8042-01

Foundation in Construction and Building Services Engineering (Level 2)

Practical Project Pack – Sample

Version 1.4 – September 2023

Table of Contents

Contents

Version information

Version and publication date	Changes
v1 December 2020	Original document
v1.1 April 2021	Diagram and measurements for door added to page 15.
V1.2 June 2021	Learner Reference diagram added to page 55.
V1.3 August 2021	• Revision to wording of Health & Safety marking descriptors to clarify requirements within each trade Practical Project. • Wood Occupations: update to marking criteria E2 & E4 in Practical Project. • Decorative finishing and industrial painting: marking criteria D6 & D7 updated to reference manufacturer's specification. • Plumbing, heating and ventilation: updated guidance on board positioning, updated guidance in marking section C, D, and E. • Electrotechnical: update to marking criteria in sections C, D, and E, including the inclusion of safe isolation. Note also added to clarify the availability of reference material during assessment. • Plant operations: health and safety marking criteria added to section 1. • Wall and floor tiling: tolerances within marking criteria in section D revised for clarity. • Revised incorrect references to "points" in some Practical Project marking grids to now reference "marks".
V1.4 September 2023	• Guidance added in relation to duration of assessments (pg 3)

1. Introduction for assessors

This pack contains the following information for learners.

- Cost information for Planning task (2).
- Project brief and practical tasks for supporting Planning tasks (4) and (5) and the Doing section of the project.

Assessors should provide candidates with section 2 – Cost information and the relevant project briefs and planning tasks for both of the learners chosen trade areas at the start of the project assessment.

Please note:

The duration of practical assessments provided within these sample assessment materials are indicative and may change as we cycle through live versions of assessments. Assessments will never be longer in duration than the sample assessments provided within this pack due to the GLH and TQT of the qualification. Please refer to the current live version of the practical project packs for this qualification on the City & Guilds website for the duration of live practical projects for each trade area.

2. Cost information

Please note: The following is indicative and for sample assessment purposes only – this demonstrates how information will be provided within live assessments. For live assessments cost information will be provided for each trade individually.

Use the following information to answer Planning task (2).

You have been provided with the following cost information for completing the practical projects for **both** of your trades.

Cost	Amount	Duration of the task
Hourly rate (per team)	£25	40 hours
Material cost	£550	

You are advised that the running costs of the business, including insurances, van running costs and admin costs, total an additional £6.25 per hour.

You will be required to use a 25% profit margin for undertaking these tasks.

3. Project guidance and practical tasks

3. Project guidance and practical tasks

3.1 Working with brick, block and stone
3.2 Wood occupations
3.3 Plastering and interior systems
3.4 Decorative finishing and industrial painting
3.5 Roofing occupations
3.6 Construction operations and civil engineering
3.7 Plumbing, heating and ventilation
3.8 Electrotechnical systems and equipment
3.9 Plant operations
3.10 Wall and floor tiling

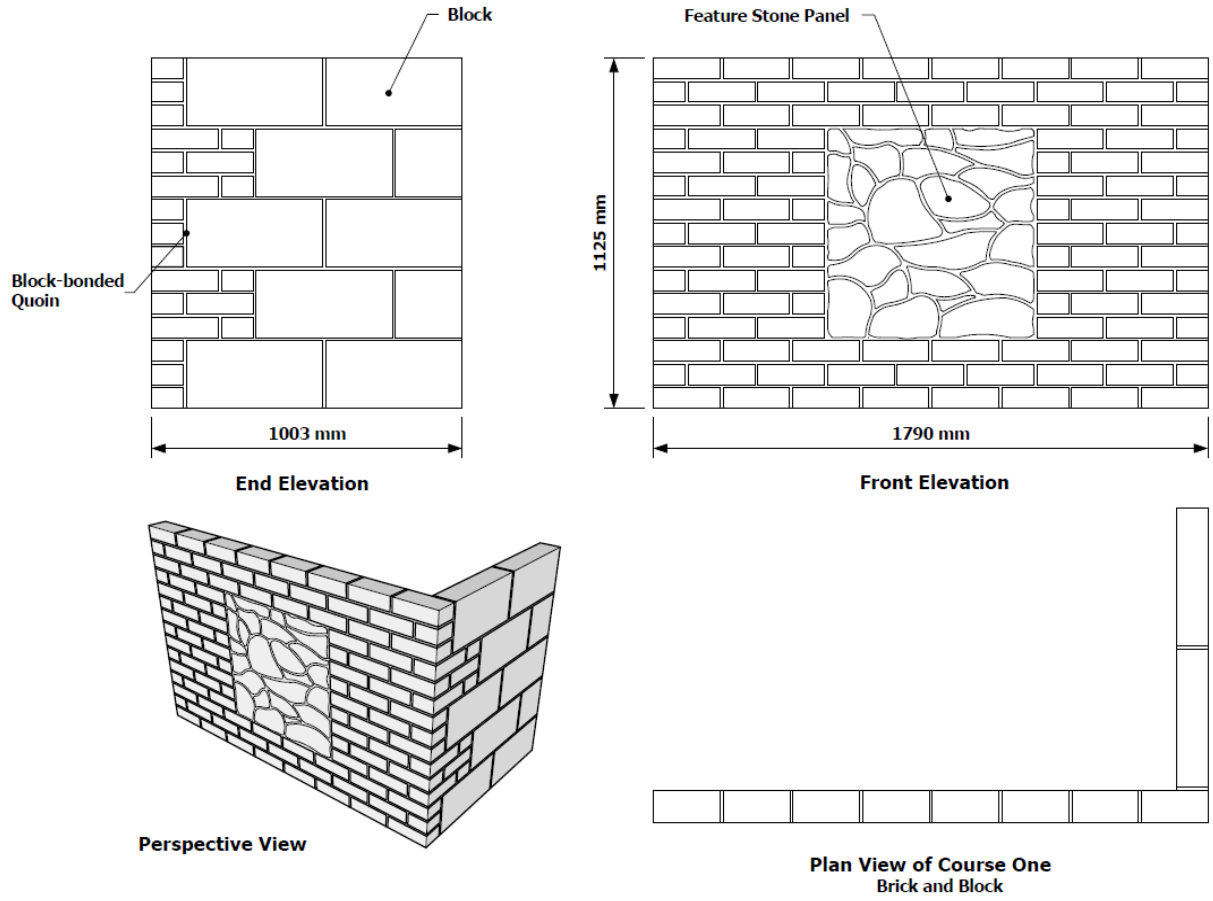
3.1 Working with brick, block and stone – Practical project assessment

The following project brief should be used to support the completion of the tasks provided to you by your assessor.
You should ensure that you read the full requirements of the brief before starting your planning tasks.

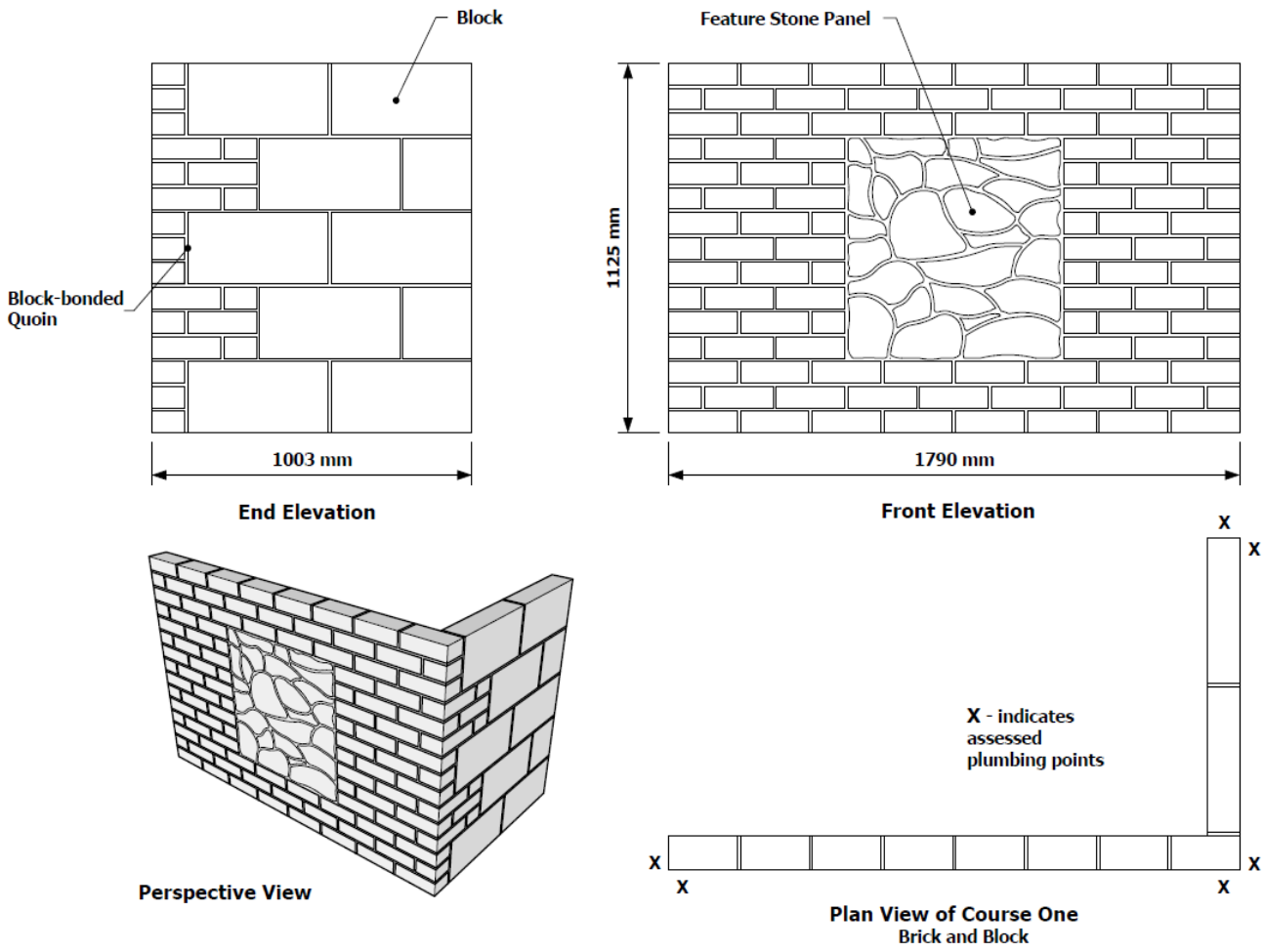
Masonry walls are required to be built on a small extension. The main face of the wall will be in facing bricks and the return will be in blockwork with a decorative feature stone panel. The dimensions of the wall required can be found in the drawings.

Specification for Working with brick, block and stone:	
Bond	Stretcher/ Half bond
Description of materials	Brick, block and stone
Return of the wall	Blockwork
Main face of the wall	Facing bricks
Decorative feature panel	Locally sourced stone Approx. 675mm x 675mm
Horizontal reinforcement	Bedded between brickwork and stone panel every 3 courses
Joint size	10mm
Gauge of Brickwork Blockwork	4 courses to 300mm 4 courses to 900mm
Joint finish to all brickwork and blockwork	Half round
Joint finish to stonework	Flush
Height of main wall	1125mm
Mortar	Suitable quantity of training mortar

Note – Adjustments may be made to wall sizes to suit variations in material sizes. These adjustments **must be set and recorded prior to the practical assessment** and **must** be taken into consideration when marking with tolerances identified in the marking grid applied accordingly.


Block
Block-bonded Quoin
1003 mm
End Elevation
Feature Stone Panel
1125 mm
1790 mm
Front Elevation
Perspective View
Plan View of Course One
Brick and Block

Tutor drawing with plumbing points



Materials and tools list

This list is provided for centre-use only and is to support manageability of the practical assessments.

Materials	Quantity
Bricks	97
Blocks	9
Stones	Half sq. metre
Training Mortar	Sufficient quantity

Tools	Equipment
Laying trowel	Wheelbarrows
Pointing trowel	Shovels
Level (1200mm)	Buckets
Boat/pocket level	Mortar boards
Line and pins	Sweeping brush
Hammer and bolster	
Jointing iron	
Corner blocks	
Square	
Gauge rod	
Measuring tape	
Brick hammer	
Scutch hammer	
Hand brush	

Section A Setting out and measuring

Learner will set out and build a wall with a return corner and stopped ends to include a small decorative stone panel. The wall should be set out dry with regular joints to the measurements provided.

The first course can then be laid in mortar to the correct length and with a right-angled return.

Joints should be finished as per the specification.

Note – Adjustments may be made to wall sizes to suit variations in material sizes. These adjustments **must be set and recorded prior to the practical assessment** and **must** be taken into consideration when marking with tolerances identified in the marking grid applied accordingly.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Set out the face of the wall to the set length (1790mm)	See measurement	+/-15mm ☐	+/-10mm ☐	+/- 5mm ☐
Set out the return of the wall to the set length (1003mm)	See measurement	+/- 10mm ☐	+/- 5mm ☐	+/- 3mm ☐
Set out the block bonded return	See measurement	+/-10mm ☐	+/- 5mm ☐	+/- 3mm ☐
Squared the external return		+/- 15mm ☐	+/- 10mm ☐	+/- 5mm ☐
Maintained a regular perpendicular joint size		+/- 5mm ☐	+/- 3mm ☐	+/- 2mm ☐
Positioned the feature stone panel as per the drawing		Correct ☐		

Section B Health and Safety

Key points

- PPE must be worn as per centre's own risk assessment
- Tidy work area

If there is a minor infringement, deduct marks as listed.

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 fail.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**

kept a clean and tidy work area	**B1**	☐ 3	☐ 1-2	☐ None
worn PPE as required	**B2**	☐ 3	☐ 1-2	☐ None
Warnings should be issued where learners are working unsafely and putting themselves and/or others at risk. Assessor to record infringement(s):				

Section C Plumb Level and Gauge
The wall should be constructed in half bond and corners will need to be plumb, courses should be level, and the gauge of the courses should be regular and to the specified height overall.
Joints should be full and finished according to the specification.

This section is focussing on the level plumb and gauge of the work.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Built the walls to gauge with regular joint thickness	**C1**	+/- 15mm ☐	+/- 10mm ☐	+/- 5mm ☐
Plumbed the 90-degree corner over the height of the wall	**C1**	+/- 15mm ☐	+/- 10mm ☐	+/- 5mm ☐
Plumbed ends of the wall over the full height	**C2**	+/- 15mm ☐	+/- 10mm ☐	+/- 5mm ☐
Levelled the top course of bricks on the main wall	**C3**	+/- 15mm ☐	+/- 10mm ☐	+/- 5mm ☐
Levelled the top course of bricks on the return	**C4**	+/- 10mm ☐	+/- 5mm ☐	+/- 3mm ☐
Neatly jointed the wall with full joints as specified	**See spec**	Up to 6 gaps ☐	Up to 4 gaps ☐	Up to 2 gaps ☐
Constructed the feature stone panel with locally sourced materials	**See drawing**	Uniform joints ☐		

Section D Range

The range of the wall should be taken diagonally from top corners to opposite bottom corners and be within the tolerances shown

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Constructed the face of the main wall to range		+/- 12mm ☐	+/- 8mm ☐	+/- 4mm ☐

Constructed the blockwork on the return corner to range		+/- 6mm ☐	+/- 4mm ☐	+/- 2mm ☐
Constructed the brickwork to the main wall to range		+/- 15mm ☐	+/- 10mm ☐	+/- 5mm ☐
Maintained plumb in the centre of the wall		+/-10mm ☐	+/- 5mm ☐	+/- 3mm ☐
Constructed the feature stone panel flush to the surrounding brickwork		Within 15mm ☐	Within 10mm ☐	Within 5mm ☐

Section E - Prepare the area ready for the work and select tools and equipment

The learner should stack them materials in a safe manner in order to allow the work to be carried out efficiently.

