learner task 3 guidance

You will:

Check and confirm the safety of the work location/immediate work area.

Select appropriate tools, materials, components and fixings to carry out the installation as per the Central Heating Installation template supplied by the assessor.

Carry out the central heating installation job as per the Central Heating Installation template supplied by the assessor to include:

Installation pre checks:

- Central heating components are of an approved type and in good condition
- Installed pipework meets the statutory requirements
- Pipework components fitted are in good condition and suitable for the cylinder and system to which they are being installed

Install the central heating system to:

- Boiler
- Panel radiator
- Connections to a hot water cylinder

Inspect the installation for compliance and confirm the:

- Components are installed in the correct position, are adequately supported level and plumb
- Correct identity of all the installation supply pipework and its purpose

Testing the systems:

- Inspect the systems after installation ensuring it meets all the relevant industry standards
- System pipework tested to BSEN 806

Ensure all work carried out conforms to:

Building Regulations, Water Regulations and appropriate British Standards, Manufacturer's instructions.

You must always work safely when carrying out this task.

Marking grids

Using the marking descriptors provided below for each assessment element, please indicate the marks awarded for each element. If the learner does not achieve the descriptors listed against an individual element (a, b, c, etc) a score of 0 must be awarded for that element. Marks must then be totalled for each section (including the use of any scaling factors, shown in the tables below) to create an overall mark for the project.

Planning marking grid

Learner name:		
Assessment date:		
a) Identify resource requirements to meet the task		Mark achieved
<ul style="list-style-type: none">produces a coherent resource list identifying the key basic tools and materials required to complete the main project aspects.		1
or		
<ul style="list-style-type: none">produces a thorough quantified resource list including relevant tools and materials required to complete the task (some items may be omitted in the list).		2
or		
<ul style="list-style-type: none">produces a full and complete quantified resources list with materials, tools, and any relevant equipment and sundries listed.		3
b) Plan the activities and the ordering/phasing of work to complete the task		Mark achieved
<ul style="list-style-type: none">produces a coherent method statement and risk assessment with an estimated completion date.		1
or		
<ul style="list-style-type: none">correctly interpret diagrams provided to produce a coherent and considered method statement and risk assessment with milestones identified.		2
or		
<ul style="list-style-type: none">correctly interpret diagrams to produce a comprehensive method statement and risk assessment with detailed, considered milestones as relevant to the task.		3

c) The main techniques used for estimating jobs/projects in building services	Mark achieved
<ul style="list-style-type: none"> produces an estimate which includes an overview of work to be undertaken, an accurate duration and overall price to the customer 	1
or	
<ul style="list-style-type: none"> produces an estimate which includes an overview of work to be undertaken, an accurate duration and overall price to the customer which shows how total cost and profit margin were used to determine this 	2
or	
<ul style="list-style-type: none"> produces an estimate which includes a clear overview of work to be undertaken, an accurate duration and overall price to the customer which shows a detailed breakdown of all costs used to determine this 	3
d) How to estimate time requirements	Mark achieved
<ul style="list-style-type: none"> produces a method statement, including a schedule of works, that identifies the key basic activities and overall task timings on the project 	1
or	
<ul style="list-style-type: none"> produces a method statement, including a schedule of works, that identifies the main tasks and activities and estimates time requirements for these 	2
or	
<ul style="list-style-type: none"> produces a method statement, including a schedule of works, that includes realistic estimates for time requirements of key activities within tasks and for overall project, and identifies relevant dependencies between activities and tasks 	3
e) Identify success criteria for the task	Mark achieved
<ul style="list-style-type: none"> sets coherent success criteria in their plan states key success criteria for the project task 	1
or	
<ul style="list-style-type: none"> sets coherent and considered success criteria in their plan describes their relevance to the main aspects of the task 	2
or	
<ul style="list-style-type: none"> sets comprehensive success criteria in their plan justifies why those success criteria have been chosen and relates them to the task 	3
Mark achieved	/15
Total = Mark achieved × 6	/90

Only the mark from the highest scoring plan will contribute to the overall project mark.

Marks within the planning section of the Practical Project, are to be multiplied by 6 to create the total marks for this section of the project.

Performance marking grid

Task 1 - Wash hand basin and WC				
Section A Measurement and marking out				
		Marks		
The learner has	Aspect ID	1	2	3
Maintained the measurement from the centre of the toilet cistern to the right hand wall (500mm)	A1	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement from the cold feed to the basin to the right hand wall (1050mm)	A2	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement from the hot feed to the basin to the right hand wall (1150mm)	A3	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement from the centre of drain off to the right hand wall (900mm)	A4	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement from the hot and cold vertical supplies to the Basin centres (100mm)	A5	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement from the hot and cold horizontal supplies to the right hand wall (50mm)	A6	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Section B Health and Safety				
Key points <ul style="list-style-type: none"> PPE must be worn as appropriate i.e safety glasses when soldering, safety boots Tidy work area. <p>For each minor infringement up to three, deduct marks as listed, a fourth would equate to unsafe working practices which would require the assessment to be stopped and the learner to be referred.</p> <p>No minor infringement (3 marks), 1-2 minor infringements (2 marks), 3 minor infringements (1 mark), 4+ minor infringements and assessment is stopped, and the learner is referred.</p> <p>The assessment must be stopped immediately if there is a major infringement of health and safety, which would also be classed as a fail.</p>				

		Marks		
The learner has		1	2	3
Kept a clean and tidy work area		<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None
Worn PPE as required		<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None

Section C Bends, angles and clearances

This section is only a visual inspection

- Bend quality look for no ripples or bends being pulled.

It is recommended that pre formed bends are used for the marking process

- A protractor can be used
- The tolerance on the bends is +/- 1°

		Marks		
The learner has	Aspect ID	1	2	3
Maintained the 15mm cold passover on the bottom of the basin clearance (20mm)	C1	<input type="checkbox"/> ± 6 mm	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm
Maintained the 15mm cold passover on the bottom of the WC clearance (20mm)	C2	<input type="checkbox"/> ± 6 mm	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm

Section D Plumb and level

When checking for plumb and level the bubble in the spirit level must not break the line on the display.

		Marks		
The learner has	Aspect ID	1	2	3
Maintained the correct fall on the basin waste horizontal run to the sub stack	D1	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained plumb on the hot 15mm Cu pipe vertical run to basin tap	D2	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained plumb on the 15mm Cu pipe between passover bends	D3	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines

Maintained plumb across passover bends on cold feed to basin	D4	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained level on horizontal cold feed from basin to right hand side wall	D5	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained level on horizontal hot feed from basin to right hand side wall	D6	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained plumb on vertical cold feed to the WC	D7	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines

Section E Material usage, layout and overall presentation

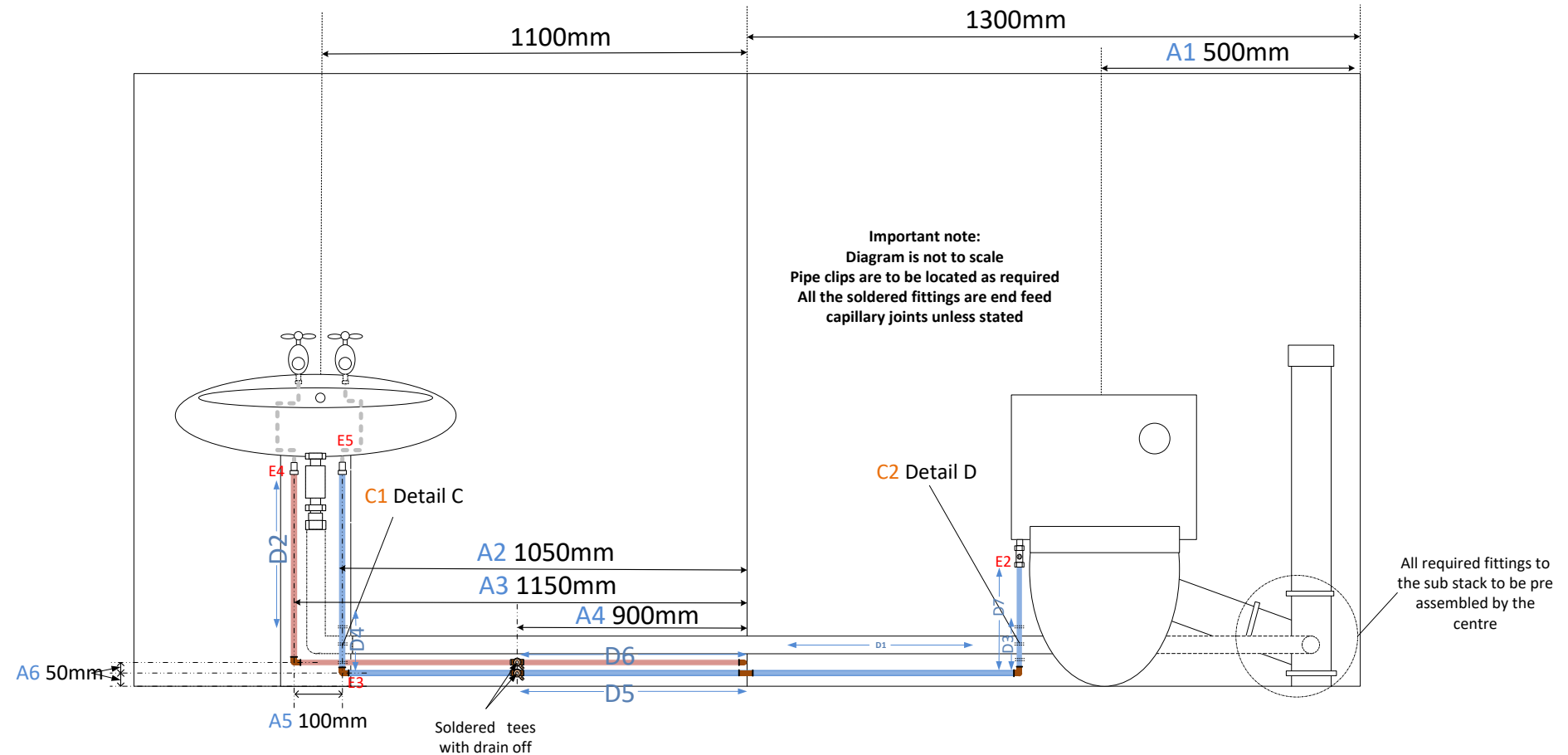
Before the learner starts get them to inspect their work area and identify any marks or burns already present and get the assessor to circle and sign them ensuring they are not taken into account on the final marking. Explain the penalties for extra material/fittings.

