Level 3 Advanced Technical Diploma in Architectural Joinery (450)

(7906-31)

Version 1.0

Practice Tasks

Introduction

General information about structure of the practice tasks

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- Tasks

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Practice Tasks 7906-31

General guidance

This is a formative assessment that you will complete. You will be observed and feedback will be given. You will be marked on the quality and accuracy of your practical performance and any written work you produce. It is therefore important that you carry your work out to the highest standard you can. You should show how well you know and understand the subject and how you are able to use your knowledge and skills together to complete the tasks.

Health and Safety

You must always work safely, in particular while you are carrying out practical tasks.

You must always follow any relevant Health and Safety regulations and codes of practice.

If your tutor sees you working in a way that is unsafe for yourself or others, they will ask you to stop immediately, and tell you why. Your tutor will not be able to reassess you until they are sure you are ready to work safely.

Presentation of work

Presentation of work must be neat and appropriate to the task.

You should make sure that each piece of work is clearly labelled with your name and the task title.

Any electronic files must be given a clear file name that allows your tutor to identify them as your work.

Completion of tasks

You will be required to read the job details and use the candidate instructions for each practice task to produce the end product. You will be required to answer three multiple choice questions related to the tasks.

Your completed piece of work will be marked against the standards set out in the candidate instructions table within each practice task. Your tutor/assessor will mark the multiple choice questions and give you feedback.

Your tutor/assessor will provide constructive feedback, highlighting areas of both good practice and areas requiring development.

Your performance will be observed throughout the task, and any help or guidance provided by your tutor/assessor or peers will be taken into consideration on the marking of your completed work.

Tasks

Task 1 Workshop rod

Candidate name	
Date	

Job details: You will draw a workshop rod for a full size door with a semi circular head. You must determine the joint proportions (Tenon, thickness and haunch sizes). When the job is set out, you will complete a cutting list giving sawn and finished sizes.

Assessment methods: This task will test your measuring and setting out skills.

Scope of content

- Read specification
- Determine job details
- Draw workshop rod

No	Candidate instructions	Achieved	
		Yes	No
1	Set out full size height and plan sections ±1 mm		
2	Set out full size elevation of curved door head ±1 mm		
3	Show correct jointing details		
4	Show correct section profiles		
5	Produce an accurate cutting list fully filled out inclusive of all components including materials for head sections		
6	Housekeeping • Leave work area clean and tidy • Clean and store away materials correctly (if applicable) • Dispose of waste correctly (if applicable).		

Specification

Door size 1981 mm x 838 mm
Door stiles 95 mm x 57 mm
Top rail finished size 95 mm x 57 mm made up of 3 sections jointed together
Middle rail 195 mm x 57 mm set 900 mm from the bottom of the door to top edge of mid rail
Bottom rail 195 mm x 57 mm
Top of door direct glazed
Bottom of door 18 mm plywood panel, set centre of stile
Rebate to accommodate 24 mm double glazed unit
Internal mould 10mm radius ovolo

Knowledge questions

1) How much is added to the finished size on a cutting list to obtain the sawn size?

a) 3 mm
b) 6 mm
c) 12 mm
d) 18 mm

2) What is the **main** reason a solid head on a semi-circular window or door frame is **not** made of 2 pieces?

a) Inefficient use of timber.
b) Short grain at the ends of the components.
c) Short grain at the middle of the components.
d) Fewer cramps are required.

3) A jamb is jointed to the curved head of a door frame using a central tenon. What tenon is used between the transom and the jamb?

a) Double.
b) Twin.
c) Bare faced.
d) Box.

Task title:	
Candidate feedback	
Assessor feedback	
Action plan	

Task 2 Use planer machines

Candidate name:	
Date:	

Job details: You will plane a section of timber using fixed planer machines. You will set the fences, guards and operate a surface planer to face and edge, and a thicknesser to bring to size. You will use a surface planer to produce a bevel.

Assessment methods: This task will test your skills on using planer machines.

Scope of content

- Read specification
- Face and edge timber
- Bring to size, width and thickness
- Produce bevel

No	Candidate instructions	Achieved	
		Yes	No
1	Plane timber faces straight and square within 0.5 mm		
2	Bring timber to size width within 0.5 mm		
3	Bring timber to thickness within 0.5 mm		
4	Produce bevel accurately without drop off or reducing overall width		
5	Work safely at all times		
6	Housekeeping • Leave work area clean and tidy • Clean and store away materials correctly (if applicable) • Dispose of waste correctly (if applicable).		