Bricks, blocks and stones stacked, mortar boards in position and materials checked for defects such as cracks, chips and stains.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Positioned mortar boards correctly to allow the work to be carried out efficiently		☐		
Positioned bricks and stones to allow the work to be carried out efficiently		☐		
Positioned blocks to allow the work to be carried out efficiently		☐		
Selected the full range of tools required		☐		
Sub-totals		/24	/36	/54
Overall Total				/ 60

3.2 Wood Occupations - Practical project assessment

The following project brief should be used to support the completion of the tasks provided to you by your assessor.
You should ensure that you read the full requirements of the brief before starting your planning tasks.

A customer has requested that a current room/space be divided to provide a storage area. They have requested for, an `L` shaped timber partition wall to be constructed with an access opening complete with a new bespoke manufactured door and finished with all necessary mouldings. The new door is required to be manufactured with an MDF panel as per drawing and specification (400mm (w) x 600mm (h)). A setting out rod is to be produced.

The new partition wall partition overall size is 1200mm (l) x 400mm (w) x 800mm (h) as shown in the drawing. Supplied PSE timber for the door lining will require assembly (as per drawing) and then be installed into a set opening, which will be positioned as per the drawing. The bespoke manufactured door will then be installed into the lining with the hinges positioned as per the drawing. The lining will be finished with Splayed/chamfered architrave and the base finished with matching skirting board. The end of the skirting board (as shown on drawing) is to have a return to floor finish.

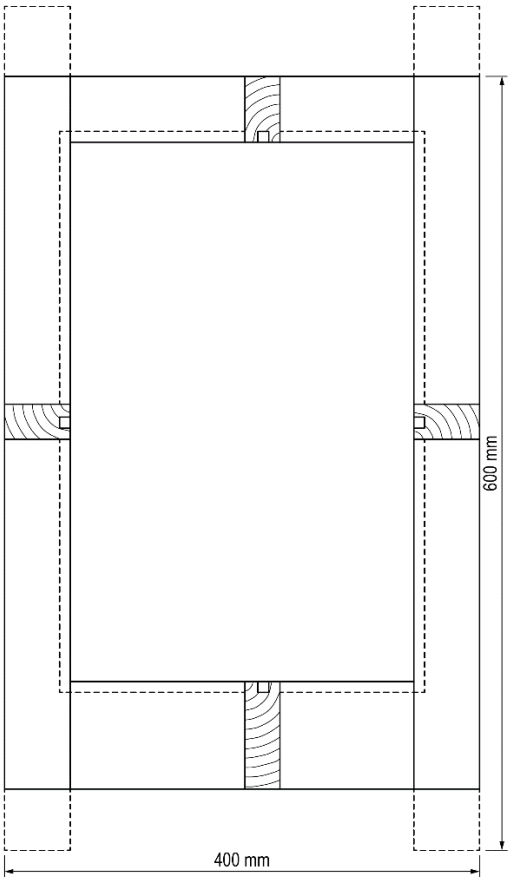
Specification for Cupboard Door

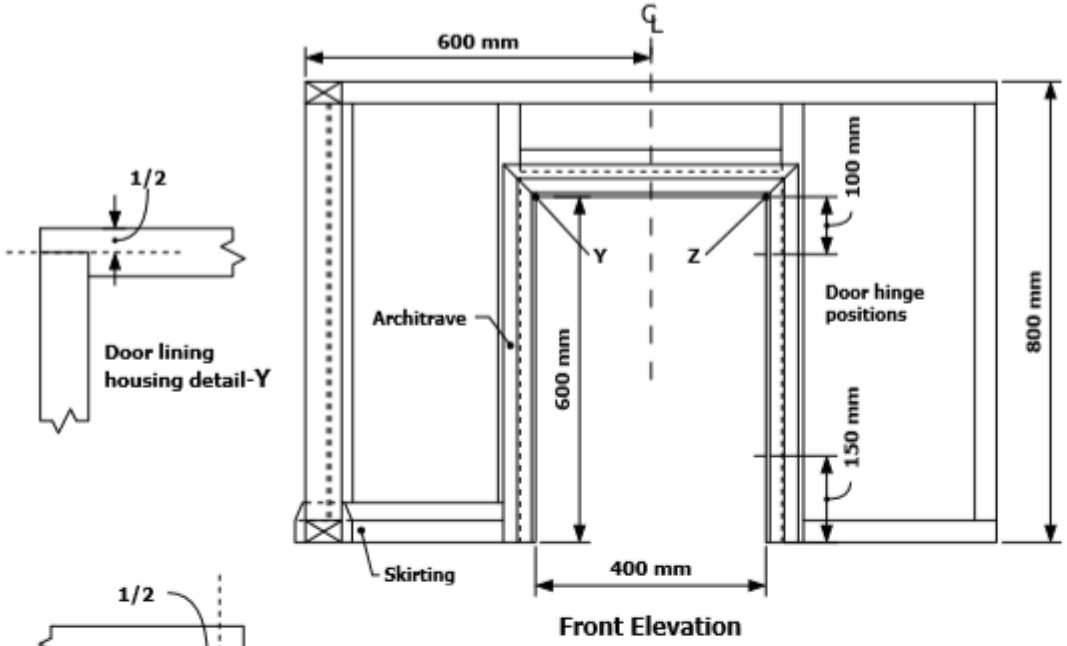
Specification:	
Stiles and top rail	57 x 30mm (Joinery grade European redwood)
Bottom rail	90 x 30mm (Joinery grade European redwood)
Panel	9mm thick
Joints	Haunched, mortice and tenon – glued and wedged
Groove	To be central, 8mm deep
Hinge position	Top hinge to begin 100mm from top edge of door Bottom hinge to begin 150mm from bottom edge of door

Specification for Partition Wall and finishing

Specification:	
Partition Studs	63mm x 38mm CLS C16 Intermediate studs to be fixed to accommodate cupboard door and lining.
Architrave	45mm Splayed/Chamfered
Skirting board	70mm Splayed/Chamfered
Lining	75mm x 20mm PSE
Fixings	All studs to be nailed Lining to be screwed
Ironmongery	Pair of suitable butt hinges
Power tools	Power tools to be used for mitre and scribe cuts
Hand tools	Hand tools to be used for all other work

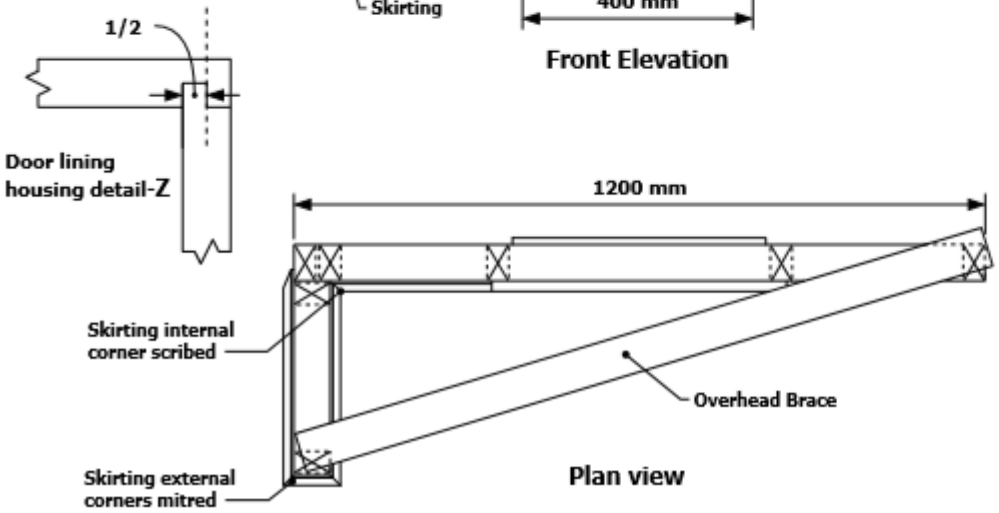
Door



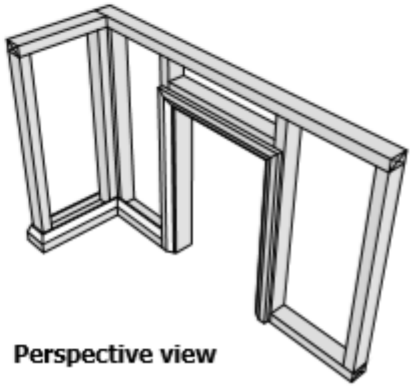


Front Elevation

Side Elevation



Plan view



Perspective view

Material and tools lists

This list is provided for centre-use only and is to support manageability of the practical assessments.

Material List – Partition Wall and Finishing
5@ 1.2m x 63mm x 38mm CLS C16 (Partition) 1@ 2.4m x 63mm x 38mm CLS C16 (Partition) 1@ 3.6m x 63mm x 38mm CLS C16 (Partition)
1@ 1.5m x 45mm x 20mm Splayed/Chamfered Architrave
1@ 1.5m x 70mm x 20mm Splayed/Chamfered Architrave
1@ 2m x 75mm x 20mm PSE (door lining)
1@ 1m bracing timber
75mm round wire nail
40mm oval nails
4.0 x 50 wood screws
3.5 x 20 wood screws
Wood glue
1 pair - 52 x 19mm butt hinges

Material List – Cupboard Door
2 @ 700 x 57 x 30mm European redwood
1 @ 410 x 57 x 30mm European redwood
1 @ 410 x 90 x 30mm European redwood
1 @ 600 x 400 x 9mm MDF
Suggested Tool list – Cupboard Door
Combination square
Try square
Saws (hardpoint, tenon)
Chop saw with LEV
Block plane
Mallet
Selection of sash cramps opening up to 500mm
10mm mortice chisel
Mortice gauge
Plough plane
Router including parallel fence and 10mm straight fluted cutter
Smoothing plane
Wood glue
Setting out board

Suggested Tools list– Partition and finishing
Chop saw (with LEV)
Drill driver with selection of drill bits and screwdriver bits to suit fixings
Hammer
Tape measure
Pencil
Combination square
Try square
Framing square
Hard point hand saw
Nail punch
Block/smoothing plane
Selection of bevel edged chisels (6mm (¼"), 10mm (3/8"), 13mm (½"), 19mm (¾") and 25mm (1"))
Utility/retractable blade knife
Saw stool
Spirit level
Selection of F-clamps
Calculator

Section A Measurement and marking out

Position of components

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Produced setting out rod to given dimensions and scale	**A1**	+/- 3mm ☐		
Marked out each joint as per the rod within 1mm	**A2**	3 of 6 ☐	4 of 6 ☐	All ☐
Overall dimensions of door set out 600mm x 400mm	**A3**	+/- 3mm ☐		
Marked out position of studs within	**A4**	3mm ☐	2mm ☐	1mm ☐
Marked out position of opening	**A5**	+/- 3mm ☐	+/- 2mm ☐	+/- 1mm ☐
Marked margin for architrave	**A6**	+/- 2mm ☐	+/- 1.5mm ☐	+/- 1mm ☐

Section B Health and Safety

Key points

- PPE must be worn as per centre's own risk assessment
- Tidy work area

If there is a minor infringement, deduct marks as listed.

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 fail.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Kept a clean and tidy work area	**B1**	☐ 3	☐ 1-2	☐ None
Worn PPE as required	**B2**	☐ 3	☐ 1-2	☐ None

Warnings should be issued where learners are working unsafely and putting themselves and/or others at risk.

Assessor to record infringement(s):

Section C Tolerances

This section is for recording cutting and fitting and fixing tolerances

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
No gaps at joints shoulders greater than	**C1**	1.5mm ☐	1mm ☐	0.5mm ☐
No gaps on joint cheeks greater than	**C2**	1.5mm ☐	1mm ☐	0.5mm ☐
Studs fixed to position marks	**C3**	≤3mm ☐	≤2mm ☐	≤1mm ☐
Gaps between studs and plates not exceeding	**C4**	3mm ☐	2mm ☐	1mm ☐
Gaps on architrave mitres no greater than	**C5**	2mm ☐	1.5mm ☐	1mm ☐
Gaps on skirting scribes and mitres no greater than	**C6**	2mm ☐	1.5mm ☐	1mm ☐
Position of hinges as per drawing within	**C7**	2mm ☐	1.5mm ☐	1mm ☐
Door swung freely with gap to frame no greater than	**C8**	3mm ☐	2.5mm ☐	2mm ☐

Section D Plumb, level, parallel When assessing door and partition plus finishing				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Door square within	**D1**	2mm ☐	1.5mm ☐	1mm ☐
Partition plumb within	**D2**	3mm ☐	2mm ☐	1mm ☐
Partition braced square within	**D3**	3mm ☐	2mm ☐	1mm ☐
Lining plumb and wound-in	**D4**	+/-3mm ☐	+/-2mm ☐	+/-1mm ☐
Section E Material usage, layout and overall presentation				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
All inside edges dressed prior to assembly	**E1**	☐		
Not requested additional components on frame	**E2**	☐		
Securely fixed all partition and finishing components	**E3**	☐		
Not requested additional components for partition & finishing	**E4**	☐		
Sub-totals		/24	/36	/54
Overall Total				/60

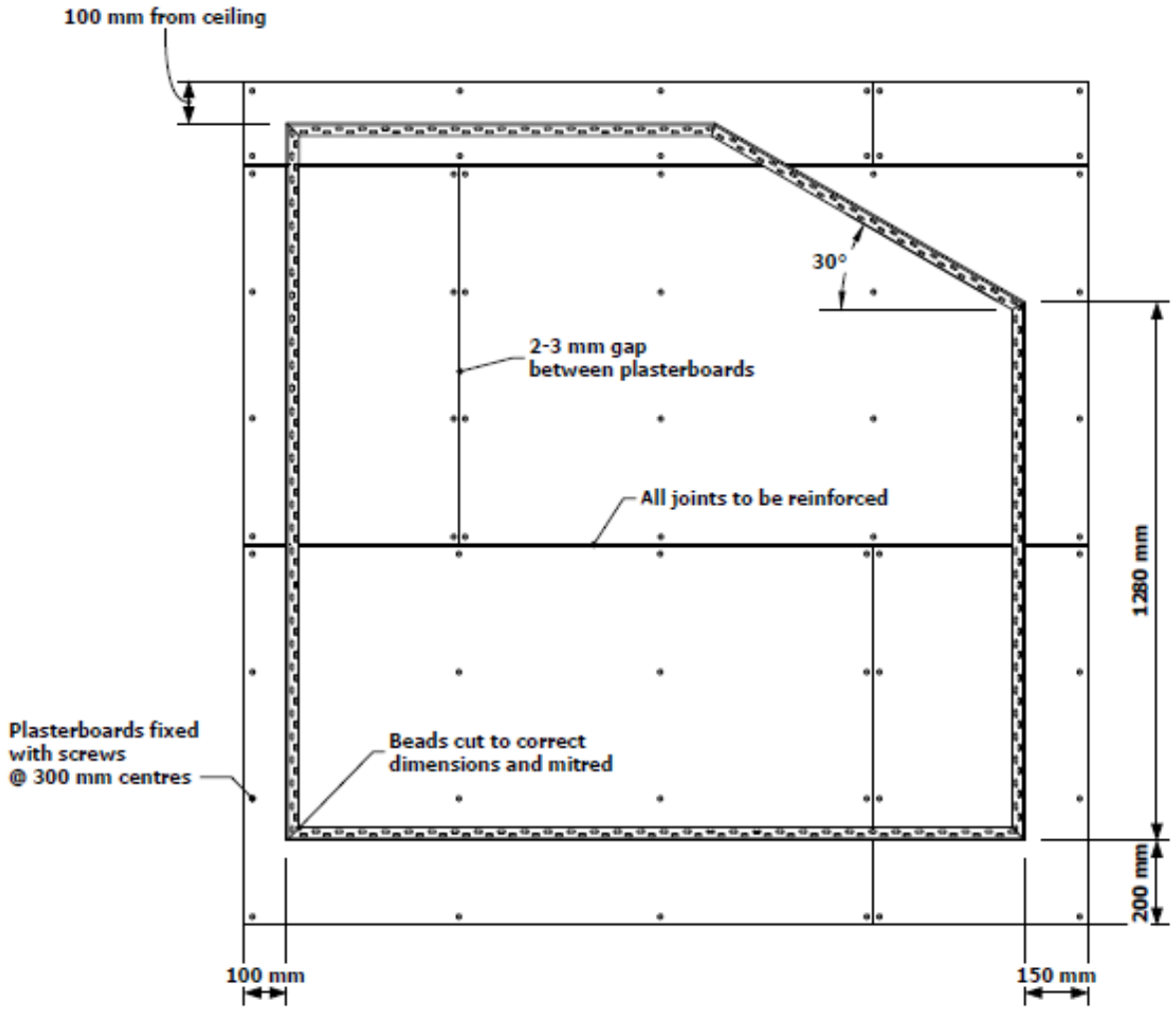
3.3 Plastering - Practical project assessment

The following project brief should be used to support the completion of the tasks provided to you by your assessor.
You should ensure that you read the full requirements of the brief before starting your planning tasks.