- Joint quality look for no tool damage to fittings, pipe entering fitting at 90°

The learner has	Aspect ID	Marks		
		1	2	3
Correct clips used and correct spacing	E1	<input type="checkbox"/>		
Jointed the bottom compression joint on isolation valve to toilet cistern with no tool damage to fitting and pipe entering fitting at 90°	E2	<input type="checkbox"/>		
Jointed the cold water 15mm elbow joint going to basin and cistern with no solder runs or blobs visible	E3	<input type="checkbox"/>		
Jointed the hot water 15mm from copper to flex with no tool damage to fitting and pipe entering fitting at 90°	E4	<input type="checkbox"/>		
Jointed cold water flexible connector to tap with no tool damage to fitting and flex not twisted	E5	<input type="checkbox"/>		
Tested the completed installation and no leak found		<input type="checkbox"/>		

Used no extra pipe or couplings and task complete as per drawing (Max 2 x 1m pieces allowed or 2 couplings or 1 piece of pipe and 1 coupling– 1 mark deducted for each 1m length or coupling requested)		<input type="checkbox"/> +2	<input type="checkbox"/> +1	<input type="checkbox"/> No Extra
Sub-totals		/24	/36	/54
Overall Total		/ 60		

Task 1 Marking schedule



Performance marking grid

Task 2 - Hot water cylinder				
Section A Measurement and marking out				
		Marks		
The learner has	Aspect ID	1	2	3
Maintained the measurement from the centre of the cylinder to the back wall (450mm)	A1	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement from the centre of the cylinder to the right hand wall (450mm)	A2	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement from the floor to the centre of the balancing valve (450mm)	A3	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement from the centre of boiler jig to the hot water return filling point (150mm)	A4	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement between the cold feed and the hot water return horizontal pipes centres (50mm)	A5	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Section B Health and safety				
Key points <ul style="list-style-type: none"> PPE must be worn as appropriate i.e safety glasses when soldering, safety boots Tidy work area. <p>For each minor infringement up to three, deduct marks as listed, a fourth would equate to unsafe working practices which would require the assessment to be stopped and the learner to be referred.</p> <p>No minor infringement (3 marks), 1-2 minor infringements (2 marks), 3 minor infringements (1 mark), 4+ minor infringements and assessment is stopped, and the learner is referred.</p> <p>The assessment must be stopped immediately if there is a major infringement of health and safety, which would also be classed as a fail.</p>				
		Marks		
The learner has		1	2	3
Kept a clean and tidy work area		<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None
Worn PPE as required		<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None

Section C Bends, angles and clearances

This section is only a visual inspection

- Bend quality look for no ripples or bends being pulled.

It is recommended that pre formed bends are used for the marking process

- A protractor can be used
- The tolerance on the bends is $\pm 1^\circ$.

		Marks		
The learner has	Aspect ID	1	2	3
Maintained the cold feed 15mm passover clearance (20mm) from the balancing valve to the bottom cold feed	C1	<input type="checkbox"/> ± 6 mm	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm
Maintained the hot water supply 22mm 90° bend from the cylinder	C2	<input type="checkbox"/> ± 6 mm	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm
Maintained the hot water return 22mm passover clearance (20mm) from the cylinder	C3	<input type="checkbox"/> ± 6 mm	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm

Section D Plumb and level

When checking for plumb and level the bubble in the spirit level must not break the line on the display.

		Marks		
The learner has	Aspect ID	1	2	3
Maintained level on the hot 22mm Cu pipe horizontally from the top of the cylinder	D1	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained plumb on the 15mm Cu pipe between passover bends from the balancing valve to the bottom cold feed	D2	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained plumb across passover bends on hot water flow to the cylinder	D3	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained plumb on the vertical hot water flow to the cylinder	D4	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines

Maintained plumb on the vertical hot water return to the cylinder	D5	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained level on horizontal cold feed from the balancing valve to the cylinder	D6	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained level on the horizontal hot water return to the cylinder	D7	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines

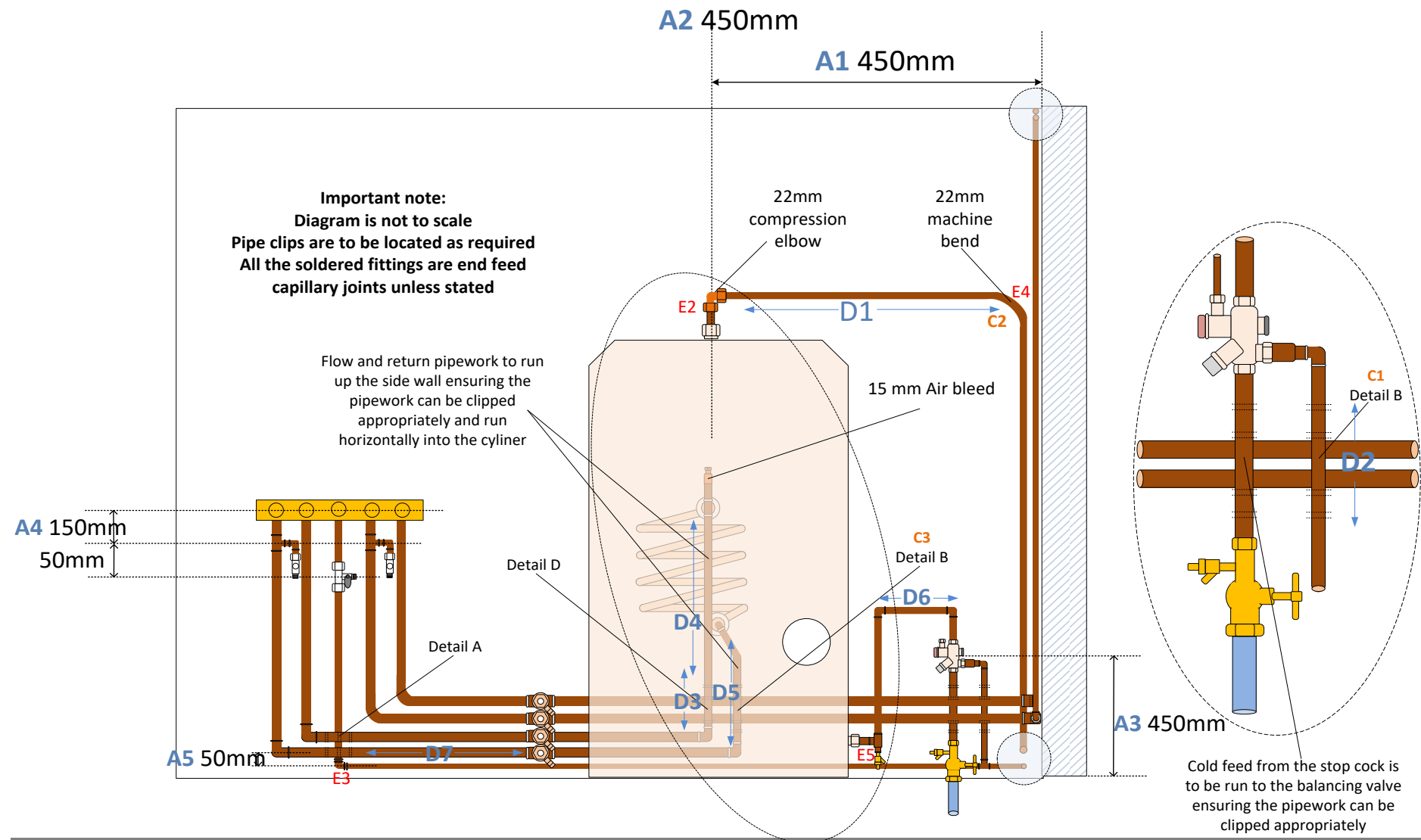
Section E Material usage, layout and overall presentation

Before the learner starts get them to inspect their work area and identify any marks or burns already present and get the assessor to circle and sign them ensuring they are not taken into account on the final marking. Explain the penalties for extra material/fittings.