Specification

Finished timber size 95 mm x 45 mm x 1000 mm
30° bevel to one edge

Knowledge questions

1) What covers the cutters on a surface planer?

a) Hood.
b) Bearing.
c) Bridge guard.
d) Crown guard.

2) What is the usual cause of chip bruising?

a) Poor extraction.
b) Slow feed speed.
c) Improper use of guard.
d) Shakes in the timber.

3) What function do the metal fingers have on a thicknesser?

a) Reduces noise.
b) Allows mouldings to be applied.
c) Enables very short sections to be planed.
d) Prevents kick-back.

Task title:	
Candidate feedback	
Assessor feedback	
Action plan	

Task 3 Use bandsaw

Candidate name	
Date	

Job details: You will use a fixed circular and bandsaw to produce components.

Specification
Circle diameter 450 mm (to be cut from 9 mm ply or MDF)
An inner circle is to be cut from this, leaving a 75 mm wide ring
Wedge jig as per centre availability

Assessment methods: This task will test your skills on using bandsaws.

Scope of content

- Change bandsaw blade
- Fold old blade and store
- Fit new blade and set tension, thrustwheel, etc.
- Cut circle
- Cut inside of circle
- Cut using fence
- Cut wedges using a jig and push stick

No	Candidate instructions	Achieved	
		Yes	No
1	Put machine into safe condition before changing blade		
2	Remove old blade and fold		
3	Insert new blade, set tension and guide assemble correctly		
4	Carry out pre-start checks		
5	Produce circle on bandsaw, diameter within 2 mm		
6	Cut inside of circle neatly within 1 mm without making the entry cut wider		
7	Cut wedges using wedge jig and push stick		
8	Work safely at all times		
9	Housekeeping • Leave work area clean and tidy • Clean and store away materials correctly (if applicable) • Dispose of waste correctly (if applicable).		

Knowledge questions

1) What is the effect of setting the tension too high on a narrow bandsaw blade?

a) The blade will wobble.
b) The blade will snap.
c) The blade will not cut straight.
d) The blade will cut with a wider kerf.

2) What adjustment is made on a bandsaw to prevent the blade being pushed back too far?

a) Tension.
b) Thrustwheel.
c) Fence.
d) Tracking.

3) When a blade access door is open, what will prevent the bandsaw from starting?

a) Tension off.
b) Brake.
c) Stop button.
d) Interlock.

Task title:	
Candidate feedback	
Assessor feedback	
Action plan	

Task 4 Use circular saw

Candidate name	
Date	

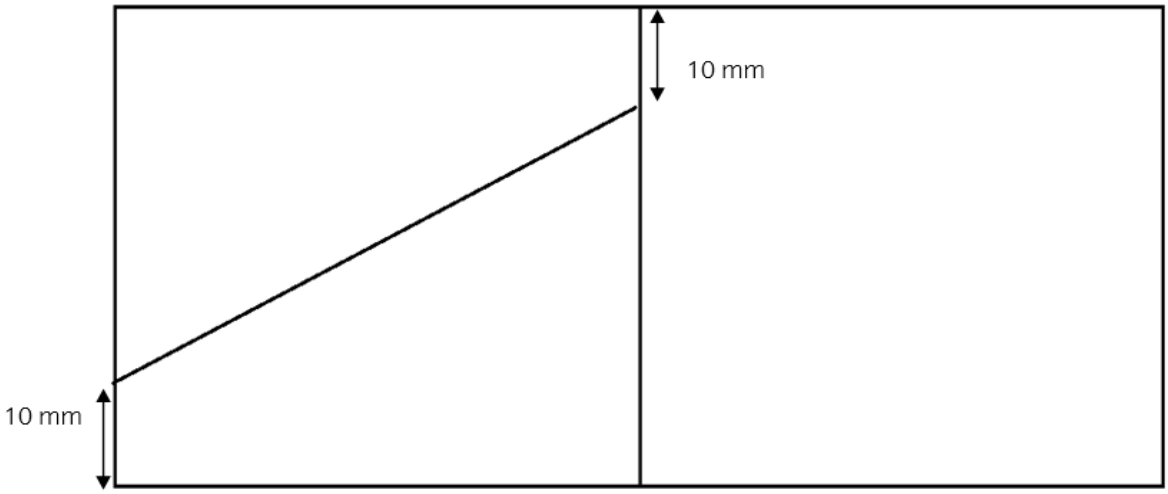
Job details: You will use a circular saw to produce various components. See Figure 1.