A small extension is to be plastered by dry lining with plasterboard and skimming wall to wall surfaces and return corners.

Specification for Plastering

For the installation of plasterboard and application of finish, learners will require a minimum area of $2m^2$. For the solid plastering application, learners will need a pillar with a return to be minimum 300mm wide on each side and minimum height of 1.2m.	
SE Plasterboard 1800mm x .900mm x 12.5mm	5 sheets
Dry wall screws 32mm	Fixings
Thin coat stop beads	Plaster panel 4 lengths
Self-adhesive scrim	1 roll
Finishing plaster	Two coat application to panel 1 bag pre-blended
Standard angle beads	1.2 metres x 2 Pier face
Standard stop bead	1.2 metres x 1 wall return
Sand, Cement lime backing plaster including plasticiser	Forming two coat work
During the assessment, learners should ensure care is taken to present all aspects of the work to meet the specification and obtain a quality finish.	

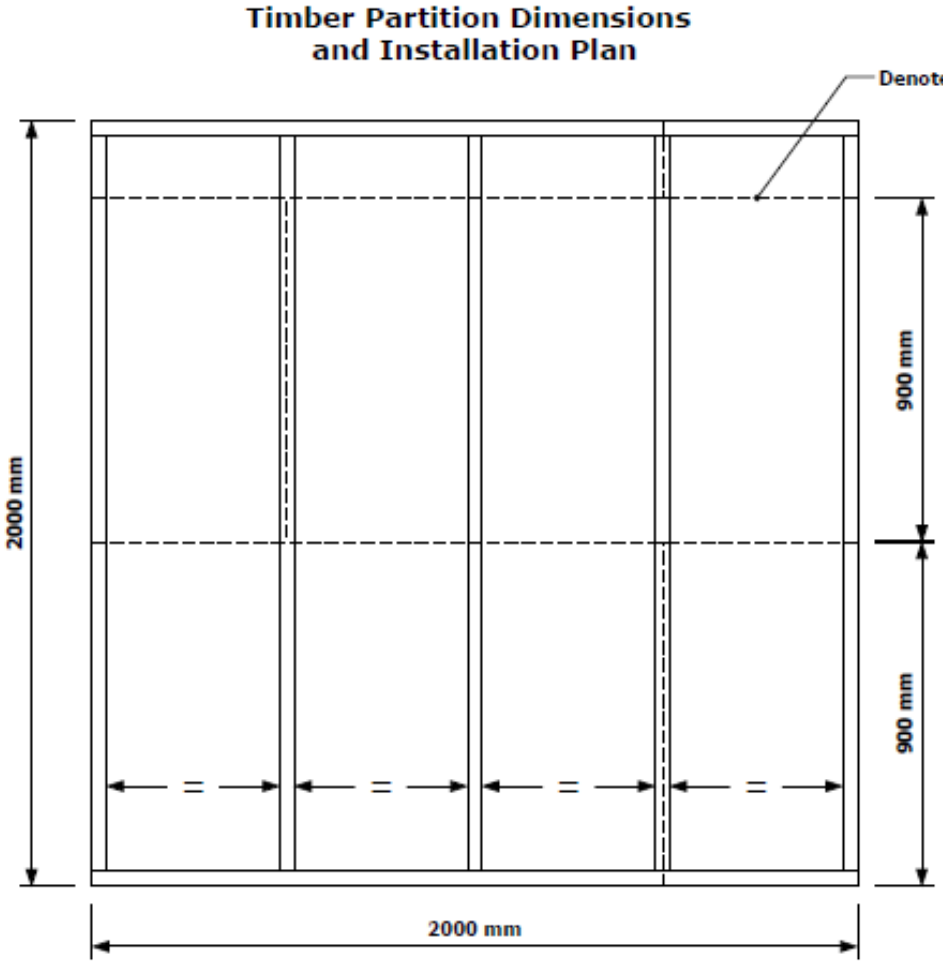


Task 1

Cut and Fix Plasterboards

Set Out and Fix Skim Beads

Apply Finishing Plaster



Task 1

Specification

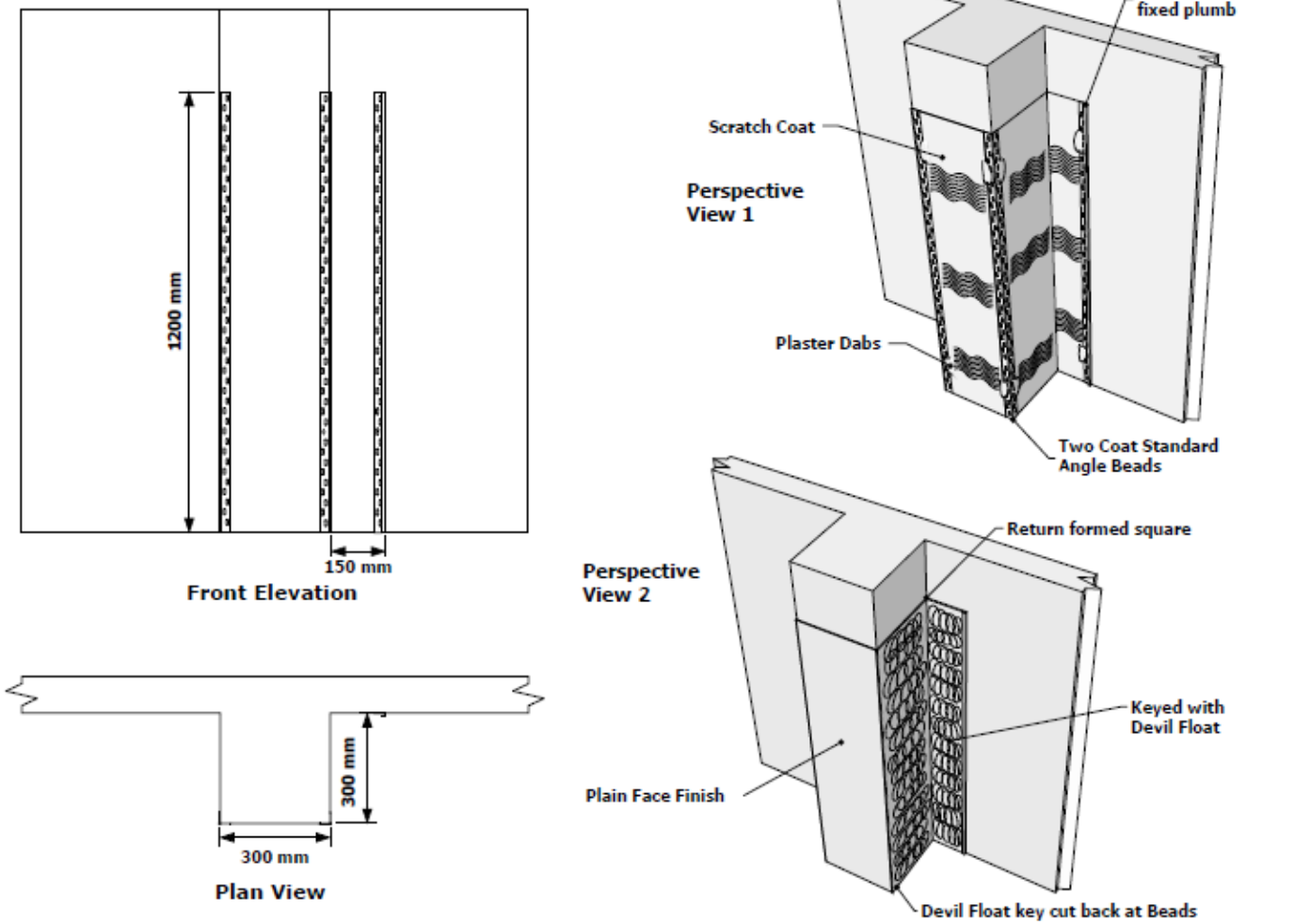
SE Plasterboard
1800 mm X 900 mm X 12.5 mm

Dry Wall screws 32 mm

Self-adhesive scrim

Thin coat stop beads

Finishing Plaster


1200 mm
150 mm
Front Elevation
300 mm
300 mm
Plan View
10 mm Stop Bead fixed plumb
Scratch Coat
Perspective View 1
Plaster Dabs
Two Coat Standard Angle Beads
Perspective View 2
Return formed square
Keyed with Devil Float
Plain Face Finish
Devil Float key cut back at Beads

Materials and tools list

This list is provided for centre-use only and is to support manageability of the practical assessments.

Tools/equipment	Materials
Tape measure	Plasterboard
Utility knife	Scrim
Rasp	Thin coat skim beads
Straight edge	Standard angle beads
Level	Standard stop beads
Dry wall drill (battery or 110v)	Backing plaster
Transformer and lead (as above)	
Tin snips	Finishing plaster
Stapler	Dry wall screws
Hammer	Staples
Hand board	Galvanised nails
Application trowel	
Bucket trowel	
Gauging trowel	
Splash brush	
Small brushes	
Darby	
Polyurethane float	
Devil float	
Comb scratcher	
Mixing equipment	
Spot and stand	
Access equipment	
Cleaning equipment	
Wheelbarrow	

Section A Measurement and marking out

Set out dimension from drawings to install plasterboard, components and plasters

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
First plasterboard measured, set out positioned and fixed level	**A1**	☐ 6mm	☐ +/-4mm	☐ +/- 2mm
Remaining plasterboards fixed staggered with 2-3mm joints	**A2**	☐ 8mm	☐ 5-7mm	☐ 2-4mm
All plasterboard screw fixings in line	**A3**	☐ More than 4 misses	☐ Up to 4 misses	☐ Up to 2 misses
Plasterboard screw fixings centres at 230mm apart	**A4**	☐ 6mm	☐ +/-4mm	☐ +/-2mm

Section B Health and Safety

Key points

- PPE must be worn as per centre's own risk assessment
- Tidy work area

If there is a minor infringement, deduct marks as listed.

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 fail.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
kept a clean and tidy work area	**B1**	☐ 3	☐ 1-2	☐ None
worn PPE as required	**B2**	☐ 3	☐ 1-2	☐ None

Warnings should be issued where learners are working unsafely and putting themselves and/or others at risk.

Assessor to record infringement(s):

Section C Angles and clearances

- Setting out and installation of skim beads to correct angle, ratio with no steps
- External and internal angles in line and straight 1.2 metres
- Applied plain and floated backing plaster ruled and finished as drawing

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Scratch coat external hard angles are straight and in-line	**C1**	☐ 7mm	☐ +/-5mm	☐ +/-3mm
Plain face finish ruled	**C2**	☐ 5mm	☐ +/-4mm	☐ +/-3mm
Floating coat applied and squared to maintain correct margin	**C3**	☐ 7mm	☐ +/-5mm	☐ +/-3mm
Internal angle should be plumb and sharp	**C4**	☐ 7mm	☐ +/-5mm	☐ +/-3mm

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**
Setting out and fix skim stop bead in level position from datum	D1	☐ 7mm	☐ +/-5mm	☐ +/-3mm
Setting out and fix skim stop bead in plumb position from datum	D2	☐ 7mm	☐ +/-5mm	☐ +/-3mm
Setting out and fix skim stop bead to the correct raking angle	D3	☐ 7mm	☐ +/-5mm	☐ +/-3mm
Setting out of standard angle beads in plumb position to maintain correct margin	D4	☐ 7mm	☐ +/-5mm	☐ +/-3mm
Setting out and fix standard stop bead in plumb position	D5	☐ 7mm	☐ +/-5mm	☐ +/-3mm

Section E Material usage, layout and overall presentation • Installed plasterboard, set out and fixed skim bead and applied and finished plaster • Installed standard two coat beads, applied and finished two coat solid plastering work				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Skim beads fixed with no steps	**E1**	☐ Met		
Finishing plaster applied and trowelled flat and smooth	**All finishing plaster surface**	☐ Up to 8 minor defects	☐ Up to 6 minor defects	☐ Up to 4 minor defects
Skim stop beads kept sharp and clean	**All beads**	☐		
Scratch coat applied evenly to correct thickness and keyed	**E2**	☐		
Plain face finish applied and consolidated smooth	**Front face of pillar**	☐ Up to 8 minor defects	☐ Up to 6 minor defects	☐ Up to 4 minor defects
Backing coat applied to correct thickness	**E3**	☐		
Backing coat devil floated and cut back at beads	**Left side of return**	☐		
Standard angle beads kept sharp and clean	**E4**	☐		
Used surplus materials as listed in plan/spec		☐ +2	☐ +1	☐ No Extra
Sub-totals		/24	/36	/54
Overall Total				/ 60

3.4 Decorative finishing and industrial painting - Practical project assessment

The following project brief should be used to support the completion of the tasks provided to you by your assessor.
You should ensure that you read the full requirements of the brief before starting your planning tasks.

Prepare and apply two coats of water-based paint to a ceiling and wall areas by brush and roller. You must also prepare and apply two coats of water-based eggshell paint by brush and roller to a feature wall in an accent colour.

Completely remove paint from a separate softwood moulded panel and apply a solvent-based paint system as per specification. Prepare and make good a separate plasterboard panel with defects and apply a water-based paint system as per specification.

Prepare and apply two coats of water-based paint to a full-sized panelled door (side A) and skirting board/door frame by brush and roller.