- Joint quality look for no tool damage to fittings, pipe entering fitting at 90°

		Marks		
The learner has	Aspect ID	1	2	3
Correct clips used and correct spacing	E1	<input type="checkbox"/>		
Bottom compression joint on elbow at the top of the cylinder with no tool damage to fitting and pipe entering fitting at 90°	E2	<input type="checkbox"/>		
Cold water 15mm Yorkshire elbow joint going to below the boiler jig with no solder runs or blobs visible	E3	<input type="checkbox"/>		
Machine bent the copper hot water supply with no ripples or signs of being pulled	E4	<input type="checkbox"/>		
Jointed the tee on the hot water cylinder cold feed with no solder runs or blobs visible	E5	<input type="checkbox"/>		
Tested the completed installation and no leak found		<input type="checkbox"/>		
Used no extra pipe or couplings and task complete as per drawing (Max 2 x 1m pieces allowed or 2 couplings or 1 piece of pipe and 1 coupling– 1 mark deducted for each 1m length or coupling requested)		<input type="checkbox"/> +2	<input type="checkbox"/> +1	<input type="checkbox"/> No Extra
Sub-totals		/24	/36	/54
Overall Total		/ 60		

Task 2 Marking schedule



Performance marking grid

Task 3 - Central Heating				
Section A Measurement and marking out				
		Marks		
The learner has	Aspect ID	1	2	3
Maintained the measurement from the centre of the boiler jig to the floor (1000mm)	A1	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement from the centre of the boiler jig to the right hand wall (1500mm)	A2	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement between the 22mm Cu central heating flow and return horizontal centres from jig to right hand wall (50mm)	A3	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement between the 15mm plastic central heating flow and return horizontal centres above the radiator (50mm)	A4	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement between the 15mm Cu Central heating flow and return horizontal centres to the radiator (50mm)	A5	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Maintained the measurement between the 15mm Cu central heating flow and return vertical centres on the back wall behind the cylinder (50mm)	A6	<input type="checkbox"/> ± 10 mm	<input type="checkbox"/> ± 5 mm	<input type="checkbox"/> ± 2 mm
Section B Health and safety				
Key points <ul style="list-style-type: none"> PPE must be worn as appropriate i.e safety glasses when soldering, safety boots Tidy work area. <p>For each minor infringement up to three, deduct marks as listed, a fourth would equate to unsafe working practices which would require the assessment to be stopped and the learner to be referred.</p> <p>No minor infringement (3 marks), 1-2 minor infringements (2 marks), 3 minor infringements (1 mark), 4+ minor infringements and assessment is stopped, and the learner is referred.</p> <p>The assessment must be stopped immediately if there is a major infringement of health and safety, which would also be classed as a fail.</p>				
		Marks		

The learner has		1	2	3
Kept a clean and tidy work area		<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None
Worn PPE as required		<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None
Section C Bends, angles and clearances				
<p>This section is only a visual inspection</p> <ul style="list-style-type: none"> Bend quality look for no ripples or bends being pulled. <p>It is recommended that pre formed bends are used for the marking process</p> <ul style="list-style-type: none"> A protractor can be used The tolerance on the bends is +/- 1°. 				
		Marks		
The learner has	Aspect ID	1	2	3
Maintained the flow 22mm passover clearance (20mm)	C1	<input type="checkbox"/> ± 6 mm	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm
Maintained the return 22mm passover clearance (20mm)	C2	<input type="checkbox"/> ± 6 mm	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm
Maintained the heating flow 22mm 90° bend	C3	<input type="checkbox"/> ± 6 mm	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm
Maintained the heating return 22mm 90° bend	C4	<input type="checkbox"/> ± 6 mm	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm
Section D Plumb and level				
<p>When checking for plumb and level the bubble in the spirit level must not break the line on the display.</p>				
		Marks		
The learner has	Aspect ID	1	2	3
Maintained level across the top of the boiler jig	D1	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines

Maintained level across the top of the radiator	D2	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained plumb on top plastic feed above the radiator	D3	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained plumb across all the drain cocks on the flow and returns	D4	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines
Maintained plumb across machine bend on the heating return	D5	<input type="checkbox"/> ± 4 mm	<input type="checkbox"/> ± 2 mm	<input type="checkbox"/> within lines

Section E Material usage, layout and overall presentation

This section is only a visual inspection

- Joint quality look for no tool damage to fittings, pipe entering fitting at 90°
- Bend quality look for no ripples or bends being pulled.

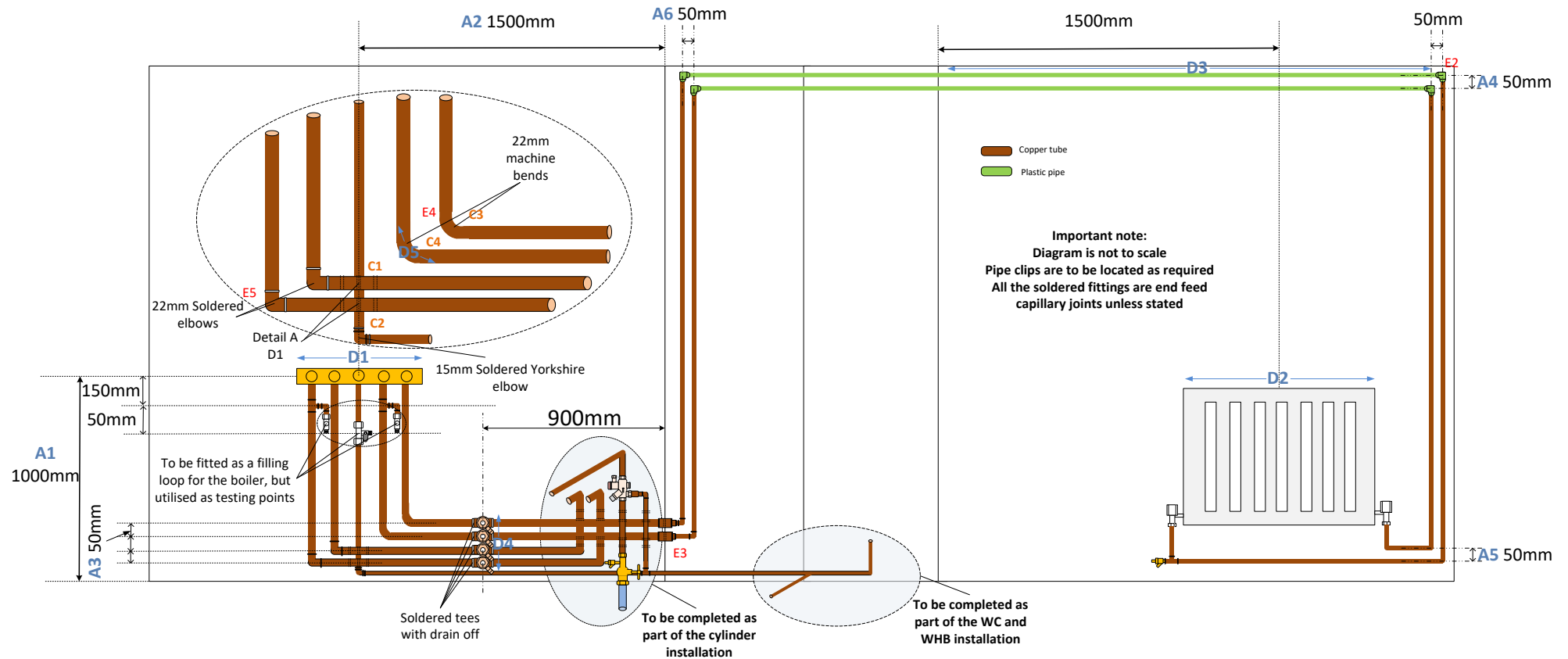
Explain the penalties for extra material/fittings.