Assessment methods: This task will test your skills on using a circular saw.

Scope of content

- Change blade
- Carry out pre-start checks
- Rip timber
- Rip timber at an angle
- Crosscut timber

No	Candidate instructions	Achieved	
		Yes	No
1	Put machine into safe condition before changing blade		
2	Change blade safely and correctly		
3	Carry out pre-start checks		
4	Rip timber in half		
5	Rip one half to the given bevel		
6	Rip the other half to 45° using a saddle to create tilt fillet/arris rail		
7	Saw timber to size within 1 mm		
8	Saw bevels to within 1 mm		
9	Work safely at all times		
10	Housekeeping • Leave work area clean and tidy • Clean materials and store away correctly (if applicable) • Dispose of waste correctly.(if applicable)		



Cross section

Figure 1

Specification

Sawn timber to be 100 mm x 50 mm x 1000 mm

This assessment can be adapted and carried out in conjunction with other tasks, as per centre requirements

Knowledge questions

1) What prevents long lengths of timber falling off the back of a circular saw?

a) Infeed table.
b) Outfeed table.
c) Riving knife.
d) Crown guard.

2) What dimension would decrease the peripheral speed of a circular saw blade?

a) Smaller diameter.
b) Larger diameter.
c) Thinner plate.
d) Thicker plate.

3) After turning a circular saw off, what should happen to the blade?

a) It runs down slowly.
b) It runs down silently.
c) It stops dead in 10 seconds.
d) It stops dead in 20 seconds.

Task title:	
Candidate feedback	
Assessor feedback	
Action plan	

Task 5 Use mortice machines

Candidate name:	
Date:	

Job details: You will set up a mortice machine and produce some mortices. See Figure 2.

Assessment methods: This task will test your skills on using a morticing machine.

Scope of content

- Put machine in safe condition
- Change tooling
- Cut mortices

No	Candidate instructions	Achieved	
		Yes	No
1	Put machine into safe condition		
2	Produce through mortices accurately to size within 1 mm and without breakout		
3	Produce stub mortice to given depth within 1 mm flat on bottom and clean		
4	Mortices set to centre of timber within 1 mm		
5	Work safely at all times		
6	Housekeeping • Leave work area clean and tidy • Clean and store away materials correctly (if applicable) • Dispose of waste correctly (if applicable).		

Specification

Timber size 95 mm x 45 mm x 1000 mm (or as centre availability)

Through mortices cut as diagram, 25 mm and 12 mm (or as centre availability) both mortices centre of material. 12 mm mortice stopped at 32 m deep

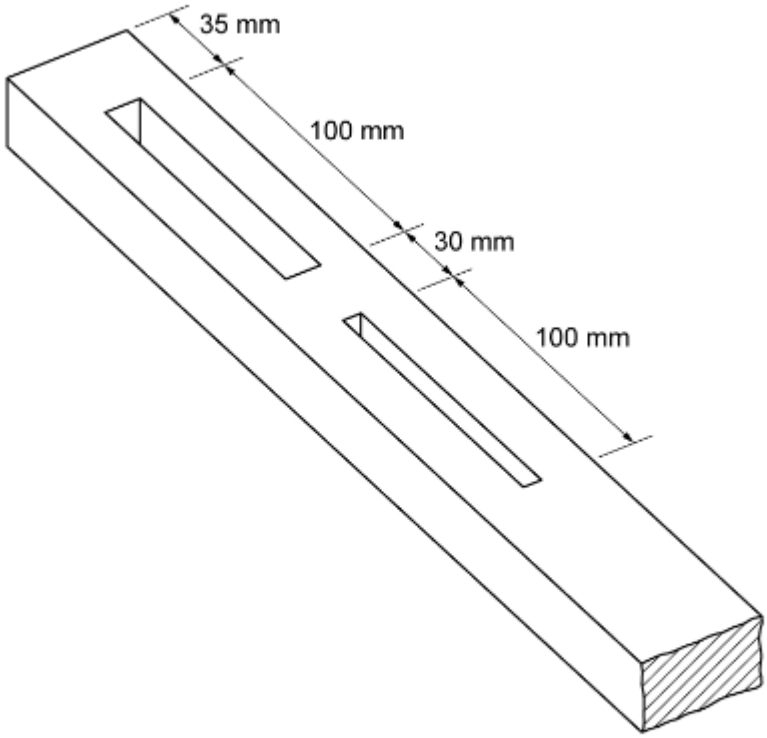


Figure 2

Knowledge questions

1) How are morticer augers centered into the machine?

a) Grips.
b) Keyless chuck.
c) SDS chuck.
d) Bushes/collets.