Specification for Painting and decorating

Room Dimensions:	Minimum 1500mm x 2400mm.
Room height:	Minimum 2400mm.
Ceiling	2 coats 00E55 matt emulsion
Wall areas:	2 Coats 00A01 vinyl matt emulsion.
Feature wall:	2 Coats acrylic eggshell in a contrasting tone to the walls e.g. 14E53, 16E53, 18E53 (See Fig. 1).
Panelled door side A	2 Coats 00E55 acrylic eggshell (See Fig. 3).
Moulded panel:	Nominal dimensions 600mm x 600mm (See Fig. 2) • Remove all existing paint from the panel using hot air gun (See Fig. 2) • After stripping, the panel should be brought forward with a suitable paint system and finished in 00A05 solvent-based gloss
Plasterboard panel:	Nominal dimensions 600mm x 600mm (See Fig. 2) Plasterboard panel **must** include the following defects (as a minimum): • 6 N° screw holes to be prepared and made-good. • 500mm **simulated** crack to be prepared and made-good. • 1.0m linear gap between the panel and moulding to be prepared and made good.

	• After preparation, the panel should be finished in 2 coats of matt emulsion in learner's choice of colour.
Skirting and door frame:	2 coats of 00E55 acrylic gloss
Timescale:	The task must be completed within 20 hours.

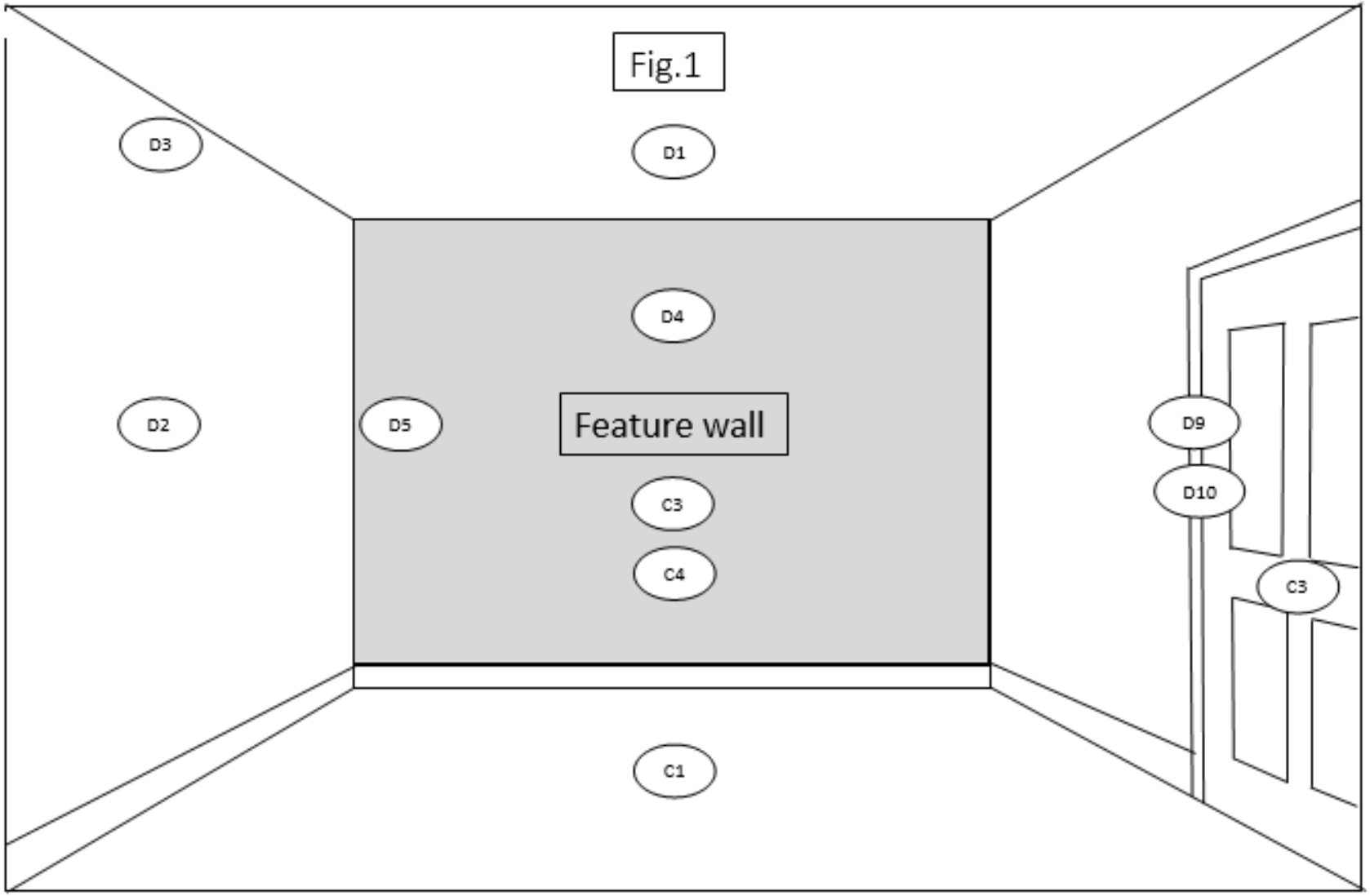


Fig.1
D3
D1
D4
D2
D5
Feature wall
D9
D10
C3
C4
C3
C1

Fig.2

Side A: **Remove paint from a separate softwood moulded panel using a hot air gun.**

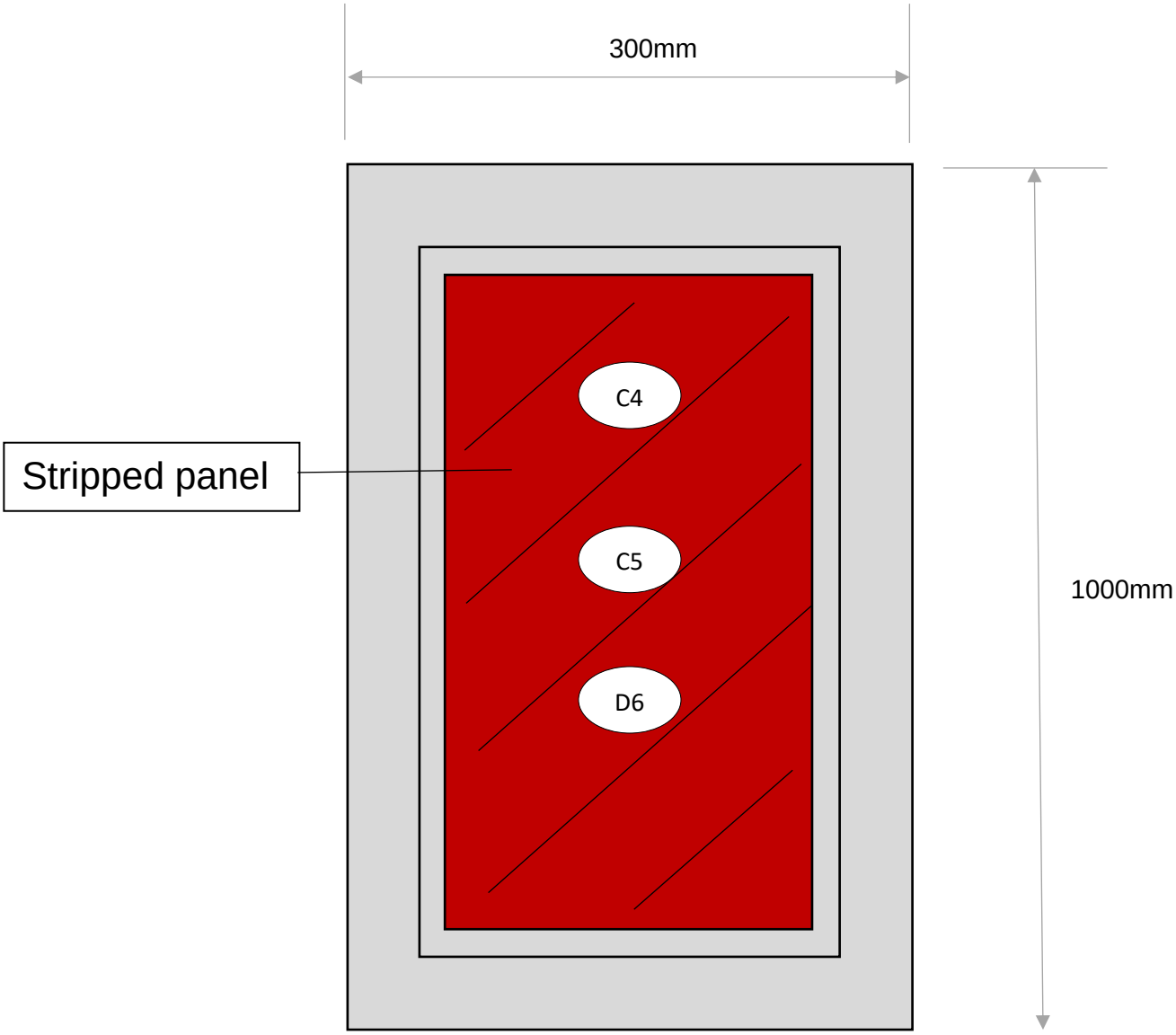
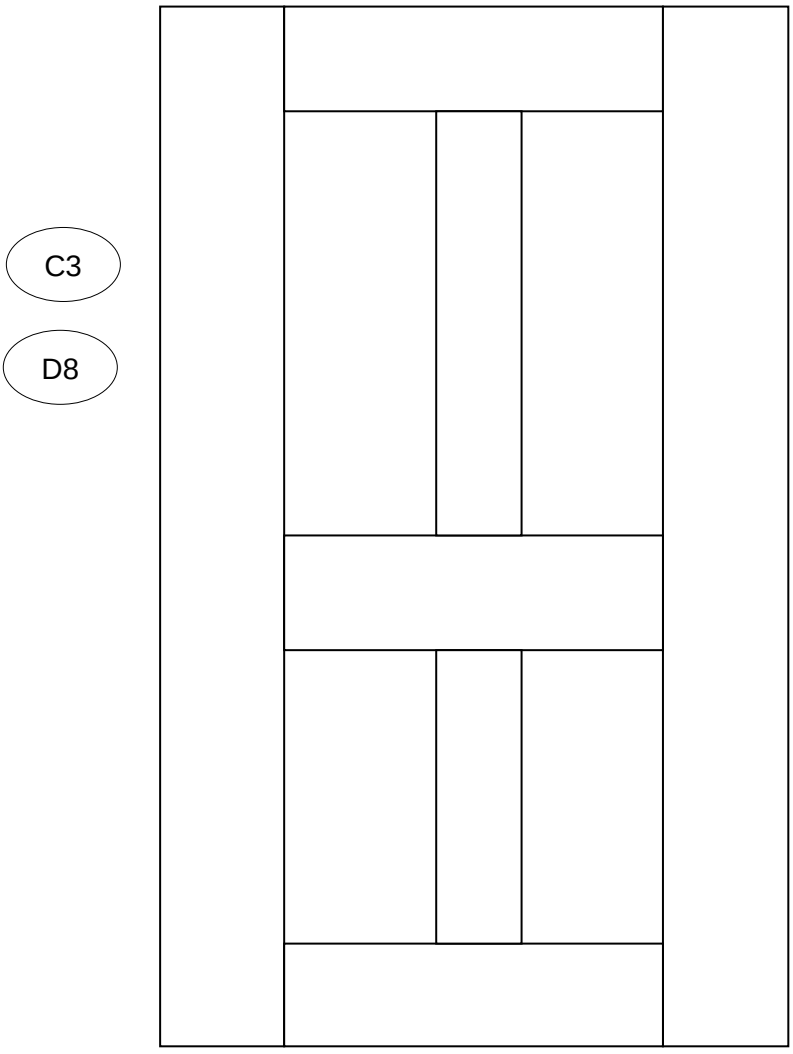


Fig.3

Apply two coats of water-based paint to a full-sized panelled door
(by brush and roller)

Side A: **00E55 acrylic eggshell**



Material and tools lists

This list is provided for centre-use only and is to support manageability of the practical assessments.

Tools	Materials/sundries	Equipment
Stripping knife/scraper	Various abrasives	Hot air gun
Shave hook	Decorators caulk	Transformer
Dusting brush	White spirit	Buckets
Synthetic filament paintbrushes	Variety of fillers	Metal buckets
Pure bristle paintbrushes	Sponges	Paint kettle
Paint roller (variety of sleeves)	Tack rags	Paint scuttle/tray
Mini-roller (variety of sleeves)	Sufficient quantity of paint to meet specification	Non-combustible floor protection
Filling knives	Masking tape	Dust sheets
Sanding blocks		Roller poles
Skeleton gun		Sanding poles
		Step ladders
		Hop-ups

Section A Select resources

Key points

- Correct tools, equipment and materials selected for the task.

		Marks		
The learner has	**Aspect ID**	**1**		
Selected suitable protective materials needed to protect work and surrounding area	See resource list	☐		
Selected correct tools and equipment	See resource list	☐		
Selected correct materials	See resource list	☐		
Selected suitable access equipment	See resource list	☐		

Section B Health and Safety

Key points

- PPE must be worn as per centre's own risk assessment
- Tidy work area

If there is a minor infringement, deduct marks as listed.

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 fail.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
kept a clean and tidy work area	**B1**	☐ 3	☐ 1-2	☐ None
worn PPE as required	**B2**	☐ 3	☐ 1-2	☐ None

Warnings should be issued where learners are working unsafely and putting themselves and/or others at risk.

Assessor to record infringement(s):

Section C Preparation **Key points** • Work area prepared and protected appropriately. • Surfaces prepared appropriately.				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Prepared and protected surrounding areas appropriately.	**C1**	☐		
Inspected and used access equipment in compliance with legislation	**See spec**	☐		
Prepared all surfaces to be painted.	**C3**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defect
Made good all surfaces to be painted.	**C4**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defect
Checked paint-stripping equipment within organisation guidelines.	**See spec**	☐		
Removed previously applied coatings safely using hot air gun	**C5**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defects
Disposed of removed coatings in compliance with current legislation	**See spec**	☐		

Section D Paint application and finishes

Key points

- Work area prepared and protected appropriately.
- Paints prepared and applied correctly as per the specification.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Prepared and applied in the correct sequence two coats of matt emulsion to ceiling as per specification	**D1**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defect
Prepared and applied, in the correct sequence, two coats of vinyl matt emulsion to the walls as per specification	**D2**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defect
Cut-in neatly and accurately without paint on adjoining surfaces.	**D3**	☐ ± 3 mm	☐ ± 2 mm	☐ ± 1 mm
Prepared and applied, in the correct sequence, two coats of acrylic eggshell to the feature wall as per specification	**D4**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defect
Cut-in neatly and accurately on feature wall without paint on adjoining surfaces.	**D5**	☐ ± 3mm	☐ ± 2 mm	☐ ± 1 mm
Applied solvent based paint system to stripped panel as per manufacturer's specification.	**D6**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defect
Applied water-based paint system to plasterboard panel as per manufacturer's specification.	**D7**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defect
Prepared and applied, in the correct sequence, two coats of acrylic eggshell to a panelled door (side A) as per specification.	**D8**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defect
Prepared and applied two coats of water-based gloss to skirtings as per specification.	**D9**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defect
Prepared and applied two coats of water-based gloss to door frame as per specification.	**D9**	☐ Max 3 defects	☐ Max 2 defects	☐ Max 1 defect
Cut-in skirtings and architraves neatly and accurately without paint on adjoining surfaces.	**D10**	☐ ± 3 mm	☐ ± 2 mm	☐ ± 1 mm
All paints used in line with current environmental and relevant health and safety regulations.	**D11**	☐		

Section E Cleaning, maintaining and storing resources

Key points

- All tools and equipment cleaned and stored correctly for re-use.
- All unused materials re-claimed and stored correctly for re-use.