Any testing to be completed within the specific time (learners are permitted to test the separate installations as many times as they require, but the official test with the assessor can only be performance once and this is the result that must be recorded)

		Marks		
The learner has	Aspect ID	1	2	3
Correct clips used and correct spacing	E1	<input type="checkbox"/>		
Jointed the top right 15mm flow push fit fitting with no tool damage to fitting and pipe entering fitting at 90°	E2	<input type="checkbox"/>		
Jointed the reducer on the heating return with no solder runs or blobs visible	E3	<input type="checkbox"/>		
Machine bent the copper heating flow with no ripples or signs of being pulled	E4	<input type="checkbox"/>		
Jointed the elbow on the hot water return with no solder runs or blobs visible	E5	<input type="checkbox"/>		
Tested the completed installation and no leak found		<input type="checkbox"/>		

Used no extra pipe or couplings and task complete as per drawing (Max 2 x 1m pieces allowed or 2 couplings or 1 piece of pipe and 1 coupling– 1 mark deducted for each 1m length or coupling requested)		<input type="checkbox"/> +2	<input type="checkbox"/> +1	<input type="checkbox"/> No Extra
Sub-totals		/24	/36	/54
Overall Total		/ 60		

Task 3 Marking schedule



Evaluation marking grid

Learner name:		
Assessment date:		
Evaluate completed work against the task brief, plan and success criteria		Mark achieved
<ul style="list-style-type: none"> does not produce a coherent evaluation does not reflect in an evaluative report the main outcomes of the project 		0
or		
<ul style="list-style-type: none"> produced a coherent evaluation reflects on their own performance in an evaluative report of the main outcomes of the project tasks 		1
or		
<ul style="list-style-type: none"> produced a coherent and considered evaluation describes in the evaluative report their performance against their plan, success criteria and the task requirements covering the main activities and outcomes for all tasks 		2
or		
<ul style="list-style-type: none"> produced an extensive comprehensive evaluation evaluates fully in a well written evaluative report their performance against their plan, success criteria and the task requirements demonstrating their own strengths/weaknesses and lessons learnt 		3
Mark achieved		
Total = Mark achieved × 14		/42

Marks within the evaluation section of the Practical Project, are to be multiplied by 14 to create the total marks for this section of the project.

Overall Practical Project mark

This table indicates the total marks available within each section of the practical project and the minimum mark which must be gained within each section.

Project Section	Marks Available	Marks Awarded	Threshold Pass Mark
Planning (highest scoring plan)	90		30
Trade Task 1	60		24
Trade Task 2	60		24
Trade Task 3	60		24
Evaluating	42		14
Total	312		116

Assessor Name:

Assessor
signature:

Learner
name:

Date:

Marks awarded within each section must be totalled and combined to create an overall project mark, the table below indicates the grade to be awarded based on the learner's overall mark.

Please note: the threshold pass mark indicates the minimum score that learners must achieve in each section of the project, but does not set the minimum score which must be achieved overall – the total mark required to pass this assessment can be found in the table below.

Determining overall grade

The table below identifies how many marks overall are required to achieve each grade within this assessment component:

Total Mark	Grade	Points
0 - 115	Fail	0
116 - 143	P1	1
144 - 171	P2	2
172 - 199	M1	3
200 - 227	M2	4
228 - 255	D1	5
256 - 283	D2	6
284 - 312	D3	7

The assessor must use this table to calculate a provisional grade for the learner. Notification of this provisional grade must be given to the learner within one week of completion of the assessment, with guidance given on the provisional nature of the grade. Provisional results will be subject to internal quality assurance procedures, followed by external quality assurance activity completed by EAL. Results will be submitted to EAL and the final assessment grade aggregated with the other assessment methods to award an overall qualification grade, which will be issued by EAL.

Practical Project provisional grade

Learner name	
Date	
Total mark achieved	
Provisional Practical Project grade	
Assessor name	
Assessor signature	

3.2 Electrical assessment brief

Your firm has been contracted to carry out three new electrical installations.

This project has three elements: planning, performing, and evaluating.

You have:

- **14 hours** allocated for the planning of all three tasks (planning)
- **40 hours** allocated to carry out the three tasks (performing)
- **6 hours** to evaluate the three tasks in the project (evaluating).

You may not use the time you have been given for each element for another element, i.e. If you complete your planning in 12 hours, you may not use the other two hours for either the performing or the evaluating.

You will be required to devise a plan showing the approach you will take to undertake the work required in the performance tasks, underpinned by an overall schedule of works.

Once the installation has been completed you will be required to evaluate your work.

You must adhere to all relevant health and safety rules and procedures at all times.

Learner task 1 guidance

This task involves the installation of 2 circuits consisting of:

- A **two-way and intermediate lighting circuit** wired in 1 mm² PVC/PVC flat profile cable in mini trunking (MT2) to the light switches and the 20 A joint box. The cable is then clipped direct from the 20 A joint box to the ceiling lighting pendant. Utilise push fit connectors as required.
- A **ring final circuit wired** in PVC/PVC flat profile cable clipped direct. The 32 A joint box from the switched fused connection unit (SFCU) is to simulate a 1.8 kW load. Install the appropriate minimum rated fuse for this load in the SFCU.

As part of the planning element, you will need to:

- produce a wiring diagram for the lighting circuit
- select the appropriately rated protective device for the lighting circuit
- select the appropriate cable size (minimum conductor CSA mm²), and protective device rating for the ring final circuit using standard circuit arrangement information (from the IET On-Site Guide)
- select the appropriate minimum rated fuse for the 1.8 kW load.

The CU and metallic water pipe are pre-fixed. Carry out main protective bonding to the water pipe.

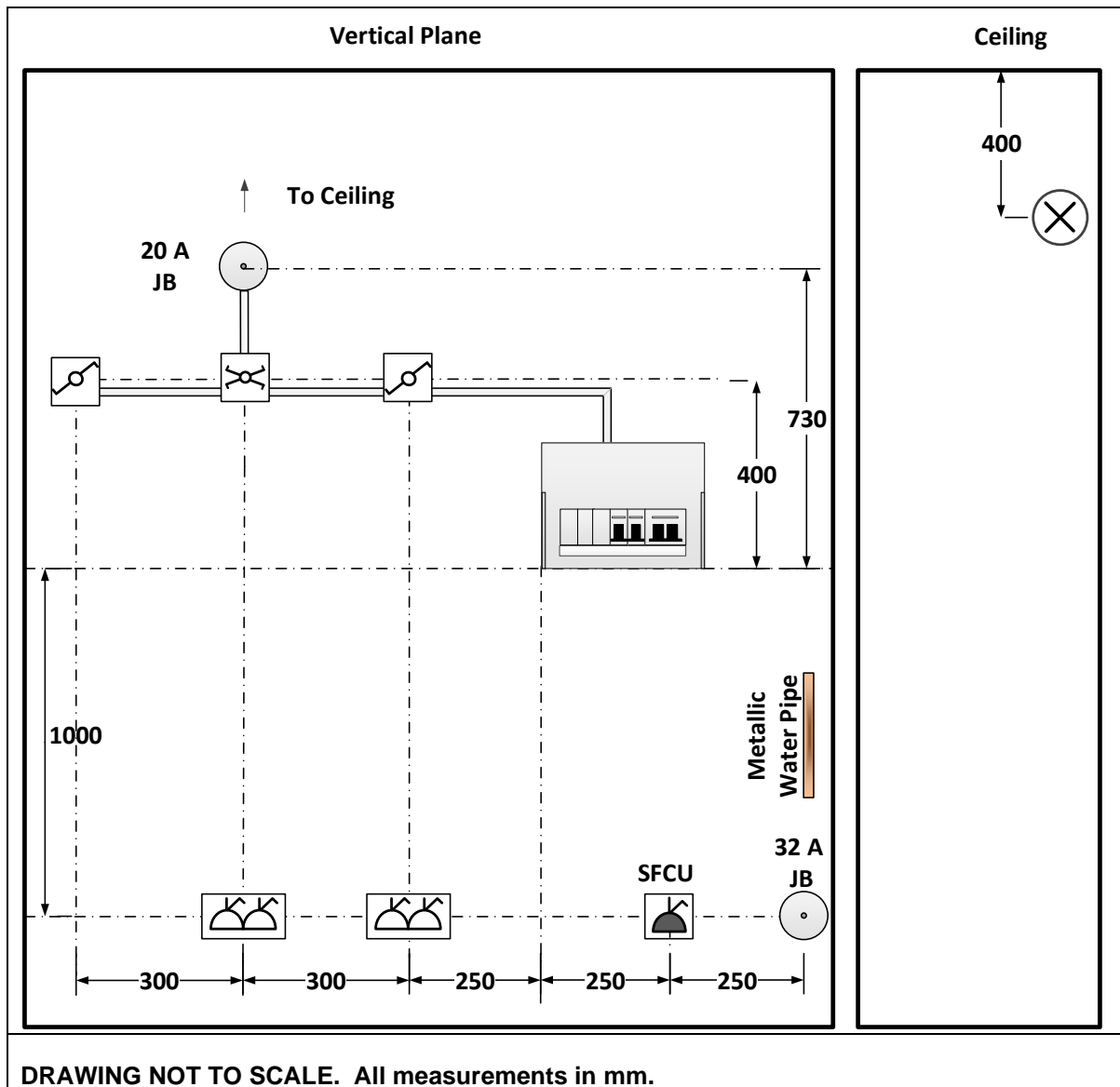
Measurements may be altered by your assessor to suit local facilities.

Install in accordance with industry practices, BS 7671 and the IET OSG. Carry out de-energised tests (continuity of protective conductor, continuity of ring final circuits, insulation resistance and polarity) **and record your test results.**

You should inspect your work as you carry out the installation.

You must always work safely when carrying out this task.

Task 1 Specification



Assessor task 1 guidance

As part of the planning element for the assessment, the learner will need to produce a wiring diagram for the lighting circuit and select the relevant materials/components which are not stated in the instructions (i.e., cables and protective devices) for inclusion in their materials list. The learner may wire the lighting circuit to their chosen (electrically correct) design.

The CU and metallic water pipe are pre-fixed. The learner is to carry out main protective bonding to the water pipe. Measurements may be altered to suit local facilities.