2) What is the **most** likely cause of jagged sides to a mortice?

a) Poor extraction.
b) Chisel not square in machine.
c) Insufficient auger clearance.
d) Shakes in the timber.

3) What adjustment is made to a morticer when cutting resinous timber?

a) Increase motor speed.
b) Reduce motor speed.
c) Increase auger clearance.
d) Reduce auger clearance.

Task title:	
Candidate feedback	
Assessor feedback	
Action plan	

Task 6 Make bullseye sash

Candidate name:	
Date:	

Job details: You will set out, mark out, make and finish a bullseye sash. See Figure 3.

Assessment methods: This task will test your skills with setting out, marking out, and making a bullseye sash.

Scope of content

- Read specification
- Determine joints to be used
- Make a rod
- Mark out timber
- Make templates
- Glue up sawn sections
- Profile sash
- Finish sash

No	Candidate instructions	Achieved	
		Yes	No
1	Draw rod including elevation accurate within 1 mm		
2	Produce template		
3	Produce sawn components accurately		
4	Assemble sections without gaps exceeding 1 mm		
5	Profile components accurately		
6	Ensure sash shape matches rod		
7	Finish with all adhesives cleaned off		
8	Work safely at all times		
9	Housekeeping • Leave work area clean and tidy • Clean and store away materials correctly (if applicable) • Dispose of waste correctly (if applicable).		

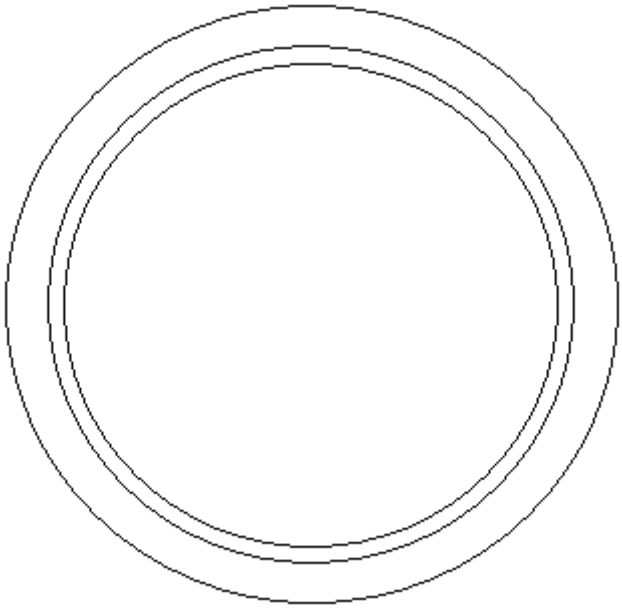


Figure 3

Specification

Sash built up in 3 layers, 8 pieces per layer with staggered joints
Finished sash size 45 mm x 45 mm
Sash diameter 650 mm
Glazing rebate 18 mm x 10 mm
Mould on inside of window as per centre availability

Knowledge questions

1) What fence is used on a spindle moulder when producing internal curves?

   a) Parallel.
   b) False.
   c) Finger.
   d) Ring.

2) What method of producing curved components requires formers?

   a) Lamination.
   b) Built up.
   c) Solid.
   d) CNC.

3) What do laminated curves rely on for strength?

   a) Wedges.
   b) Screws.
   c) Nails.
   d) Adhesive.

Task title:	
Candidate feedback	
Assessor feedback	
Action plan	

Task 7 Make gothic arched window sash

Candidate name:	
Date:	

Job details: You will set out, mark out, make and finish a gothic arched window sash.
See Figure 4.

Assessment methods: This task will test your skills with setting out, marking out, and making a sash with curved components.

Scope of content

- Read specification
- Determine joints to be used
- Make a rod
- Mark out timber
- Make templates
- Cut, joint, shape and profile components
- Assemble sash
- Finish sash

No	Candidate instructions	Achieved	
		Yes	No
1	Draw rod including elevation accurate within 1 mm		
2	Determine appropriate joints to be used		
3	Produce components accurately		
4	Profile components accurately		
5	Produce formers to laminate the glazing bar		
6	Assemble sash with no gaps exceeding 0.5 m		
7	Ensure sash curve matches rod		
8	Finish with all adhesives cleaned off, tenons trimmed, etc.		
9	Work safely at all times		
10	Housekeeping • Leave work area clean and tidy • Clean and store away materials correctly (if applicable) • Dispose of waste correctly (if applicable).		