		Marks		
The learner has	**Aspect ID**	**1**		
Cleaned tools, equipment, brushes and rollers	**E1**	☐		
Left the work and surrounding area clean and tidy on completion of the task	**E2**	☐		
Stored materials, tools and equipment in accordance with COSHH data sheets and manufacturer's instructions.	**E3**	☐		
Sub-totals		/24	/36	/54
Overall Total				/ 60

3.5 Roofing occupations- Practical project assessment

The following project brief should be used to support the completion of the tasks provided to you by your assessor.
You should ensure that you read the full requirements of the brief before starting your planning tasks.

Learner is required to cover the main roof areas with underlay, battens and concrete interlocking format tiles set to even gauge. The eave and ridge length should be 3m and the rafter length should be 1.4m.

Specification for Roofing occupations

Tile	Interlocking single lap **profiled** large format tile (e.g. Double Roman or similar) set to minimum 75mm headlap Excess +/- 10%
Ventilated eave system	Fitted to manufacturer's instructions
Underlay	150mm horizontal laps, verge overhang 40mm, achieved drape of 10-15mm
Battens	50mm x 25mm BS5534 graded, minimum length 1.2m, not exceeding 1 joint in 4 consecutive battens
Tile eave overhang	50mm
Tile verge overhang	In line with manufacturers dry fix instructions
Batten gauges	Maximum tile gauge not exceeded, even tile gauge achieved
Marking stick	Made to an average of three tile widths
20mm galvanised clout nails for underlay. 65mm galvanised batten nails 3.35mm diameter 65mm Alloy tile nails Eave clips	3 nails every second rafter per course of underlay Fixed centrally to every rafter All tiles nailed minimum once and all perimeters fixed twice All eave tiles clipped
Eave closures and dry verge units	Installed to manufacturer's instructions

Dry roll ridge system	Installed to manufacturer's instructions
Ridges	Correctly fitted and secured
Ridge end caps	Correctly fitted and secured

Figure 1 – Dry verge

Figure 2 – Dry verge gable end

Material and tools lists

This list is provided for centre-use only and is to support manageability of the practical assessments.

Tools	Materials
Claw hammer	Double Roman tile
Nail pocket	Breathable membrane
Craft knife	Batten
Chalk line	Ventilated eave system
Tape measure	Dry ridge system
Panel saw	Dry verge systems
Battery drill	Nails and clips
Water suppressed power saw	
Pencil/pen	

Section A Measurement and marking out				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Fitted ventilated eave system to specification	**A1**	☐ 1 element correct	☐ 2 elements correct	☐ 3 elements correct
Installed underlay to correct laps to specification	**A2**	☐ +/- 15mm	☐ +/- 10mm	☐ +/- 5mm
Installed underlay with drape to specification	**A3**	☐ 10-15mm		
Calculated the eave datum	**A4**	☐ Correct		
Calculate the top course datum	**A5**	☐ Correct		
Calculate even tile gauge	**A6**	☐ Correct		
Marks applied as per calculation and struck horizontal lines	**A7**	☐ Correct		
Installed tile battens and ridge batten as per spec	**A8**	☐ +/-10mm	☐ +/- 5mm	☐ To line
Made marking stick, marked and struck perpendicular lines	**A9**	☐ Correct		

Section B Health and Safety

Key points

- PPE must be worn as per centre's own risk assessment
- Tidy work area

If there is a minor infringement, deduct marks as listed.

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 fail.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
kept a clean and tidy work area	**B1**	☐ 3	☐ 1-2	☐ None
worn PPE as required	**B2**	☐ 3	☐ 1-2	☐ None

Warnings should be issued where learners are working unsafely and putting themselves and/or others at risk. Assessor to record infringement(s):

Section C Visual inspection of loading tiling and fixings				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Calculated and loaded roof area appropriately	**C1**	☐ +/- 15%	☐ +/- 10%	☐ +/-5%
Laid the tiles to the correct overhang in the eave	**C2**	☐ +/- 10mm	☐ +/-5mm	☐ As spec
Laid the tiles to the correct overhang in the verge	**C3**	☐ +/-10mm	☐ +/-5mm	☐ As spec
Laid the tiles to struck perpendicular lines	**C4**	☐ +/-10mm	☐ +/- 5mm	☐ As spec
Fixed the tiles in accordance with the specification	**C5**	☐ -10%	☐ -5%	☐ As spec
Tiled the roof as per good practice and safe methods with minimum foot traffic	**C6**	☐ As spec		
Section D. Verges and Ridges **Fitted the verge units and dry ridge system**				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Installed the eaves closure correctly	**D1**	☐ Unsecured	☐ 1 fixing	☐ As spec
Installed the verge units correctly	**D2**	☐ 2 incorrect fixings	☐ 1 incorrect fixing	☐ As spec
Installed the ridge comb filler as spec	**D3**	☐ In place		
Fitted the dry ridge roll to spec	**D4**	☐ Not nailed or adhered	☐ Not nailed	☐ As spec
Fitted the ridges in line with fixing guide	**D5**	☐ Union missing	☐ In place not fixed	☐ As spec
Fitted ridge end caps as spec	**D6**	☐ In place		

Section E Material and tool usage, correct process followed and overall presentation The learner should have identified correct tools and materials for the task, avoiding excessive wastage of materials by following the correct process and methods.				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Checked the roof for square and made adjustments	**E1**	☐ Completed		
Identified correct tools and safe usage	**E2**	☐ 90% correct	☐ 95% correct	☐ As spec
Avoided excessive wastage	**E3**	☐ As spec		
Followed the correct process methodically	**E4**	☐		
Sub-totals		/24	/36	/54
Overall Total				/ 60

3.6 Construction operations and civil engineering - Practical project assessment

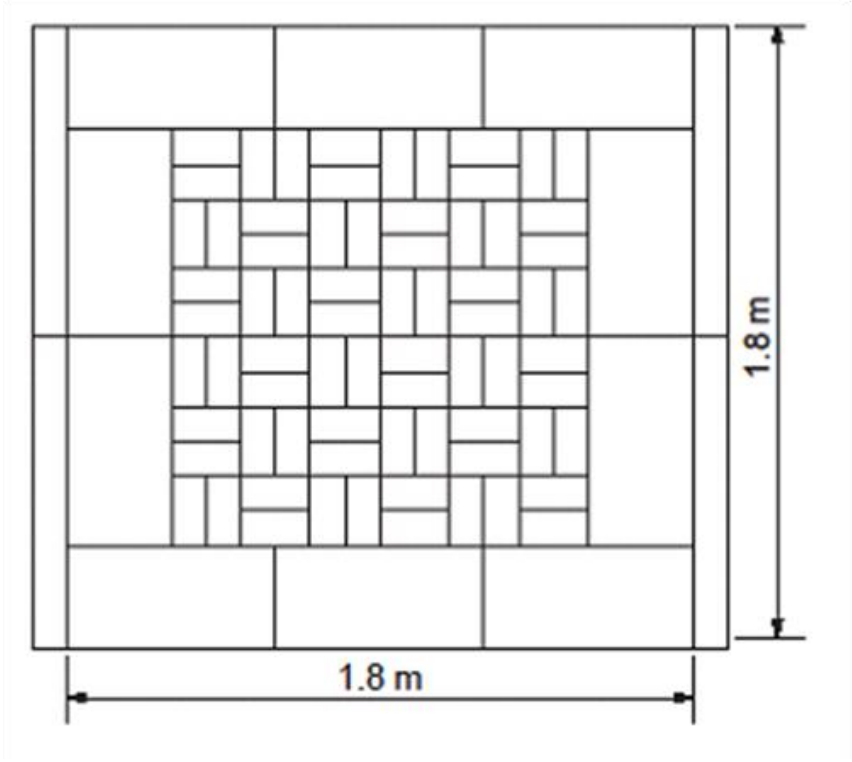
The following project brief should be used to support the completion of the tasks provided to you by your assessor.
You should ensure that you read the full requirements of the brief before starting your planning tasks.

Learner to extend paved area and rubbish bin storage area with modular paving. Paving slabs and block paving laid to a 1:25 crossfall and path edgings and kerb edging as part of the task.

Specification for Construction Operations and Civil Engineering

Total Area 1.8m x 1.8m	
Perimeter Paving	600mm x 300mm x 50mm PCC paving slabs
Bedding course	Sharp sand
Finish	Sand Cement wet grout 5:1
Edging	50mm x 150mm x 915mm
Internal Paving	2200mm x 100mmx 60mm Block paving laid to basket weave bond
Bedding course	Sharp sand
Finish	Blocks to be filled with silica sand
Kerb	Existing kerb line in place, laid to level 1.8m long
Concrete	To be mixed to a 4:2:1 mix ratio

Materials needed:
600 mm x 300 mm PCC slabs, 200 mm x 100 mm driveline block laid to Basket weave bond, 900 mm x 150 mm x 50 mm edging kerb, sharp sand for laying



Material and Tool List

This list is provided for centre-use only and is to support manageability of the practical assessments.

Tools	Materials
Shovel	1.5m2 or 72 number of Drive line Block paving 200mm x100 mm x 50 mm
Straight Edge	10 number of 300mm x 600mm PCC paving slabs
Tape	4 number of 900mm x 150mm x 50mm Edgin Kerbs
Trowel (large)	0.3/0.4 Tonne of sharp sand
Steel float	
Pins	
Lines	
Club hammer	
Small rubber hammer	
Boat level	
Long level	
Chalk	
Pin caps	
Brush	
Vibrating plate	
Timber screed	
Wheelbarrow	

Section A Measurement and marking out				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Site protection set up appropriately	**A1**	☐		
Set lines from set base line to achieve square (90 degree) area	**A2**	☐ +/- 15mm	☐ +/- 10mm	☐ +/- 5mm
Set out heights to apply 1:25 crossfall to paving area	**A3**	☐ +/- 15mm	☐ +/- 10mm	☐ +/- 5mm
Check lines to ensure lines are taught	**A4**	☐		
no dip in lines	**A5**	☐		
Mix concrete to correct consistency	**A6**		☐ Too wet/too dry	☐ Correct consistenc y
Concrete produced from correct ratio (4:2:1)	**A7**	☐		
Lay edging kerb a to line and level	**A8**	☐ +/- 15mm	☐ +/- 10mm	☐ +/- 5mm
Lay edging kerb b to line and level	**A9**	☐ +/- 15mm	☐ +/- 10mm	☐ +/- 5mm
Haunch kerb	**A10**	☐		
Tools and equipment cleaned after concrete	**A11**	☐		

Section B Health and Safety

Key points

- PPE must be worn as per centre's own risk assessment
- Tidy work area

If there is a minor infringement, deduct marks as listed.

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 fail.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
kept a clean and tidy work area	**B1**	☐ 3	☐ 1-2	☐ None
worn PPE as required	**B2**	☐ 3	☐ 1-2	☐ None

issued where learners are working unsafely and putting themselves and/or others at risk.

Assessor to record infringement(s):

Section C Paving Slabs – 300mm x 600mm

- **Lay paving slabs to the perimeter of the area, paving to be completed hand laid**

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Ensured materials are obtained and stored ready in position for laying operations – Paving slabs	**C1**	☐		
Paving units bedded within +/-5mm	**C2**	☐ +/- 10mm	☐ +/- 5mm	☐ +/- 3mm
Paving units bedded with no rocking	**C3**	☐		
Paving unit side A level within	**C4**	☐ +/- 10mm	☐ +/- 5mm	☐ +/- 3mm
Paving unit side B level within	**C5**	☐ +/- 10mm	☐ +/- 5mm	☐ +/- 3mm
Joints full and brushed, swept off	**C6**	☐		
safe lifting techniques adopted throughout.	**C7**	☐		

Section D Modular Paving – Drive line block paving 200mm x 100mm x 60mm

Prepare area, screed area compact, lay block paving to basket weave bond, compact and fill joints with silica sand. Timber screed rails cut to length and bedded correctly.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Ensured materials are obtained and stored ready for laying operations – Block paving	**D1**	☐ ≤3	☐ ≥2	☐ ≥1
Timber screed rail profile cut as per drawing	**D2**	☐ +/- 5mm	☐ +/- 3mm	☐ +/- 1mm
Screed prepared without voids; screed compacted	**D3**	☐		
Paving units bedded within +30mm over the length of the path	**D4**	☐ +/- 30mm	☐ +/- 20mm	☐ +/- 10mm
Correct bond applied and blocks compacted	**D5**	☐		

Final pass and silica sand brushed in fully into joints.	**D6**	☐ ≤3	☐ ≥2	☐ ≥1

Section E Material usage, layout and overall presentation				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Task completed to drawing	**E1**	☐		
Correct use of tools and equipment	**E2**	☐		
Correct storage of tools and equipment throughout	**E3**	☐		
Safe lifting techniques adopted throughout.	**E4**	☐		
Work area left clean and tidy	**E5**	☐		
Work area protection maintained	**E6**	☐		
Work area protection removed upon completion	**E7**	☐		
Sub-totals		/24	/36	/54
Overall Total				/ 60

3.7 Plumbing, heating and ventilation - Practical project assessment

The following project brief should be used to support the completion of the tasks provided to you by your assessor.

You should ensure that you read the full requirements of the brief before starting your planning tasks.

Before you start, inspect your work area and identify any marks or burns already present and ask the assessor to circle and sign them so they are not taken into account on the final marking.

A new bathroom, including a radiator, are to be fitted within the new extension and before the walls are plastered the pipework installation needs to be first fixed. The pipework installation layout can be found in the attached diagram and will be a combination of copper pipework, LCS pipework and plastic pipe.