The learner is required to:

- carry out the installation in accordance with industry practices, BS 7671 and the IET OSG.
- carry out de-energised tests (continuity of protective conductor, continuity of ring final circuits, insulation resistance and polarity) and record their test results.

Centres need to make available a suitable area for the learners.

Learners are expected to work independently throughout the task.

Task 1 Resource list

Materials	Quantity
Mini trunking (MT2)	1.5 m
2-way switch	2
Intermediate switch	1
Pendant set	1
SFCU and fuse	1
Twin SO	2
Single pattress	3
Double pattress	2
32 A JB	1
20 A JB	1
6 A CB	1
32 A CB	1
Flex	450 mm
Fuse for SFCU (and a selection of incorrect ratings)	1
Mini trunking surface box adaptor	7
Mini trunking ceiling rose adaptor	1

Sundries:

- Push fit connectors
- Screws
- Cable clips
- G&Y sleeving
- Brown sleeving
- Lamp
- Consumer unit and blanks if required
- PVC/PVC flat profile cable 1 mm²
- PVC/PVC flat profile cable 2.5 mm²
- Metal pipe (for protective bonding).

Tools and equipment:

- Selection of electrician's hand tools
- Hacksaw
- Mitre
- Test equipment for de-energised tests.

Learner task 2 guidance

This task involves the installation of 3 circuits consisting of:

- A **ring final socket outlet circuit** wired in PVC singles in PVC conduit.
- A **lighting circuit** to 2 lighting batten holders wired in 1 mm² PVC singles in PVC conduit.

Lamp **A** is controlled from two positions by switches **A**.
Lamp **B** is controlled by switch **B**.

- A 6-amp **radial final circuit** to a smoke alarm wired in 1.0 mm² fire performance cable e.g. FP200 (not MIMS) .

As part of the planning element, you will need to:

- produce a wiring diagram for the lighting circuit
- select the appropriate cable size (minimum conductor CSA mm²), and protective device rating for the ring final circuit using standard circuit arrangement information (from the IET On-Site Guide)
- select the appropriately rated protective device for the lighting circuit.

The obstruction (20 mm piece of conduit) is pre-fixed mid-way between the CU and SSO.
The set over the obstruction should give **20 mm clearance**.



Note that measurements may be altered by your assessor to suit local facilities.

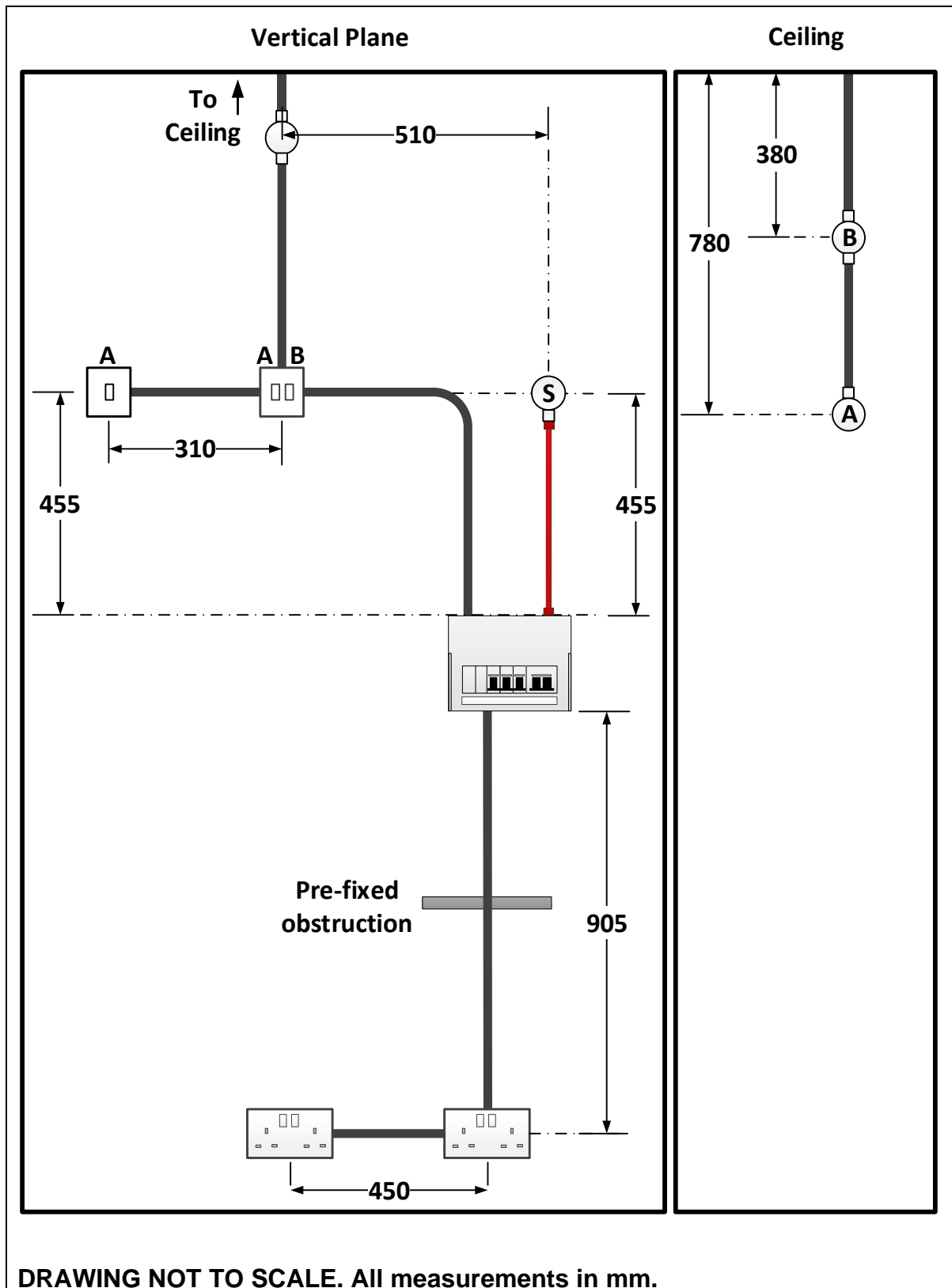
Install in accordance with industry practices, BS 7671 and the IET OSG.

You should inspect your work as you carry out the installation.

Carry out de-energised tests (continuity of protective conductor, insulation resistance and polarity) **and record your test results**.

You must always work safely when carrying out this task.

Task 2 Specification



Assessor task 2 guidance

As part of the planning element for the assessment, the learner will need to produce a wiring diagram for the lighting circuit and select the relevant materials/components which are not stated in the instructions (i.e., cables and protective devices) for inclusion in their materials list.

The CU is pre-fixed.

Measurements may be altered to suit local facilities.

The learner is required to:

- install in accordance with industry practices, BS 7671 and the IET OSG.
- carry out de-energised tests (continuity of protective conductor, continuity of ring final circuits, insulation resistance and polarity) and record their test results.

Centres need to make available a suitable area for the learners.

Learners are expected to work independently throughout the task.

Task 2 Resource list

Materials	Quantity
2 gang socket outlet	2
2 gang 2-way switch	1
1 gang 2-way switch	1
Baton holder	2
20 mm PVC conduit through box	2
20 mm PVC conduit terminal box	1
20 mm PVC conduit	approx. 5.5 m depending on bay size
Conduit female adaptors 20 mm	9
2 Gang 20 mm KO PVC back box	2
1 Gang 20 mm KO PVC back box	2
6 A CB	1
32 A CB	1
FP200 Cable	Approx. 500 mm
FP200 Cable gland	2
20 mm metallic conduit terminal box	1
Smoke detector (or suitable simulated head)	1

Sundries:

- Screws
- Saddles
- FP200 cable clips
- G&Y sleeving
- Lamps
- Consumer unit and blanks if required
- PVC singles cable 1 mm²
- PVC singles cable (G&Y) 1.5 mm²
- PVC singles cable 2.5 mm²
- Metal pipe (obstruction).

Tools and equipment:

- Selection of electrician's hand tools
- Hacksaw
- Bending spring
- Draw wire
- Insulation tape
- Cable dispenser/drum stand
- Test Equipment for de-energised tests.

Learner task 3 guidance

This task involves the installation of 3 circuits consisting of:

- A **radial final circuit** to a 13 A socket outlet wired in PVC/SWA.
- A **radial final circuit** to a 13 A socket outlet wired in singles in steel conduit and steel trunking.
- A **16-amp radial final** circuit to a simulated load controlled by a double pole switch. The circuit is wired in 2.5 mm² PVC/PVC flat profile cable from the CU to the DP switch, and the final connection to the load is with heat resistant flex. Use compression glands for the PVC/PVC flat profile cable and the flex (i.e. 4 glands). The simulated load is an appropriate 1 gang box with a blanking plate. Final connection is to lever connectors/or connector blocks inside the 1 gang box.

As part of the planning element, you will need to:

- show by means of a drawing **ONE** of the following:
 - how the SWA cable is terminated, or
 - how the trunking bend is fabricated
(you may select which drawing to produce)
- you are also required to select the appropriate cable size (minimum conductor CSA mm²), and protective devices for the two radial final socket circuits using standard circuit arrangement information (from the IET On-Site Guide).