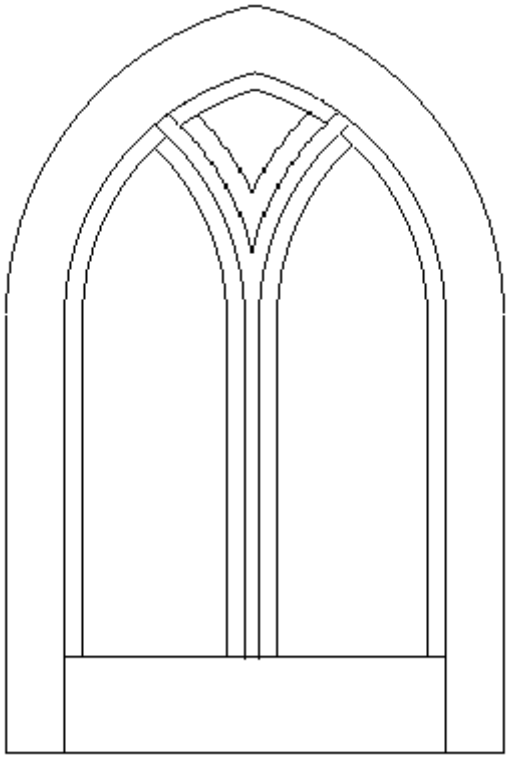


Figure 4

Specification
Jambs and head sections 45 mm x 45 mm
Bottom rail 70 mm x 45 mm
Glazing bar 45 mm x 32 mm
Glazing rebate 18 mm x 10 mm
Mould as per centre availability

Knowledge questions

1) In relation to an arch, what is a springing line?

a) The centre line of the arch.
b) A line that separates the curved part from the straight.
c) A vertical line that intersects with the apex of an arch.
d) The arc of the arch.

2) What would be used to draw a 700 mm radius arc?

a) Compass.
b) Trammel.
c) Dividers.
d) Rule.

3) What is **most** commonly used in conjunction with loose tenons?

a) Wedges.
b) Screws.
c) Star dowels.
d) Wood dowels.

Task title:	
Candidate feedback	
Assessor feedback	
Action plan	

Task 8 Make geometric handrail

Candidate name:	
Date:	

Job details: You will make a geometric handrail using lamination.

Assessment methods: This task will test your ability to make a laminated handrail.

Scope of content

- Set out curve
- Produce former
- Produce handrail
- Finish handrail

No	Candidate instructions	Achieved	
		Yes	No
1	Set out handrail radius correctly and accurately with full cutting list		
2	Set out according to building regulations		
3	Produce former drum accurately		
4	Laminate handrail without gaps between laminates exceeding 0.5 mm		
5	Ensure handrail keeps its shape		
6	Clean up handrail ensuring the section remains square throughout the length		
7	Correct size within 2 mm		
8	Work safely at all times		
10	Housekeeping • Leave work area clean and tidy • Clean and store away materials correctly (if applicable) • Dispose of waste correctly (if applicable).		

Specification

Handrail to be 3/5 full size
Full size stair (to be scaled)
900 radius (handrail)
Total rise 2600 mm
The handrail to be a minimum ¼ turn
Candidate to determine appropriate thickness of laminate to enable it to bend
Finished handrail to be 45 mm wide (across face), 40 mm deep
Former drum timbers can be reused, but the PLY/MDF ribs must be produced by each candidate.

Knowledge questions

1) What is the alternative method to lamination when constructing wreathed strings?

a) Solid.
b) Staves.
c) Steamed.
d) Kerfed.

2) What is used to stiffen a wide stair?

a) Wide strings.
b) Glue blocks.
c) Brackets.
d) Carriage.

3) What are used to hide the ends of the risers on a cut string stair?

a) Bracket.
b) Spindle.
c) Scotia.
d) Nosing.

Task title:	
Candidate feedback	
Assessor feedback	
Action plan	

Task 9 Make winder box

Candidate name:	
Date:	

Job details: You will make the winding section of a staircase. This will include setting out the stair, ensuring it meets building regulations, and making the staircase. See Figure 5.