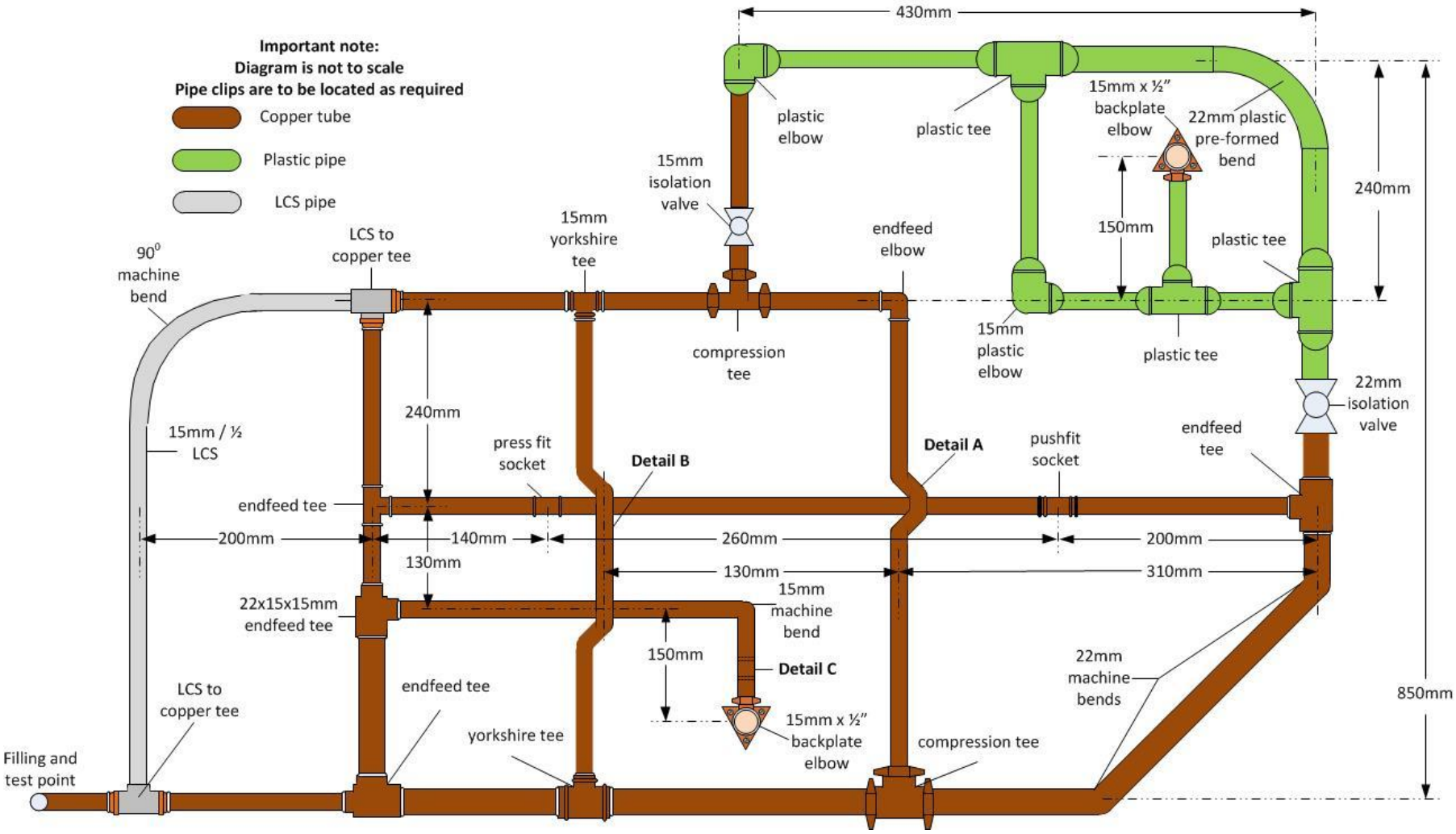
The installation must be tested once complete.

Specification for Pipework Installation

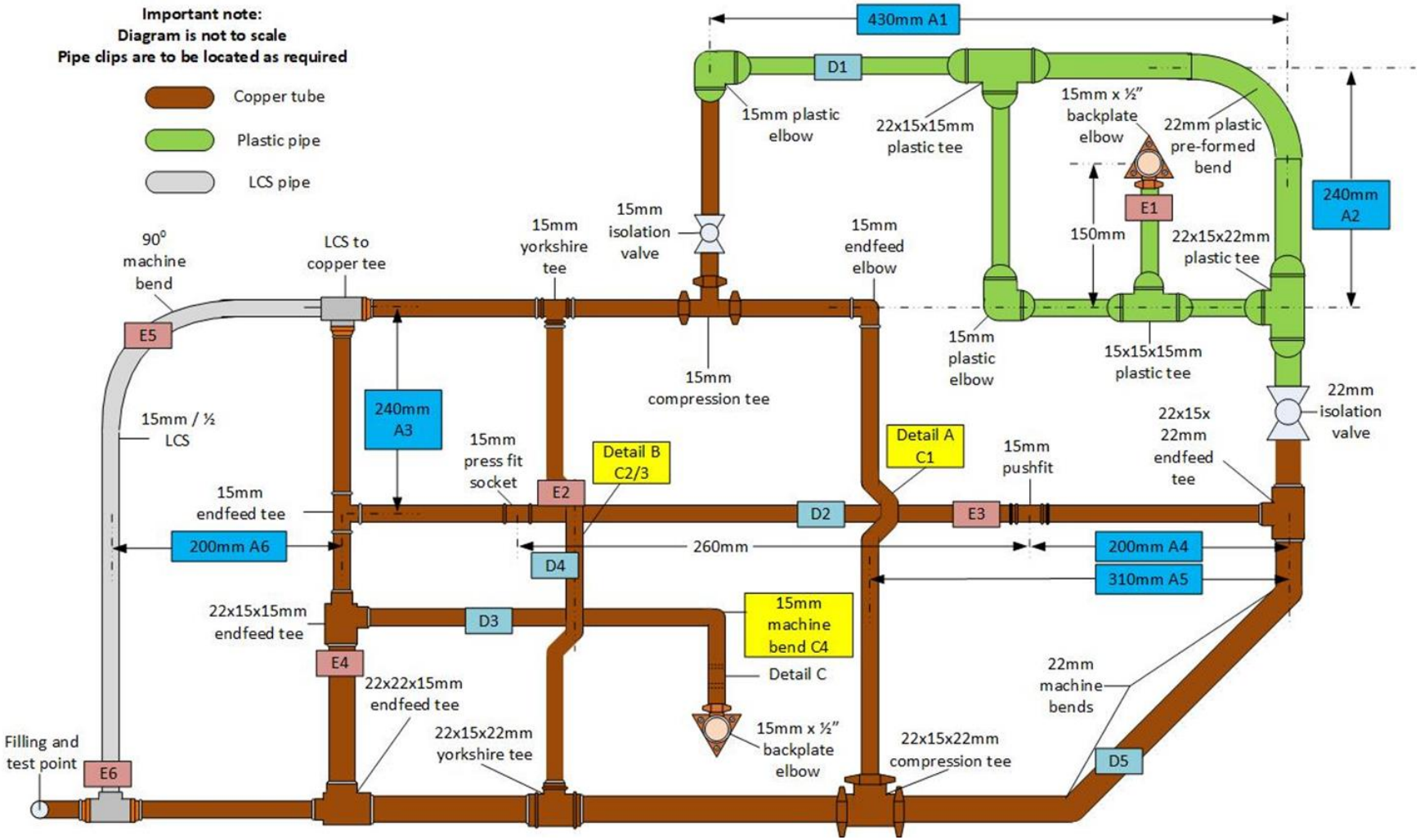
Specification:	
LCS pipe	½”
Copper pipework	15mm and 22mm
Plastic pipework	15mm and 22mm
LCS bend	Hand machine bent
Copper bends	Hand machine bent
Plastic bend	Manufacturer pre-formed bend
Back plate elbows	½” bib taps to be fitted
Measurements	To be taken from centre of the pipes
LCS joints	To be made using appropriate jointing compounds
Clips	Appropriate clips to be used for different pipework types and clip spacing distances as per industry standards
Pipework bending details A, B and C can be found on the attached diagram	

Note: All pipework to be surfaced mounted on a background determined by the centre. Boards can be fabricated on a work bench or positioned on a wall.

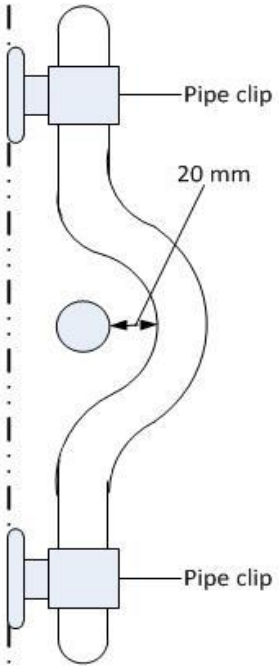
Learner reference diagram:



Assessor reference diagram (including marking grid references):

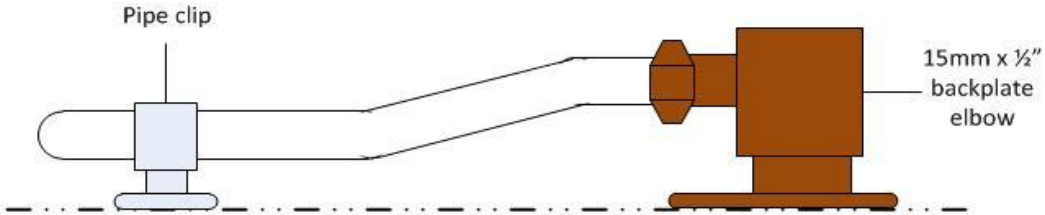


Detail A

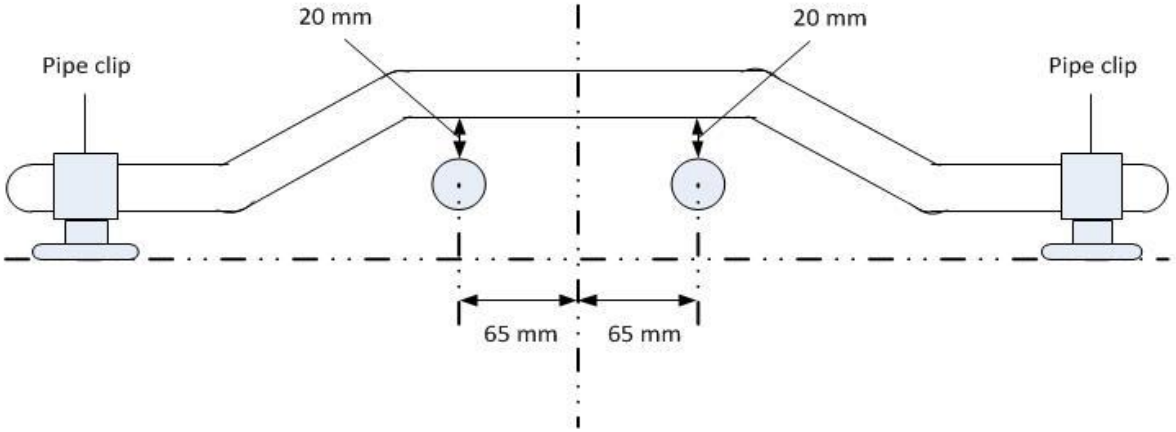


Important note:
Diagram is not to scale
Pipe clips are to be located as required

Detail C



Detail B



Material list

This list is provided for centre-use only and is to support manageability of the practical assessments.

Plastic push fit	
15mm plastic push fit tee	3
15mm plastic push fit elbow	2
15mm plastic push inserts	9
22mm x 15mm x 15mm push fit tee	1
22mm equal push fit tee	1
22mm plastic push fit inserts	4
22mm plastic preformed bend	1
22mm x 22mm x15mm end feed tee	1
22mm x 15mm x 22mm end feed tee	1
22mm x 15mm x 15mm end feed tee	1
15mm equal tee end feed	1
22mm x 22mm x 15mm Yorkshire tee	1
15mm equal Yorkshire tee	1
15mm endfeed elbow	1
15mm compression tee	1
22mm compression tee	1
15mm compression isolation valve	1
22mm compression isolation valve	1
15mm compression x 1/2" female backplate elbow	2
1/2" plug	2
15mm (copper) pushfit socket	1
15mm press fit socket	1
1/2" equal LCS tee	2
1/2" male x 15mm soldered adaptor	4
1/2" LCS	1m
15mm copper tube	4m
22mm copper tube	1m
15mm plastic pipe	1m
22mm plastic pipe	600mm
PTFE	
Flux	
Solder	
Jointing compound	

Trade area – Plumbing and Domestic Heating Installations

Section A Measurement and marking out

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
maintained the measurement across the top 22 plastic elbow across to top 15mm plastic elbow	**A1**	☐ ± 10 mm	☐ ± 5 mm	☐ ± 2 mm
maintained the measurement across the top 22 plastic elbow down to 22mm plastic tee	**A2**	☐ ± 10 mm	☐ ± 5 mm	☐ ± 2 mm
maintained the measurement across the top15mm Cu pipe to top middle 15mm Cu pipe	**A3**	☐ ± 10 mm	☐ ± 5 mm	☐ ± 2 mm
maintained the measurement across the right 22mm Cu to centre of push fit fitting	**A4**	☐ ± 10 mm	☐ ± 5 mm	☐ ± 2 mm
maintained the measurement across the right 22mm Cu to 15mm Cu pipe	**A5**	☐ ± 10 mm	☐ ± 5 mm	☐ ± 2 mm
maintained the measurement across the centre 15mm Cu to centre of 15mm 1/2 LCS pipe	**A6**	☐ ± 10 mm	☐ ± 5 mm	☐ ± 2 mm

Section B Health and Safety

Key points

- PPE must be worn as per centre's own risk assessment
- Tidy work area

If there is a minor infringement, deduct marks as listed.

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 fail.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
kept a clean and tidy work area		☐ 3	☐ 1-2	☐ None
worn PPE as required		☐ 3	☐ 1-2	☐ None

Warnings should be issued where learners are working unsafely and putting themselves and/or others at risk.

Assessor to record infringement(s):

Section C Angles and clearances

All bends should be fabricated within +/-1^0, a protractor may be used, but no preformed bends can be used during the assessment.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
maintained the 15mm passover clearance (20mm)	**C1**	± 6 mm	± 4 mm	± 2 mm
maintained the right 15mm passover clearance (20mm)	**C2**	± 6 mm	± 4 mm	± 2 mm
maintained the left 15mm passover clearance (20mm)	**C3**	± 6 mm	± 4 mm	± 2 mm
maintained the 15mm 90^0 bend	**C4**	± 6^0	± 4^0	± 1^0

Section D Accuracy

Vertical and horizontal 90^0 datum lines to be drawn by the learner, all measurements for accuracy to be taken from these.

When checking for accuracy all pipework should be fabricated with equal spacing, vertically, horizontally and diagonally.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
maintained the accuracy of the 15mm plastic pipe	**D1**	± 6 mm	± 4 mm	± 2 mm
maintained the accuracy of the 15mm Cu pipe to backplate elbow	**D2**	± 6 mm	± 4 mm	± 2 mm
maintained the accuracy of the 15mm Cu pipe between passover bends	**D3**	± 6 mm	± 4 mm	± 2 mm
maintained accuracy across passover bends	**D4**	± 6 mm	± 4 mm	± 2 mm
maintained accuracy across machine bends	**D5**	± 6 mm	± 4 mm	± 2 mm

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 90^0
- Bend quality look for no ripples or bends being pulled
- Soldered joints are free from excessive solder and residual flux
- LCS pipe and fittings to be free from tool and vice marks
- Malleable iron fittings to show no more than 1½ threads
- All pipework capable of withstanding appropriate British Standard test.

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).

Learner's waiting time for assessor to test installation must not be included in the 20hrs allowed for this assessment.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
jointed the plastic pipe going into backplate elbow with no tool damage to fitting and pipe entering the fitting at 90^0	**E1**	☐		
bent the passover with no ripples or signs of being pulled	**E2**	☐		
jointed the left of the push fit fitting with no tool damage to fitting and pipe entering fitting at 90^0	**E3**	☐		
jointed the bottom tee with no solder runs or blobs visible	**E4**	☐		
machine bent the LCS with no ripples or signs of being pulled	**E5**	☐		
tested the completed installation to 1 bar for 3 minutes and no leak identified (air or water)		☐		
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)		☐ +2	☐ +1	☐ No Extra
Sub-totals		/24	/36	/54
Overall Total				/ 60

3.8 Electrotechnical Practical project assessment

The following project brief should be used to support the completion of the tasks provided to you by your assessor.
You should ensure that you read the full requirements of the brief before starting your planning tasks.