CU is pre-fixed. Manufacture the 90° trunking bend (including pop-riveting) fitting end caps and lid.

Measurements may be altered or by your assessor to suit local facilities.

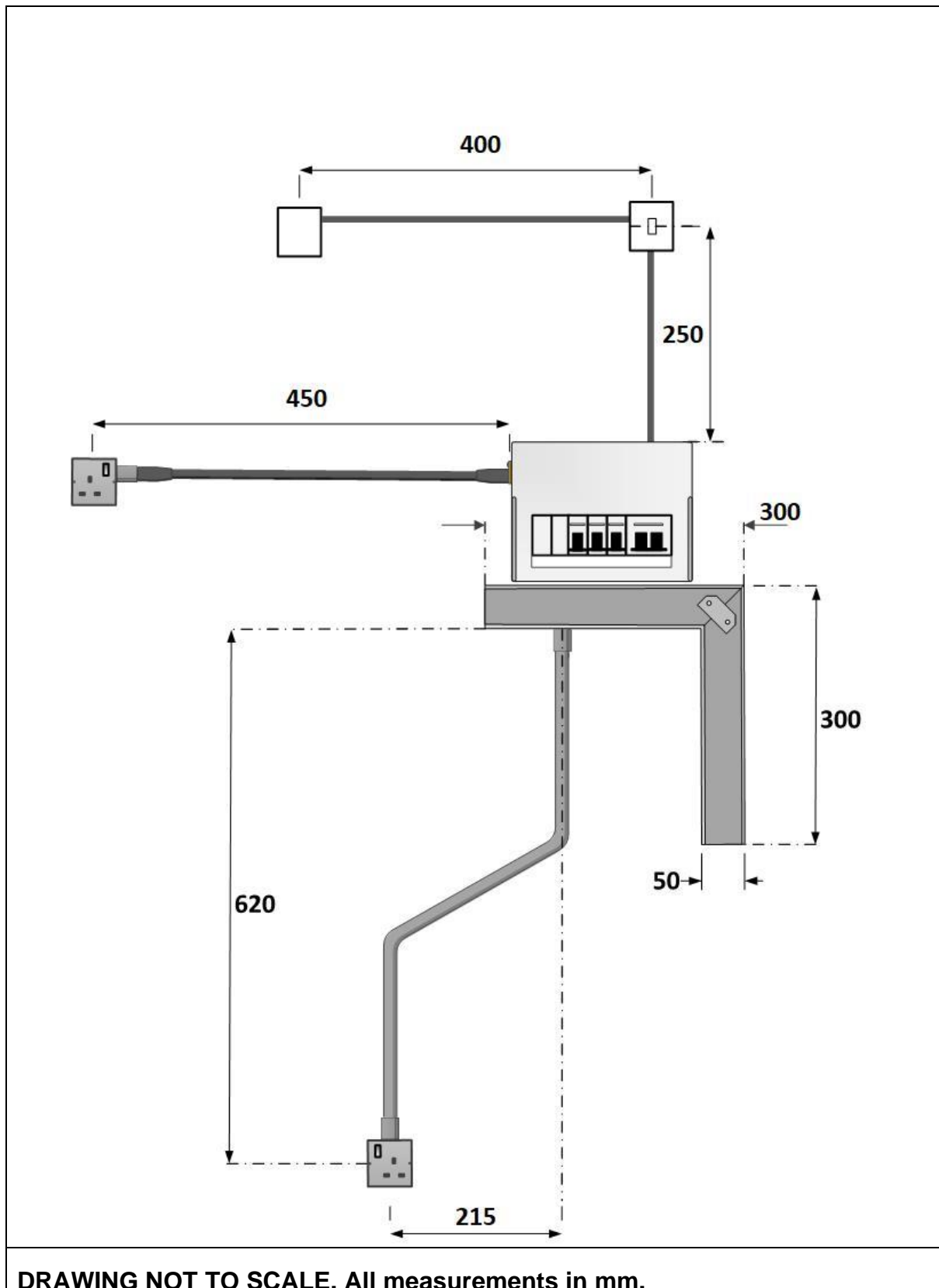
Install in accordance with industry practices, BS 7671 and the IET OSG.

You should inspect your work as you carry out the installation.

Carry out de-energised tests (continuity of protective conductor, insulation resistance and polarity) **and record your test results.**

You must always work safely when carrying out this task.

Task 3 Specification



Assessor task 3 guidance

As part of the planning element for the assessment, the learner will need to select the relevant materials/components which are not stated in the instructions (i.e., cables and protective devices) for inclusion in their materials list. The learner will also need to produce a drawing to show how either the SWA cable is terminated, or how the trunking bend is fabricated. The learner can decide which of the drawings to produce.

The CU is pre-fixed. The learner is required to manufacture the 90° trunking bend (including pop-riveting), fit the end caps and lid.

Measurements may be altered to suit local facilities.

The learner is required to:

- install in accordance with industry practices, BS 7671 and the IET OSG.
- carry out de-energised tests (continuity of protective conductor, insulation resistance and polarity) and record their test results.

Centres need to make available a suitable area for the learners. Learners are expected to work independently throughout the task.

Task 3 Resource list

Materials	Quantity
1 gang socket outlet	2
Single-phase isolator & back box	1
20 mm steel conduit	1 m
Steel trunking (50 X 50) & lid	Approx. 800 mm
Steel trunking end caps	2
Steel conduit couplers	5
Brass male bush	5
1 Gang 20 mm steel back box	2
16 A CB	1
20 A CB	2
1 Gang 20 mm KO PVC back box	2
1 Gang blank plate	1
Compression gland for 3 core flex	2
Compression gland for flat profile cable	2
SWA Glands	2

Sundries:

- Screws
- Saddles
- Consumer unit (and blanks if required)
- G&Y sleeving
- PVC/PVC flat profile cable 2.5 mm²
- PVC singles cable 2.5 mm²
- 3 core heat-resistant flexible cable 2.5 mm²
- Connector blocks/lever connectors.

Tools and equipment:

- Selection of appropriate electrician's hand tools
- Hacksaw
- Conduit bender 20 mm
- Draw wire
- Reamer
- File
- Drill
- Block of wood
- Hand/pop riveter and pop rivets
- Vice
- Insulation tape
- Cable dispenser/drum stand
- Test Equipment for de-energised tests.

Marking grids

Using the marking descriptors provided below for each assessment element, please indicate the marks awarded for each element. If the learner does not achieve the descriptors listed against an individual element (a, b, c, etc) a score of 0 must be awarded for that element. Marks must then be totalled for each section (including the use of any scaling factors, shown in the tables below) to create an overall mark for the project.

Planning marking grid

Learner name:	
Assessment date:	
a) Identify resource requirements to meet the task	Mark achieved
<ul style="list-style-type: none"> produces a coherent resource list identifying the key basic tools and materials required to complete the main project aspects. 	1
<i>or</i>	
<ul style="list-style-type: none"> produces a thorough quantified resource list including relevant tools and materials required to complete the task (some items may be omitted in the list). 	2
<i>or</i>	
<ul style="list-style-type: none"> produces a full and complete quantified resources list with materials, tools, and any relevant equipment and sundries listed. 	3
b) Plan the activities and the ordering/phasing of work to complete the task	Mark achieved
<ul style="list-style-type: none"> produces coherent method statement, risk assessment and drawing/diagram with an estimated completion date. 	1
<i>or</i>	
<ul style="list-style-type: none"> correctly interpret diagrams provided to produce a coherent and considered method statement, risk assessment and drawing/diagram, with milestones identified. 	2
<i>or</i>	
<ul style="list-style-type: none"> correctly interpret diagrams to produce a comprehensive method statement, risk assessment and drawing/diagram, with detailed, considered milestones as relevant to the task. 	3

c) The main techniques used for estimating jobs/projects in building services	Mark achieved
<ul style="list-style-type: none"> produces an estimate which includes an overview of work to be undertaken, an accurate duration and overall price to the customer 	1
or	
<ul style="list-style-type: none"> produces an estimate which includes an overview of work to be undertaken, an accurate duration and overall price to the customer which shows how total cost and profit margin were used to determine this 	2
or	
<ul style="list-style-type: none"> produces an estimate which includes a clear overview of work to be undertaken, an accurate duration and overall price to the customer which shows a detailed breakdown of all costs used to determine this 	3
d) How to estimate time requirements	Mark achieved
<ul style="list-style-type: none"> produces a method statement, including a schedule of works, that identifies the key basic activities and overall task timings on the project 	1
or	
<ul style="list-style-type: none"> produces a method statement, including a schedule of works, that identifies the main tasks and activities and estimates time requirements for these 	2
or	
<ul style="list-style-type: none"> produces a method statement, including a schedule of works, that includes realistic estimates for time requirements of key activities within tasks and for overall project, and identifies relevant dependencies between activities and tasks 	3
e) Identify success criteria for the task	Mark achieved
<ul style="list-style-type: none"> sets coherent success criteria in their plan states key success criteria for the project task 	1
or	
<ul style="list-style-type: none"> sets coherent and considered success criteria in their plan describes their relevance to the main aspects of the task 	2
or	
<ul style="list-style-type: none"> sets comprehensive success criteria in their plan justifies why those success criteria have been chosen and relates them to the task 	3
Mark achieved	/15
Total = Mark achieved × 6	/90

Only the mark from the highest scoring plan will contribute to the overall project mark.