Assessment methods: This task will test your ability to make a winder box and bottom step.

Scope of content

- Set out stair
- Manufacture components
- Assemble and finish

No	Candidate instructions	Achieved	
		Yes	No
1	Set out stair correctly and accurately with full cutting list		
2	Set out according to building regulations		
3	Produce components		
4	Finish components before assembly		
5	Assemble stair without gaps exceeding 1 mm		
6	Work safely at all times		
7	Housekeeping • Leave work area clean and tidy • Clean and store away materials correctly (if applicable) • Dispose of waste correctly (if applicable).		

Specification

Winder box will be 3/5 of a full size stair. Three winders to be incorperated.

Full size: rise of 180 mm and going 220 mm (to be scaled).

Candidate to determine sizes, and ensure the treads comply with building regulations.

Newels can be shortened. The stair can be assembled dry with draw dowels if required (if the box is to be used for the carpentry training assessment)

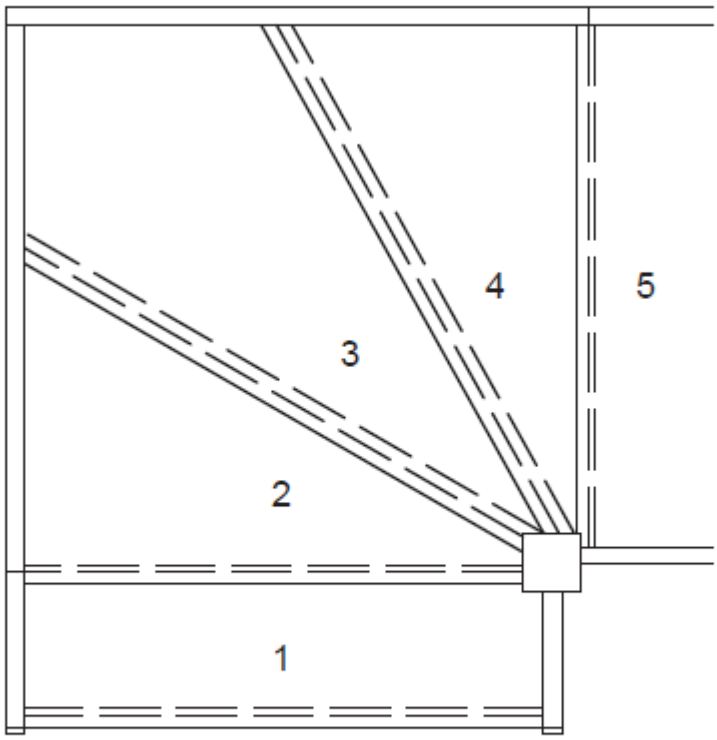


Figure 5

Knowledge questions

1) What is the **minimum** going on the inner part of a winder nearest the newel?

a) 40 mm
b 50 mm
c) 63 mm
d) 73 mm

2) What can cause a stair to squeak?

a) No glue blocks.
b) Overly tight wedges.
c) No underlay if carpeted.
d) Too many screws in riser.

3) What joint is **best** used between a string and tread?

a) Housing.
b) Biscuit.
c) Butt.
d) Dowel.

Task title:	
Candidate feedback	
Assessor feedback	
Action plan	

ASSESSOR GUIDANCE

These practice tasks are designed for the candidates to make use of the 'tool kit' of knowledge, understanding and skills they will gain during their teaching and learning during this qualification in order to tackle problems/ tasks/ challenges.

Candidates are provided with a set of tasks, which can be taken in any order. The candidates have to reach into their knowledge and skills to independently select the correct processes, skills, materials, approaches to take etc, drawing on the full range of knowledge and understanding from across the qualification to make good decisions that will achieve an end result that is fit for the specified purpose.

These formative tasks will allow candidates to be supported in learning how to independently use the learning they have covered so far, drawing this together in a similar way, so they are familiar with the format, conditions and expectations of the practical assignment that they will sit at the end of this qualification.

Assessors have the option of asking candidates to complete a risk assessment, method statement or resource checklist, but this is not compulsory. Generic forms for these can be found in the appendix section.

Guidance on tasks

Resources

Centres will have well equipped workshops with compressive range of hand and portable power tools that meet current industry standards. All powered equipment should be well maintained and PAT certified. Centres will have special designated areas within their workshop (cubicles or project area) allowing candidates to practice the requirements of the unit and practice tasks.