A garage/workshop on an estate needs an electrical system upgrade. This will require the installation of three new circuits:

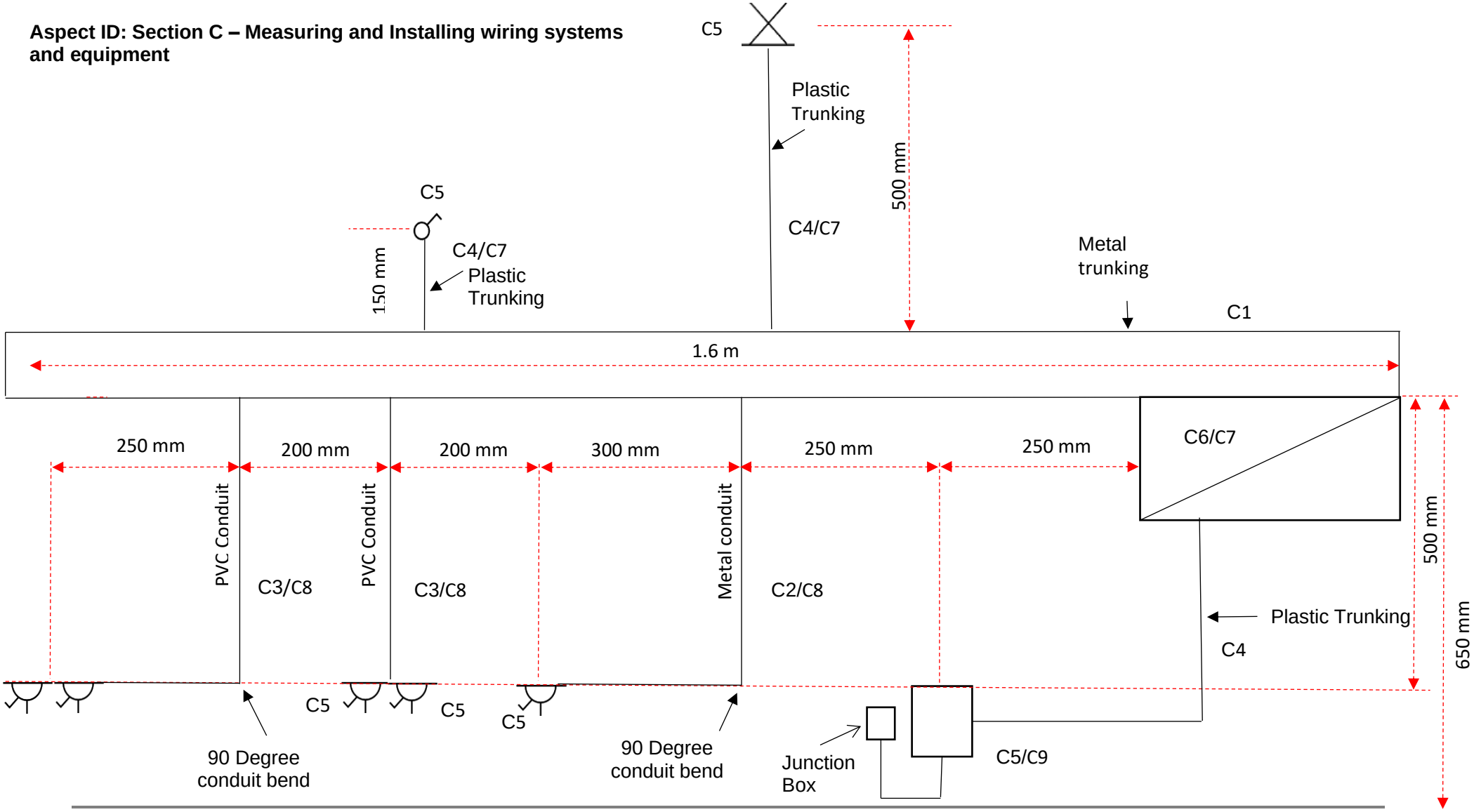
- A 1-way lighting circuit wired in PVC/PVC flat profile cable, installed in plastic trunking. Access/ egress from the metal trunking should be done via a neat, de-burred hole and grommet.
- A radial socket outlet circuit wired in PVC singles in plastic and metal conduit.
- A radial circuit to an isolator intended to supply a pillar drill, wired in PVC/PVC flat profile cable, installed in plastic trunking. The “load” side of the isolator should be made via a 1.5mm² flexible cable connected to a junction box.
- All circuits must be as per On-Site Guide (OSG) Appendix H.
- All dimensions given on the drawings are in mm.

Specification for installation

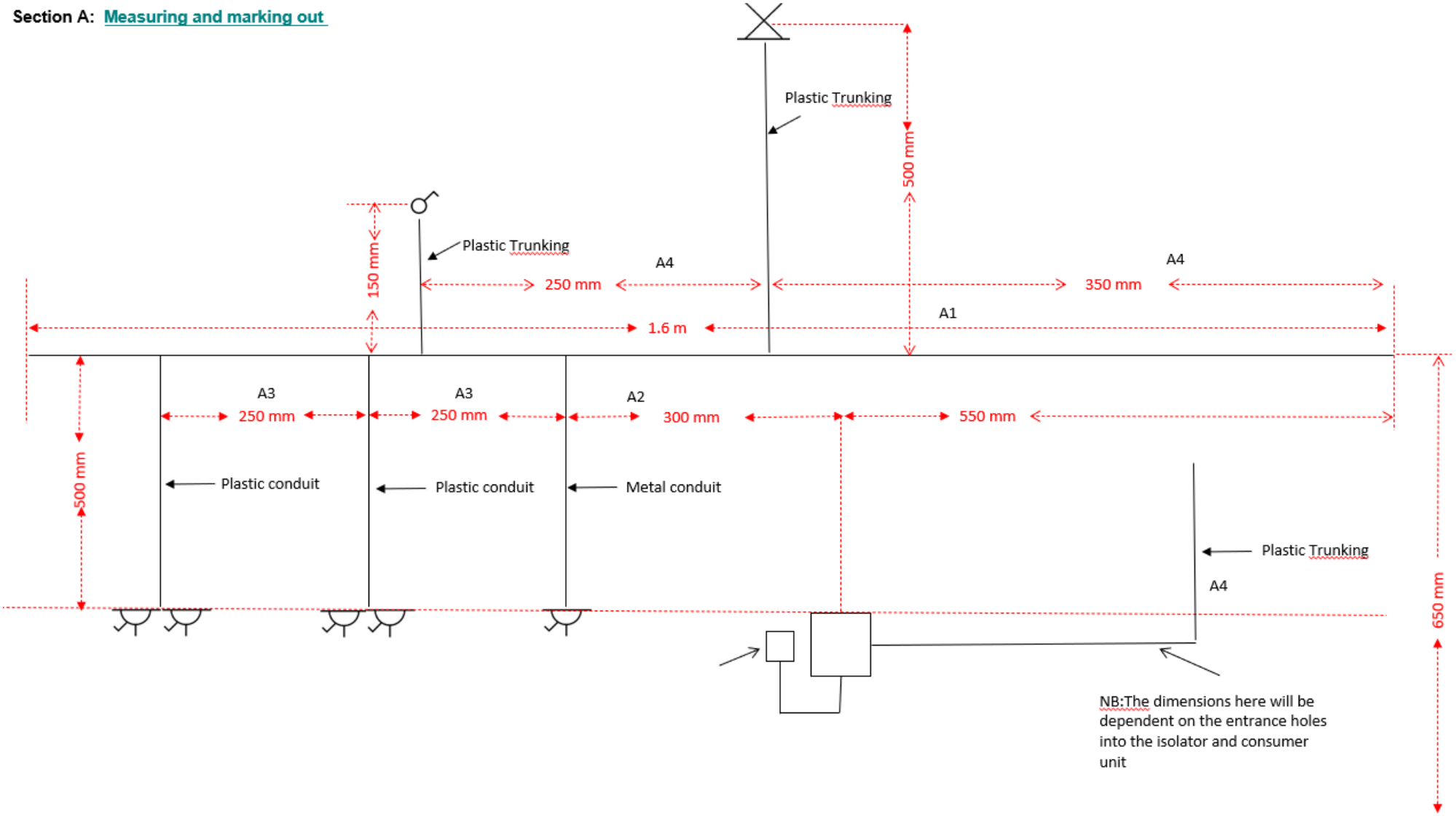
You need to measure all of the cables for each circuit prior to installation.
You should allow adequate time for the testing of the installation(s).
On completion of the installation(s), and after testing, you must complete a *safe isolation procedure under supervision, your assessor can then connect the installation(s) to the mains supply to prove that the circuit(s) are in good and correct working order. *A single-phase safe isolation procedure i.e. lock off and tag and then test the socket outlets with an appropriate plug-in voltage tester.
All equipment and accessories are to be installed in a horizontal and vertical plane.
There should be sufficient conductor length inside all components/accessories to allow for re-termination if required. The length of the conductors should not interfere or hinder the safe fixing of the component/accessory.
Measurements are taken using an installation surface of 1.8m x 1.2m. This may be altered locally by your assessor to allow for local board areas. This should be noted prior to the commencement of the installation.
The installation must be completed by carrying out de-energised tests on the circuits that have been produced (continuity of protective conductor, insulation resistance and polarity). Your assessor will energise and carry out a functional test of the installation using appropriate test equipment.
The installation is to be taken in the workshop under controlled conditions.

Note: The installation should be in accordance with industry practices, as per the latest versions of IET BS 7671 and the On-Site Guide.

Aspect ID: Section C – Measuring and Installing wiring systems and equipment



Section A: Measuring and marking out



Note: Centre and Assessor

The latest versions of the IET BS 7671 and On-Site Guide must be made available to learners during the assessment.

Material and Tool List *This list is provided for centre-use only and is to support manageability of the practical assessments.*
1 no Wall mounted luminaire
1 no. 1 way light switch and pattress
1 no. 4 way consumer unit and suitable protective devices
1 no. 20 A isolator
1 no. Single metal switched socket outlet and backbox
2 nos. Double plastic socket outlet pattresses
2 nos. Double switch socket outlets
750mm x 20mm galvanised metal conduit and accessories
1.5m x 20 mm plastic conduit and accessories
75mm x 75mm galvanised trunking and accessories
25mm plastic trunking
4 no. manufactured plastic trunking accessory entries
1 no. Manufactured plastic trunking right angle
2.5mm² PVC single cables (brown, blue & green/yellow)
1.0 mm² PVC/PVC twin & CPC cable
2.5mm² PVC/PVC twin & CPC cable
3 no Protective devices for the installed circuits
Metal bushes and locknuts and/or lockrings
Any additional components, i.e. Grommets, etc
1 no. 20 A junction box
1.5 mm² flexible cable
Fixing screws and rawlplugs

Section A: Measuring and marking out

The learner must measure and mark out the board for the containment, cables and accessories to be installed. Assessor to check accuracy of marked board before the installation of materials and equipment.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Measured and marked out the metal trunking within the required tolerances	**A1**	☐ +/-10 mm	☐ +/-5 mm	☐ +/-2 mm
Measured and marked out the metal conduit within the required tolerances	**A2**	☐ +/- 10 mm	☐ +/-5 mm	☐ +/-2 mm
Measured and marked out the plastic conduit within the required tolerances	**A3**	☐ +/- 10 mm	☐ +/-5 mm	☐ +/-2 mm
Measured and marked out the plastic trunking within the required tolerances	**A4**	☐ +/- 10 mm	☐ +/-5 mm	☐ +/-2 mm

Section B Health and Safety

Key points

- PPE must be worn as per centre's own risk assessment
- Tidy work area

If there is a minor infringement, deduct marks as listed.

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 fail.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
kept a clean and tidy work area		☐ 3	☐ 1-2	☐ None
worn PPE as required		☐ 3	☐ 1-2	☐ None

Warnings should be issued where learners are working unsafely and putting themselves and/or others at risk.

Assessor to record infringement(s):

Section C – Measuring and installing wiring systems and equipment

All containment support must be in accordance with the OSG Appendix D.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Measured and installed the metal trunking as per the specification	**C1**	☐ +/-10mm	☐ +/-7m	☐ +/-5mm
Measured and installed the metal conduit vertically, horizontally, securely and as per the specification	**C2**	☐ +/-10mm	☐ +/-7m	☐ +/-5mm
Measured and installed the plastic conduit vertically, horizontally, securely and as per the specification	**C3**	☐ +/-10mm	☐ +/-7mm	☐ +/-5mm
Measured and installed the plastic trunking vertically, horizontally, securely and as per the specification	**C4**	☐ +/-10mm	☐ +/-7mm	☐ +/-5mm
Installed socket outlets, isolator, luminaire and light switch as shown on the layout drawing/specification	**C5**	☐ 2 accessories	☐ 4 accessories	☐ All 6 accessories
Correctly selected and installed the appropriate protective device for the lighting circuit, the ring final circuit and the radial circuit	**C6**	☐ 1 correct device	☐ 2 correct devices	☐ All 3 correct
Correctly installed the lighting circuit ensuring cable sheath enters the accessories (no more than 15 mm), with sufficient conductor length Switch (1) Luminaire (1) Consumer unit (1)	**C7**	☐ 1 correct	☐ 2 correct	☐ All 3 correct
Correctly installed the radial socket outlet circuit - sufficient conductor length, no damage 1 mark for each socket outlet, 3 marks max	**C8**	☐ 1 correct	☐ 2 correct	☐ All 3 correct
Correctly installed cables at the pillar drill isolator - installed cable sheath into accessory (no more than 15 mm), with sufficient conductor length, no damage, sleeved CPC Isolator (1) Joint box (1) Consumer unit (1)	**C9**	☐ 1 correct	☐ 2 correct	☐ All 3 correct

Section D Termination				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Terminated conductors for the lighting circuit correctly and they are electrically and mechanically sound with no undue removal of cable insulation and no exposed copper conductor Switch (1) Luminaire (1) Consumer unit (1)		☐ 1 accessory correct	☐ 2 accessories correct	☐ All 3 accessories correct
Terminated conductors for the radial circuit correctly and they are electrically and mechanically sound with no undue removal of cable insulation and no exposed copper conductor. Including CPC between metal back box and face plate. 1 mark for each socket outlet, 3 marks max		☐ 1 accessory correct	☐ 2 accessories correct	☐ All 3 accessories correct
Terminated conductors for the pillar drill circuit correctly and they are electrically and mechanically sound with no undue removal of cable insulation and no exposed copper conductor Isolator (1) Joint box (1) Consumer unit (1)		☐ 1 accessory correct	☐ 2 accessories correct	☐ All 3 accessories correct
Section E Inspection and Testing				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Correctly tested the continuity of the protective conductors and recorded results		☐		
Correctly tested the insulation resistance and recorded results		☐		
Correctly tested the polarity of the installation and recorded outcome		☐		

Completed the installation with zero faults 2 marks Completed the installation with faults, but has identified and rectified all faults 1 mark Completed the installation with faults, but has been unable to identify and rectify all faults 0 marks		☐ All faults rectified	☐ 0 faults	
Completed safe isolation with an appropriate plug-in voltage tester		☐		
Sub-totals		/23	/38	/54
Overall Total				/ 60

3.9 Plant Operations Practical project assessment

The following project brief should be used to support the completion of the tasks provided to you by your assessor.
You should ensure that you read the full requirements of the brief before starting your planning tasks.

You have been called to a managed housing estate and sports complex to complete several tasks and as part of the induction you have been presented a list of jobs that need to be completed.

Select Plant for Construction tasks – Learners are to select and use Plant to carryout tasks. Select a suitable Vibrating plate, Pedestrian Roller, Air Compressor with breaker attachments (blade and chisel tools).

Task A - Reversible Vibratory Plate to be used to compact 10m² of Granular Subbase.

Task B - Hand-guided Single Drum Vibratory Roller to be used to compact 20m² of Granular Subbase.

Task C – Air Compressor Unit with Breaker Attachment to break up and excavate 2m² of concrete using point/chisel attachment.

Task D – Air Compressor Unit with Breaker Attachment to break up and excavate 2m² of Asphalt or Bituminous Macadam using blade attachment.

Section 1 - Health and Safety

Key points

- PPE must be worn as per centre's own risk assessment
- Tidy work area

If there is a minor infringement, deduct marks as listed.

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 fail.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
kept a clean and tidy work area	**1**	☐ 3	☐ 1-2	☐ None
worn PPE as required	**2**	☐ 3	☐ 1-2	☐ None

Warnings should be issued where learners are working unsafely and putting themselves and/or others at risk.

Assessor to record infringement(s):

Trade area – Plant Operations

Section A - Select relevant Plant to complete compaction.

Learners are to use a Reversible Vibratory Plate to be used to compact 10m² of Granular Subbase.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Select and complete pre-inspection of plant and set up item of plant as required	**A2**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines

Start plant and operate in accordance with manufactures guidelines and demonstrate competence of controls and their functions.	**A3**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines
Compact area given for task. Manoeuvre machine around site / training area in forward and reverse having due regard to site conditions and the safety of other learners / site workers.	**A4**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with specification
Demonstrate competence of shut down procedures and machine security. Complete post-inspection of plant	**A5**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines
Store plant safely and securely ready for re-use	**A6**	☐ As required		
Sub-total for Task A				/19

Section B – Operate Plant to complete – Compaction.

Learners are to use a Hand-guided Single Drum Vibratory Roller to be used to compact 20m² of Granular Subbase.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Select and complete pre-inspection of plant and set up item of plant as required	**B2**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines
Start plant and operate in accordance with manufactures guidelines and demonstrate competence of controls and their functions.	**B3**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines
Compact area given for task. Manoeuvre machine around site / training area in forward and reverse having due regard to site conditions and the safety of other learners / site workers.	**B4**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with specification

Demonstrate competence of shut down procedures and machine security. Complete post-inspection of plant	**B5**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines
Store plant safely and securely ready for re-use	**B6**	☐ As required		
Sub-total for Task B	/13			
Section C Operate Plant to complete – Excavation task. **Learners are to use an Air Compressor Unit with Breaker Attachment to break up and excavate 2m² of concrete using point/chisel attachment.**				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Select correct item of compaction plant.	**C1**	☐ As required		
Complete pre-inspection of plant and set up item of plant as required	**C2**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines
Start plant and operate in accordance with manufactures guidelines and demonstrate competence of controls and their functions.	**C3**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines
Excavate area given for task, manoeuvre compressor / breaker around training area to remove materials. Learner having due regard to site conditions and the safety of other learners / site workers.	**C4**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with specification
Demonstrate competence of shut down procedures and machine security. Complete post-inspection of plant	**C5**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines

Store plant safely and securely ready for re-use	**C6**	☐ As required		
Sub-total for Task C		/14		
Section D Operate Plant to complete – Excavation task. **Learners are to use an Air Compressor Unit with Breaker Attachment to break up and excavate 2m² of Asphalt or Bituminous Macadam using blade attachment.**				
		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Select correct item of compaction plant.	**D1**	☐ As required		
Complete pre-inspection of plant and set up item of plant as required	**D2**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines
Start plant and operate in accordance with manufactures guidelines and demonstrate competence of controls and their functions.	**D3**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines
Excavate area given for task, manoeuvre compressor / breaker around training area to remove materials. Learner having due regard to site conditions and the safety of other learners / site workers.	**D4**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with specification
Demonstrate competence of shut down procedures and machine security. Complete post-inspection of plant	**D5**	☐ +2 Missed elements	☐ +1 Missed elements	☐ Completed in line with manufacturers guidelines
Store plant safely and securely ready for re-use	**D6**	☐ As required		
Sub-total for Task D		/14		

Sub-totals	Task A /19	Task B /13	Task C /14	Task D /14
Overall Total				/ 60

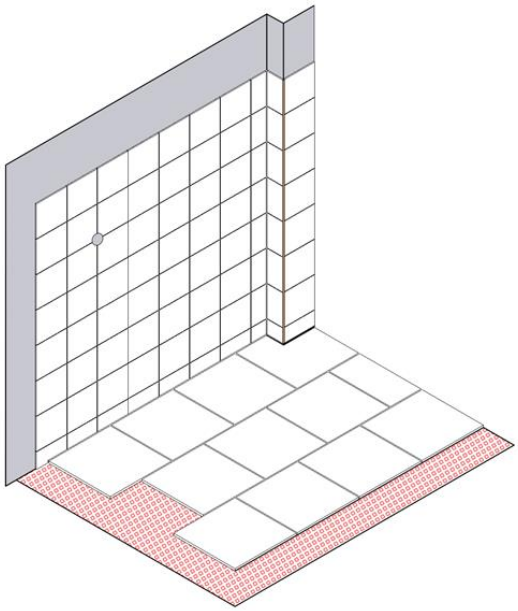
3.10 Wall and Floor Tiling - Practical project assessment

The following project brief should be used to support the completion of the tasks provided to you by your assessor.
You should ensure that you read the full requirements of the brief before starting your planning tasks.

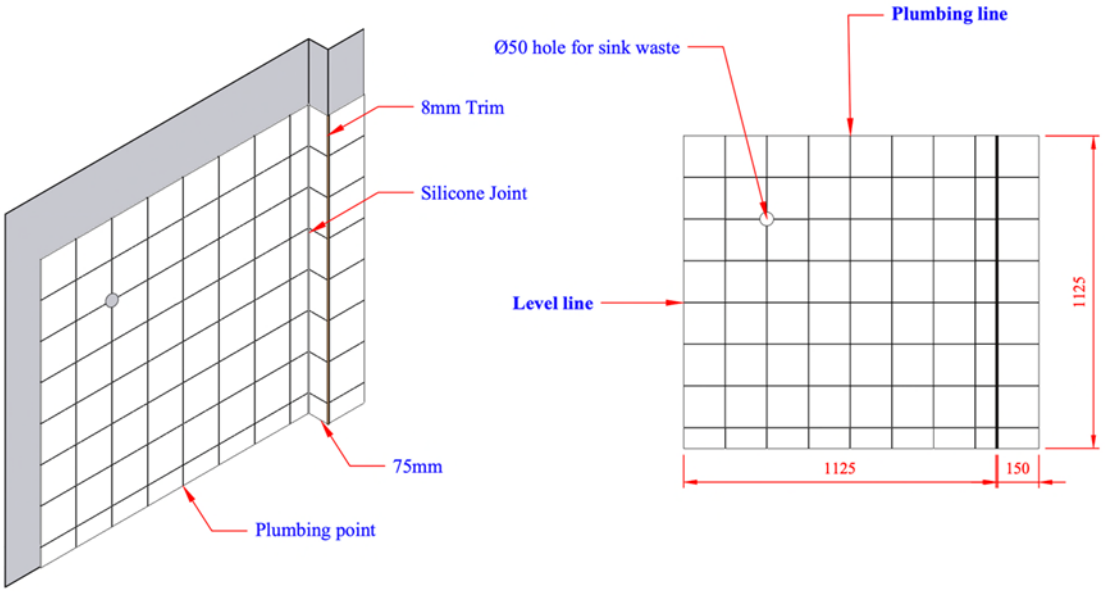
A small bathroom wall and floor is required to be tiled within a small extension. The dimensions and specification of the tasks can be found on the following pages.

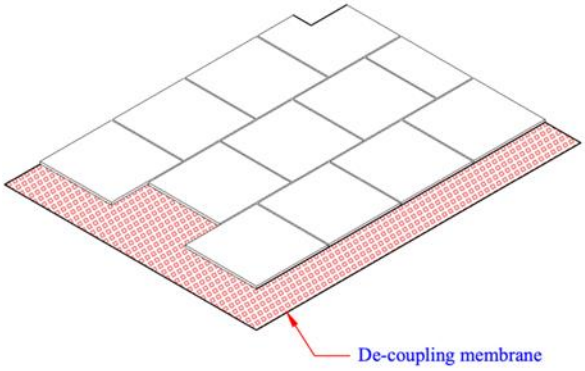
Specification for Wall and Floor Tiling - see detailed drawings

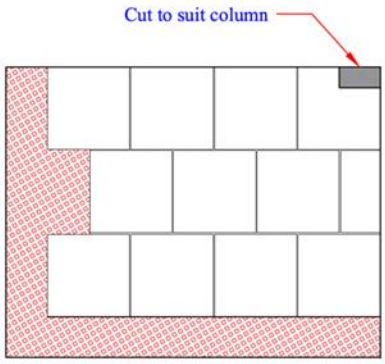
Note – The size of the cut tiles must be adjusted to gain the overall dimension outlined on the drawing.	
Wall tiles 150mm x 150mm (nominal size)	80 Ceramic wall tiles (min 5mm thickness) quantity includes waste
Floor tiles 300mm x 300mm (nominal sizing)	13 Ceramic floor tiles (minimum 8mm thickness) quantity includes waste
Tile adhesive	Training adhesive
Grout	Colour to suit tile, tooled finished
Spacers - wall	3mm
Spacers - floor	5mm
8mm trim	Plastic
Silicone sealant	White
De-coupling membrane	Industry standard grade
During the assessment, learners should ensure care is taken to present all aspects of the work to meet the specification and obtain a quality finish.	



It is recommended that **Task A - Wall** be completed and marked prior to commencement of **Task B - Floor**




De-coupling membrane


Cut to suit column

Materials and tools list

This list is provided for centre-use only and is to support manageability of the practical assessments.

Tools/equipment	Materials
Wall and floor specific notched trowels	Wall tiles
Tile saws (tile hacksaw, tile coping saw)	Floor tiles
Tile wheel nippers	3mm spacers (Wall)
Nippers	5mm spacers (Floor)
Tile files	8mm plastic tile trim
Manual tile cutter	Tile adhesive
Wet tile cutter	Grout
Hand tile scribe	Silicone (white)
Tape measure/steel rule	Dry wall screws (for fixing batten)
Chalk line/marker line	Fixing batten/rule
Spirit level	Primer
Bucket/gauge trowel	De-coupling membrane
Mixing equipment (paddle/hand)	
Junior hacksaw	
Hammer(s)	
Carborundum stone/rubbing block	
Utility knife/scissors	
Square	
Compasses/template	
Squeegees/grout float	
Straight edge	
Gauge rod	
Dry wall drill (battery or 110v)	
Transformer and lead (as above)	
Grout finishing tool	
Wash boy and sponge float	
Sponges	
Polishing cloths	
Sealant gun/sealant finishing tool	

Section A Tool Selection and Setting Out

Key Points

- It is recommended that **Task A** be completed and marked prior to commencement of **Task B**
- Set out dimensions from drawings to fix wall and floor tiles
- Recommended use of fixing batten/rule to support wall tiles during task
- Gauge tiles to meet overall dimensions (under/over-sized tiles)
- Learner has responsibility to ensure backgrounds are suitable

	For ref only	Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
selected and used appropriate tools correctly	**A1**	☐ Met		
selected, mixed (where appropriate) and used materials correctly	**A2**	☐ Met		
set out wall dimension (length, 1125mm)	**A3**	☐ +/-3mm	☐ +/-2mm	☐ +/- 1mm
set out wall dimension (height, 1125mm)	**A4**	☐ +/-3mm	☐ +/-2mm	☐ +/-1mm

Section B Health and Safety

Key points

- PPE must be worn as per centre's own risk assessment
- Tidy work area

If there is a minor infringement, deduct marks as listed.

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 fail.

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
kept a clean and tidy work area	**B1**	☐ 3	☐ 1-2	☐ None
worn PPE as required	**B2**	☐ 3	☐ 1-2	☐ None

Warnings should be issued where learners are working unsafely and putting themselves and/or others at risk.

Assessor to record infringement(s):

Section C Plumb, Level and Alignment

Key Points

- Wall tiles to be fixed using a grid pattern
- 3mm spacers to be used for **Task A**
- Floor to be fixed using a bonded pattern (half bond)
- 5mm spacers to be used for **Task B**

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Task A installed tiles level (top + mid-level line)	**C1**	☐ +/-3mm	☐ +/-2mm	☐ +/-1mm
Task A installed tiles plumb (end+ mid plumb line)	**C2**	☐ +/-3mm	☐ +/-2mm	☐ +/-1mm
Task A installed trim plumb x 2	**C3**	☐ +/-3mm	☐ +/-2mm	☐ +/-1mm
Task A installed tiles to surface alignment (diagonal face plane) x 2	**C4**	☐ +/-3mm	☐ +/-2mm	☐ +/-1mm
Task B installed tiles level (mid floor) x 2	**C5**	☐ +/-3mm	☐ +/-2mm	☐ +/-1mm
Task B installed tiles to surface alignment (diagonal face plane) x 2	**C6**	☐ +/-3mm	☐ +/-2mm	☐ +/-1mm

Section D Grouting and Presentation
Key Points

- Learner to ensure excess adhesive and grout marks are removed from task boundaries
- All grout lines to be tooled using appropriate tool
- Learner to ensure adhesive is sufficiently dry before applying grout

		Marks		
The learner has	**Aspect ID**	**1**	**2**	**3**
Task A produced **s**traight cut tiles (equal size)	**D1**	☐ ≥3 unequal	☐ ≤2 unequal	☐ All equal
Task A produced circular cut tiles (sink waste, 4 tiles equal to correct curved shape and size)	**D2**	☐ +/-3mm	☐ +/-2mm	☐ +/-1mm
Task A equal joint sizes: +/-1mm (spacer size: 3mm)	**D3**	☐ ≥3 unequal	☐ ≤2 unequal	☐ All equal

Task A produced a flat appearance (no lipping)	**D4**	☐ ≥3	☐ 2	☐ 1
Task A used grout effectively (full coverage, no pin holes, clean appearance - no grout stains)	**D5**	☐ ≥3	☐ ≤2	☐ No instances
Task A fixed trim securely	**D6**	☐ Met		
Task A applied sealant to internal corner, full and even line with no drag marks	**D7**	☐ Met		
Task A adhesive coverage (90%)	**D8**	☐ Met		
Task B equal joint sizes: +/-1mm (spacer size: 5mm)	**D9**	☐ ≥3 unequal	☐ ≤2 unequal	☐ All equal
Task B produced a flat appearance (no lipping)	**D10**	☐ ≥3	☐ 2	☐ 1
Task B used grout effectively (full coverage, no pin holes, clean appearance-no grout stains)	**D11**	☐ ≥3	☐ ≤2	☐ No instances
Task B installed the de-coupling membrane on a full bed securely	**D12**	☐ Met		
Sub-totals		/24	/36	/54
Overall Total				/ 60