Marks within the planning section of the Practical Project, are to be multiplied by 6 to create the total marks for this section of the project.

Performance marking grid

Task 1

Section A: Positioning and fixing

		Marks		
The learner has		1	2	3
Socket outlets and SFCU Positioned and fixed each point securely +/- 5 mm from given dimension (1 mark each (3 max))		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light switch pattress box Positioned and fixed each point securely +/- 5 mm from given dimension (1 mark each (3 max))		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installed switches level (1 mark) Installed sockets and SFCU level (1 mark) Installed cables (clipped) horizontally/vertically correct where relevant (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Joint boxes and pendant set Positioned and fixed each point securely +/- 5 mm from given dimension (1 mark each (3 max))		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cable clipping Clipped PVC/PVC cables equidistantly/neatly for the: ring final circuit (1 mark), lighting circuit (JB to pendant) (1 mark), protective bonding (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section B: Connection and termination

		Marks		
The learner has		1	2	3
Socket outlets and SFCU Installed cable sheath into accessory, sufficient slack, no damage, sleeved CPC, terminated conductors electrically and mechanically sound with no undue removal of cable insulation (1 for each point on the ring (3 max))		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light switches Given sufficient slack, no damage, terminated conductors electrically and mechanically sound with no undue removal of cable insulation sleeved CPC and switch wire (1 mark for each switch (3 max))		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 x Joint boxes and 1 x pendant set Installed cable sheath into accessory, sufficient slack, no damage, sleeved CPC, terminated conductors electrically and mechanically sound with no undue removal of cable insulation 2 x joint boxes (1 mark each (2 max)) 1 x pendant set (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CU Installed and terminated all cables/conductors correctly at the CU using where appropriate corresponding N and E bar sequence to CU ways. Lighting circuit (1 mark), ring final circuit (1 mark), protective bonding (including correct size cable) (1 mark)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Protective bonding (at clamp) Fitted clamp correctly (1 mark), terminated cable securely and correctly at clamp (1 mark), fitted label correctly (1 mark).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section C: Health and safety				
Key points <ul style="list-style-type: none">PPE must be worn as appropriate i.e. safety glasses and safety bootsTidy work area.				
For each minor infringement up to three, deduct marks as listed, a fourth would equate to unsafe working practices which would require the assessment to be stopped and the learner to be referred.				
No minor infringement (3 marks), 1-2 minor infringements (2 marks), 3 minor infringements (1 mark), 4+ minor infringements and assessment is stopped, and the learner is referred.				
The assessment must be stopped immediately if there is a major infringement of health and safety which would also be classed as a failure.				
		Marks		
The learner has		1	2	3
Kept a clean and tidy work area		<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None
Worn PPE as required		<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None

Section D: Mini trunking				
		Marks		
The learner has		1	2	3
Fixed all mini trunking securely (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fitted mini trunking and lid with gaps ≤ 2 mm between switches and joint box (straight sections) (2 marks)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mitred mini trunking and lid at 90° bend within gap tolerance of:		2 mm	1 mm	No Gap
Section E: Circuits				
		Marks		
The learner has		1	2	3
Lighting circuit				
Wired the lighting circuit correctly (two-way and intermediate) (push wire connectors if required) (3 marks)		N/A	N/A	<input type="checkbox"/>
Wired ring final circuit sockets correctly (2 marks)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wired SFCU correctly (1 mark)				
Cables and protective devices				
Used appropriate rating of CB and stated conductor size for the lighting circuit (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CB rating and minimum conductor size for the ring final circuit as per standard circuit arrangement (IET On-Site Guide) (1 mark)				
Suitable minimal rating of fuse in SFCU (1 mark)				
Section F: Material usage				
		Marks		
The learner has		1	2	3
Requested no additional materials due to wastage		<input type="checkbox"/> 2 requests	<input type="checkbox"/> 1 request	<input type="checkbox"/> No extra requested
Section G: Testing				
		Marks		
The learner has		1	N/A	N/A
Carried out continuity of CPC testing		<input type="checkbox"/>		
Carried out test for continuity of ring final circuit		<input type="checkbox"/>		
Carried out IR testing		<input type="checkbox"/>		
Carried out polarity testing		<input type="checkbox"/>		
Recorded results		<input type="checkbox"/>		
Results acceptable		<input type="checkbox"/>		
Sub-totals		/23	/34	/54
Overall Total				/ 60

Performance marking grid

Task 2

Section A: Positioning and fixing

		Marks		
The learner has		1	2	3
Socket outlets and smoke alarm Positioned and fixed each point securely +/- 5 mm from given dimension 2 x socket outlets (1 mark each (2 max)) 1 x smoke alarm (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light switch back boxes and luminaires Positioned and fixed each securely +/- 5 mm from given dimension 2 x light switches (1 mark each (2 max)) luminaires specified distance from wall (1 mark for both)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installed switches level (1 mark) Installed sockets level (1 mark) Installed FP cable (clipped) vertically correct (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cable clipping and conduit saddles Installed clips/saddles equidistantly/neatly and appropriately for the: ring final circuit (1 mark), lighting circuit (1 mark), smoke circuit (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section B: Connection and termination

		Marks		
The learner has		1	2	3
FP 200 Cable Glanded cable correctly (2 x glands) (1 mark each (2 max)) Clipped appropriately with no damage (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Socket outlets and smoke alarm Given sufficient cable slack and terminated conductors electrically and mechanically sound with no undue removal of cable insulation no damage. 2 x socket outlets (1 mark each (2 max)) 1 x smoke alarm (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light switches and luminaires Given sufficient cable slack and terminated conductors electrically and mechanically sound with no undue removal of cable insulation, no damage. light outlet A and B (1 mark) 2 x switches (1 mark each (2 max))		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CU Installed and terminated all cables/conductors correctly at the CU using where appropriate corresponding N and E bar sequence to CU ways. Lighting circuit (1 mark), ring final circuit (1 mark), smoke alarm circuit (1 mark)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
Section C: Health and safety Key points <ul style="list-style-type: none"> PPE must be worn as appropriate i.e. safety glasses and safety boots Tidy work area. <p>For each minor infringement up to three, deduct marks as listed, a fourth would equate to unsafe working practices which would require the assessment to be stopped and the learner to be referred.</p> <p>No minor infringement (3 marks), 1-2 minor infringements (2 marks), 3 minor infringements (1 mark), 4+ minor infringements and assessment is stopped, and the learner is referred.</p> <p>The assessment must be stopped immediately if there is a major infringement of health and safety which would also be classed as a failure.</p> <table border="1" data-bbox="193 981 1508 1220"> <thead> <tr> <th data-bbox="193 981 837 1014"></th> <th colspan="3" data-bbox="1003 981 1508 1014">Marks</th> </tr> <tr> <th data-bbox="193 1014 837 1048">The learner has</th> <th data-bbox="1003 1014 1173 1048">1</th> <th data-bbox="1173 1014 1342 1048">2</th> <th data-bbox="1342 1014 1508 1048">3</th> </tr> </thead> <tbody> <tr> <td data-bbox="193 1048 1003 1137">Kept a clean and tidy work area</td> <td data-bbox="1003 1048 1173 1137" style="text-align: center;"> <input type="checkbox"/> 3 </td> <td data-bbox="1173 1048 1342 1137" style="text-align: center;"> <input type="checkbox"/> 1-2 </td> <td data-bbox="1342 1048 1508 1137" style="text-align: center;"> <input type="checkbox"/> None </td> </tr> <tr> <td data-bbox="193 1137 1003 1220">Worn PPE as required</td> <td data-bbox="1003 1137 1173 1220" style="text-align: center;"> <input type="checkbox"/> 3 </td> <td data-bbox="1173 1137 1342 1220" style="text-align: center;"> <input type="checkbox"/> 1-2 </td> <td data-bbox="1342 1137 1508 1220" style="text-align: center;"> <input type="checkbox"/> None </td> </tr> </tbody> </table>					Marks			The learner has	1	2	3	Kept a clean and tidy work area	<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None	Worn PPE as required	<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None
	Marks																		
The learner has	1	2	3																
Kept a clean and tidy work area	<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None																
Worn PPE as required	<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None																
Section D: PVC Conduit																			
<table border="1"> <thead> <tr> <th></th> <th colspan="3">Marks</th> </tr> <tr> <th>The learner has</th> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> </table>					Marks			The learner has	1	2	3								
	Marks																		
The learner has	1	2	3																
PVC Conduit lighting circuit Produced 2 x ripple free 90° bends with suitable radius (1 mark for each bend (2 max)) Conduit connected into all accessories securely (push fit) (1 mark)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
PVC Conduit lighting circuit Installed conduit between switch AB to through box vertically correct (1 mark) Installed conduit between through box and outlet B vertical/straight (1 mark) Luminaire outlets A and B in line/straight (1 mark)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
PVC Conduit ring final circuit Produced ripple free set over obstruction (1 mark) Produced a straight set over obstruction (1 mark), Conduit connected into all accessories securely (push fit) (1 mark)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																

PVC Conduit ring final circuit		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Achieved a clearance over obstruction with tolerance of:		+/-10mm	+/-7m	+/-5mm
Section E: Circuits				
		Marks		
The learner has		1	2	3
Lighting circuit Wired the lighting circuit correctly so that: switches A provide 2-way control for luminaire A correctly (2 marks) switch B controls luminaire B correctly (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wired ring final circuit correctly (1 mark) Wired smoke alarm circuit correctly (1 mark) CPCs installed on all circuits (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables and protective devices Used appropriate rating of CB and stated conductor size for the lighting circuit (1 mark) CB rating and minimum conductor size for the ring final circuit as per standard circuit arrangement (IET On-Site Guide) (1 mark) Used stated rating of CB and conductor size for the smoke alarm circuit (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Section F: Material usage				
		Marks		
The learner has		1	2	3
Requested no additional materials due to wastage		<input type="checkbox"/> 2 requests	<input type="checkbox"/> 1 request	<input type="checkbox"/> No extra requested
Section G: Testing				
		Marks		
The learner has		1	N/A	N/A
Carried out continuity of CPC testing		<input type="checkbox"/>		
Carried out test for continuity of ring final circuit		<input type="checkbox"/>		
Carried out IR testing		<input type="checkbox"/>		
Carried out polarity testing		<input type="checkbox"/>		
Recorded results		<input type="checkbox"/>		
Results acceptable		<input type="checkbox"/>		
Sub-totals		/24	/36	/54
Overall Total		/60		

Performance marking grid

Task 3

Section A: Positioning and fixing

		Marks		
The learner has		1	2	3
Socket outlets, DP Switch and simulated load Positioned and fixed each point securely +/- 5 mm from given dimension 2 x socket outlets (1 mark each (2 max)) <i>(Note that a running coupler can be used as a back-up if required for the conduit to achieve this dimension)</i> 1 x DP switch and simulated load (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installed sockets level (1 mark) Installed SWA cable vertically correct (1 mark) Installed PVC and flex cable vertically correct (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cable fixing and conduit saddles Installed clips/saddles equidistantly/neatly and appropriately for the: steel conduit (1 mark), SWA (1 mark), PVC/PVC cable and 3 core flex (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section B: Connection and termination

		Marks		
The learner has		1	2	3
PVC/PVC flat profile cable and 3 core flex Glanded cables securely using correct components and conductors sleeved (3 marks) (Award 1 mark for the flex glands, 1 mark for PVC/PVC flat cable glands, 1 mark for all glands secure)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SWA Cable Glanded cable securely using correct components (2 x glands) (1 mark each (2 max)) used banjo and CPC tail (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Socket outlets, DP Switch and simulated load Given sufficient cable slack and terminated conductors electrically and mechanically sound with no undue removal of cable insulation no damage. 2 x socket outlets (1 mark each (2 max)) 1 x DP switch and simulated load (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CU Installed and terminated all cables/conductors correctly at the CU. Connected the outgoing circuits in the correct sequence (CB, N and E bars). 2 x SSO circuit (1 mark each (2 max)), circuit to isolator (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section C: Health and safety

Key points

- PPE must be worn as appropriate i.e. safety glasses and safety boots
- Tidy work area.

For each minor infringement up to three, deduct marks as listed, a fourth would equate to unsafe working practices which would require the assessment to be stopped and the learner to be referred.

No minor infringement (3 marks), 1-2 minor infringements (2 marks), 3 minor infringements (1 mark), 4+ minor infringements and assessment is stopped, and the learner is referred.

The assessment must be stopped immediately if there is a major infringement of health and safety which would also be classed as a failure.

		Marks		
The learner has		1	2	3
Kept a clean and tidy work area		<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None
Worn PPE as required		<input type="checkbox"/> 3	<input type="checkbox"/> 1-2	<input type="checkbox"/> None

Section D: Trunking and conduit

		Marks		
The learner has		1	2	3
Steel conduit Installed vertically where relevant (1 mark) <i>(Note that if the learner is unable to produce the trunking, the conduit may come out of the bottom of the CU instead)</i> Conduit connected securely (1 mark) Deburred conduit (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steel Conduit Produced set in with tolerance of: (1 mark only awarded if running coupler is used to achieve accuracy)		<input type="checkbox"/> +15 mm (or if running coupler used)	<input type="checkbox"/> +- 10 mm	<input type="checkbox"/> +-5 mm
Steel trunking Fabricates 90° bend and pop riveted (1 mark) Files all edges smooth/no sharp edges (1 mark) Fixed securely to CU (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steel trunking Fitted end caps (1 mark each end cap (2 marks max)) End caps secure (1 mark)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steel trunking Gaps in trunking bend		<input type="checkbox"/> ≥5 mm	<input type="checkbox"/> ≥4 mm	<input type="checkbox"/> ≥2 mm

Steel trunking Gaps in trunking lid at bend	<input type="checkbox"/> ≥5 mm	<input type="checkbox"/> ≥4 mm	<input type="checkbox"/> ≥2 mm
Section E: Circuits			
	Marks		
The learner has	1	2	3
Wired 2 x radial socket circuits correctly (1 mark)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wired circuit to DP Switch and load correctly (1 mark)			
CPCs installed (1 mark)			
Cables and protective devices CB rating and minimum conductor size for the radial final circuit (SWA) as per standard circuit arrangement (IET On-Site Guide) (1 mark) CB rating and minimum conductor size for the SWA radial final circuit (conduit) as per standard circuit arrangement (IET On-Site Guide) (1 mark) Used stated rating of CB and conductor size for the circuit to the simulated load (1 mark)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Section F: Material usage			
	Marks		
The learner has	1	2	3
Requested no additional materials due to wastage	<input type="checkbox"/> 2 requests	<input type="checkbox"/> 1 request	<input type="checkbox"/> No extra requested
Section G: Testing			
	Marks		
The learner has	1	N/A	N/A
Carried out continuity of CPC testing	<input type="checkbox"/>		
Carried out test for continuity of ring final circuit	<input type="checkbox"/>		
Carried out IR testing (all circuits)	<input type="checkbox"/>		
Carried out polarity testing	<input type="checkbox"/>		
Recorded results	<input type="checkbox"/>		
Results acceptable	<input type="checkbox"/>		
Sub-totals	/24	/36	/54
Overall Total	/60		

Evaluation marking grid

Learner name:		
Assessment date:		
Evaluate completed work against the task brief, plan and success criteria		Mark achieved
<ul style="list-style-type: none"> does not produce a coherent evaluation does not reflect in an evaluative report the main outcomes of the project 		0
or		
<ul style="list-style-type: none"> produced a coherent evaluation reflects on their own performance in an evaluative report of the main outcomes of the project tasks 		1
or		
<ul style="list-style-type: none"> produced a coherent and considered evaluation describes in the evaluative report their performance against their plan, success criteria and the task requirements covering the main activities and outcomes for all tasks 		2
or		
<ul style="list-style-type: none"> produced an extensive comprehensive evaluation evaluates fully in a well written evaluative report their performance against their plan, success criteria and the task requirements demonstrating their own strengths/weaknesses and lessons learnt 		3
	Mark achieved	
	Total = Mark achieved × 14	/42

Marks within the evaluation section of the Practical Project, are to be multiplied by 14 to create the total marks for this section of the project.

Overall Practical Project mark

This table indicates the total marks available within each section of the practical project and the minimum mark which must be gained within each section.

Project Section	Marks Available	Marks Awarded	Threshold Pass Mark
Planning (highest scoring plan)	90		30
Trade Task 1	60		24
Trade Task 2	60		24
Trade Task 3	60		24
Evaluating	42		14
Total	312		116

Assessor Name: _____

Assessor
signature: _____

Learner
name: _____

Date: _____

Marks awarded within each section must be totalled and combined to create an overall project mark, the table below indicates the grade to be awarded based on the learner's overall mark.

Please note: the threshold pass mark indicates the minimum score that learners must achieve in each section of the project, but does not set the minimum score which must be achieved overall – the total mark required to pass this assessment can be found in the table below.

Determining overall grade

The table below identifies how many marks overall are required to achieve each grade within this assessment component:

Total Mark	Grade	Points
0 - 115	Fail	0
116 - 143	P1	1
144 - 171	P2	2
172 - 199	M1	3
200 - 227	M2	4
228 - 255	D1	5
256 - 283	D2	6
284 - 312	D3	7

The assessor must use this table to calculate a provisional grade for the learner. Notification of this provisional grade must be given to the learner within one week of completion of the assessment, with guidance given on the provisional nature of the grade. Provisional results will be subject to internal quality assurance procedures, followed by external quality assurance activity completed by EAL. Results will be submitted to EAL, and the final assessment grade aggregated with the other assessment methods to award an overall qualification grade, which will be issued by EAL.

Practical Project provisional grade

Learner name	
Date	
Total mark achieved	
Provisional Practical Project Grade	
Assessor name	
Assessor signature	