Health and safety

Candidates should not be entered for assessment without being clear of the importance of working safely, and practice of doing so. The tutor must immediately stop a task if a candidate works unsafely and give the candidate feedback on why they were stopped.

Where it is appropriate candidates must be supervised when operating machinery.

Observation

Candidates must be observed carrying out these practice tasks and notes must be taken of the quality of performance along with any other aspect of performance that will support giving feedback to the candidate.

Preparation

During the formative practice tasks, tutors should routinely point out good or poor performance during the learning period, and through formative assessment. Candidates should be encouraged to do the best they can and be made aware of the difference between these formative assessments and the summative assessments.

Knowledge Questions answer keys

Task 1 Workshop rod

Question	Correct key
1	B
2	B
3	B

Task 2 Use planer machines

Question	Correct key
1	C
2	A
3	D

Task 3 Use bandsaw

Question	Correct key
1	B
2	B
3	D

Task 4 Use circular saw

Question	Correct key
1	B
2	B
3	C

Task 5 Use mortice machines

Question	Correct key
1	D
2	B
3	C

Task 6 Make bullseye sash

Question	Correct key
1	D
2	A
3	D

Task 7 Make gothic arched window sash

Question	Correct key
1	A
2	B
3	D

Task 8 Make geometric handrail

Question	Correct key
1	B
2	D
3	A

Task 9 Make winder box

Question	Correct key
1	B
2	A
3	A

Appendix

Resource checklist

Candidate name		**Date**	
Task title			

Tools and equipment and materials	Quantity
eg cold chisel	*1*

Materials	Quantity
eg paving slabs	*10*

Personal Protective Equipment (PPE)	Quantity
eg safety harness	*1*

Risk assessment form

Candidate Name	**SEVERITY (S):** Degree of harm which may be caused (including numbers affected) 1 = Minor Injury 2 = Major Injury 3 = Fatality	**LIKELIHOOD (L):** Probability that event will occur 1 = Remote 2 = Possible 3 = Likely	**RISK RATING (RR):** Severity x Likelihood 1-2 = Low 3-4 = Medium 6-9 = High

Date	Task title	Hazard	Existing Controls	S (1-3)	L (1-3)	RR (S x L)	Actions needed
18 July 2013	*Apply materials and fix tiles to surfaces*	*Chemical based adhesives*	*PPE*	*1*	*2*	*2*	*Implement sigh off sheet to ensure PPE is worn*

		Likelihood		
		Unlikely	**Possible**	**Very likely**
Severity	**1 Slight / minor injuries / minor damage**	1	2	3
	2 Medium injuries / significant damage	2	4	6
	3 Major injury / extensive damage	3	6	9

Likelihood

3 = Very likely

2 = Possible

1 = Unlikely

Severity

3 = Major injury / extensive damage

2 = Medium injury / significant damage

1 = Slight / minor damage

Key:

1 = Low risk, action should be taken to reduce the risk if reasonably practicable

2, 3, 4 = Medium risk, is a significant risk and would require an appropriate level of control measures.

6 & 9 = High risk, should not be undertaken without prior agreement.

Method statement

Department/ location:		
Risk assessment no.		
Description of the task/ activity:		
Personnel involved:	**Name**	**Role/ trade**
Key plant & tools:		
Key materials:		
Other essential equipment: **(ie access platforms/winches/ladders, etc)**		
Specific identified residual hazards: **(or refer to the task specific risk assessment(s))**		
Specific staff training:		
Sequence of operations: **(include sketches if required)**		

Hazardous substances: (attach MSDS if required) **Applicable:**	 Very toxic	 Harmful/ irritant	 Corrosive	 Dangerous for the environment	 Oxidising	 Highly flammable	 Explosives

Required Personal Protective Equipment:	 Safety boots	 Hard hats	 Safety gloves	 Hearing protection	 Eye protection	 Respiratory protection	 Hi viz protective clothing

Emergency procedures:			
	**First Aid facilities:**	**Name of on-site First Aider:**	
		First Aid box location:	
		Location of nearest hospital:	
Other information & comments			

Declaration of Authenticity

Candidate name	Candidate number
Centre name	Centre number

Candidate:

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

Candidate signature	Date

Tutor:

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

Tutor/assessor signature	Date

Assessment feedback form

Candidate name	Candidate number
Assessor name	Date of assessment

Task / AO	Feedback

Assessor signature and date: