



Maldives National Skills Development Authority



National Competency Standard for Furniture Carpentry

Standard Code: TRN01S09V1

Qualification Name: National Certificate III in Furniture Carpentry
Qualification Code: TRN01SQ1L309

COMPETENCY STANDARDS FOR

CARPENTER (FURNITURE)

1.	Work safely in the workplace
2.	Handle and maintenance of workplace tools and equipments
3.	Perform effective workplace communication
4.	Prepare estimates for wooden furniture
5.	Make furniture using wood based boards
6.	Make furniture using solid wood and wood based boards
7.	Finish wood and wood based board furniture
8.	Sharpen carpentry tools and maintain relevant hand tools, basic power tools and machinery

DESCRIPTION OF A CARPENTER (FURNITURE)

Carpenter (furniture) will be working front line of the construction industry. Carpenters (furniture) who are competent in this standard will be working under general supervision and will be able to perform work in design, repair, and maintenance of structure for wooden furniture.

COMPETENCY STANDARD DEVELOPMENT PROCESS

The competencies were determined based on the analysis of the tasks expected to be performed by the furniture carpenter in the Maldives. The task analysis was based on the existing job descriptions used in both private and public sector. Competency standards used for similar type of training in other countries were also examined.

UNIT TITLE	Work safely in the workplace				
DESCRIPTOR	This unit incorporates safety guidelines and encompasses competencies necessary to apply basic safety and emergency procedures to maintain a safe workplace for staff, customers and others.				
CODE	TRN01S1U01V1	LEVEL	1	CREDIT	4

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Apply basic safety procedures	<p>1.1. procedures to achieve a safe working environment followed and maintained in line with existing regulations and requirements and according to worksite policy</p> <p>1.2. all unsafe situations recognized and reported according to worksite policy</p> <p>1.3. all breakdowns in relation to machinery and equipment reported to supervisor or nominated persons</p> <p>1.4. fire and safety hazards identified and precautions are taken or reported according to worksite policy and procedures</p> <p>1.5. dangerous goods and substances identified, handled and stored according to worksite policy and procedures</p> <p>1.6. worksite policy regarding manual handling practice followed</p>
2. Apply necessary emergency procedures	<p>2.1. worksite policies and procedures regarding illness or accidents identified and applied safety alarms identified</p> <p>2.2.</p> <p>2.3. qualified persons are contacted in the event of accident or sickness of customers or staff and accident details documented according to worksite accident/ injury procedures</p> <p>2.4. worksite evacuation procedures identified and applied</p>

Range Statement

Unsafe situations may include but are not limited to sharp cutting tools and instruments, the electricity/ water combination, toxic substances, damaged packing material or containers, broken or damaged equipment, flammable materials and fire hazards, lifting practices, spillages, waste and debris especially on floors, ladders, trolleys and glue guns/burns

Emergency procedures may include responding to sickness, accidents and fire, or store/shop evacuation involving staff or customers.

Tools, equipment and material used in this unit may include

Safety manuals, fire extinguishers and dangerous goods used in the workplaces.

ASSESSMENT GUIDE

Forms of assessment

Assessment for the unit needs to be holistic and must include real or simulated workplace activities. Evidence of performance may be provided by customers, team leaders/members or other persons, subject to agreed authentication arrangements.

Assessment context

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

Critical aspects (for assessment)

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Communicating effectively with others involved in or affected by the work.
- Identifying and assessing hazardous situations and rectifying, or reporting to the relevant persons.
- Operating fire-fighting appliances.
- Safely handling and storage of dangerous and/or hazardous goods and substances.
- Applying safe manual handling practices.

- Safely and effectively operating equipment and utilizing materials over the full range of functions and processes for work undertaken on worksite.
- Following worksite evacuation procedures.

This unit may be assessed in conjunction with all and units which form part of the normal job role.

Assessment conditions

It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying circumstances.

Special notes for assessment

Evidence of performance may be provided by customers, team leaders/members or other persons, subject to agreed authentication arrangements.

Resources required for assessment

The following should be made available:

- A workplace or simulated workplace
- Situations requiring safe working practices
- Worksite or equivalent instructions on safe working practice
- Hazardous chemicals and/or dangerous goods information
- Materials, tooling and equipment
- Fire-fighting appliances and fire test facilities

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
<ul style="list-style-type: none"> • General knowledge of the implications on efficiency, morale and customer relations • General knowledge of common automotive terminologies 	<ul style="list-style-type: none"> • Undertake effective customer relation communications • Competent in communicating basic automotive terminologies • Competent to work according to
<ul style="list-style-type: none"> □ Working knowledge of workplace safety regulations/requirements, equipment, material and personal safety requirements. □ Working knowledge of safe manual handling theories and practices □ Working knowledge of the selection and application of fire-fighting appliances □ Working knowledge of dangerous goods and hazardous chemicals handling processes □ Detailed knowledge of worksite reporting procedures 	<ul style="list-style-type: none"> □ safety regulations Competent to work safely with workplace equipments, materials □ and colleagues Undertake safe manual handling □ jobs Skill to select and apply appropriate □ fire fighting appliances Ability to safely handle dangerous □ good and hazardous chemicals Competent to undertake appropriate worksite reporting procedures

UNIT TITLE	Handle and maintenance of workplace tools and equipments				
DESCRIPTOR	This unit covers the competence required to select, safely use and maintain workplace tooling and equipment. The unit includes identification and confirmation of work requirement, preparation for work, selection, use, servicing, maintenance and storage of tooling and equipment and completion of work finalisation processes, including clean-up and documentation.				
CODE	TRN01S1U03V1	LEVEL	2	CREDIT	6

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Select correct tooling and equipment for workplace applications	<p>1.1. Tooling and equipment selected to meet job requirements</p> <p>1.2. Suitable tooling and equipment selected for use within the workplace environment</p> <p>1.3. Tooling and equipment selected according to enterprise procedures/policies</p>
2. Use of tooling and equipment	<p>2.1. Tooling and equipment used in a safe manner to prevent injury to self and others</p> <p>2.2. Tooling and equipment used in a manner that does not cause damage to other workplace equipment</p> <p>2.3. Observations noted during the use of tooling/ equipment</p>
3. Service and maintain workplace tooling and equipment	<p>3.1. Tooling and equipment regularly checked against manufacturer/component supplier recommendations to ensure safe operating condition</p> <p>3.2. Damaged/worn tooling and equipment tagged and removed from the workplace for repair or replacement and reported in accordance with enterprise requirements</p>

	3.3. Tooling/equipment are serviced, adjusted and/or maintained per manufacturer/component supplier
	<p>schedule to ensure safe and correct operation, within the scope of responsibility</p> <p>3.4. Servicing and maintenance operations carried out according to industry regulations/guidelines, enterprise procedures/policies</p>
4. Store and secure tooling and equipment	<p>4.1. Tooling and equipment cleaned, checked and stored</p> <p>4.2. Tooling and equipment securely stored</p> <p>4.3. Documents completed according to enterprise policies and procedures</p>

Range Statement

Tooling and equipment may include computer hardware/ software, calculators, general office equipment, hand and power tooling, specialist tooling for removal/adjustment, storage racks, protective covers, measuring devices, plastics repair equipment, sealing equipment, adhesive equipment, heating equipment, templates, welding equipment, including oxy, arc, MIG and TIG, vehicle cleaning equipment, service workshop manuals, product manuals, hydraulic breaker tooling, line oilers, filters and gauges, alternator and starting motor bench testers, paint mixers, key cutters, multimeters, load testers, brake and drum lathes, fuel injector cleaners, ignition module test instruments

Maintenance methods may include routine maintenance to tooling and equipment as per schedules, labelling faulty tooling and equipment, minor repairs to tooling and equipment, and the chocking, jacking and supporting of machines on level and incline planes

Specific requirements may include hydraulic jacks, air bags and overhead cranes for lifting heavy machines

Tools, equipment and materials used in this unit may include

- All the available workshop tools and equipments
- A fully operational workshop with all equipments and tools

ASSESSMENT GUIDE

Forms of assessment

Assessment for the unit needs to be a holistic one and must include real or simulated workplace activities.

Assessment context

Application of competence is to be assessed in the workplace or simulated worksite and needs to occur using standard and authorized work practices, safety requirements and environmental constraints.

Critical aspects (for assessment)

It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of:

- Selection and safe use of hand tooling
- Selection and safe use of workplace equipment
- Basic maintenance of tooling and equipment within the scope of operator responsibility
- Selection and safe use of personal protective equipment

Assessment conditions

It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements

Special notes for assessment

Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Resources required for assessment

The following resources should be made available:

- Workplace location or simulated workplace
- Material relevant to the use and maintenance of workplace tooling and equipment
- Equipment, hand and power tooling appropriate to the use and maintenance of workplace tooling and equipment
- Activities covering mandatory task requirements
- Specifications and work instructions

UNDERPINNING KNOWLEDGE AND SKILLS

Analyst groups might be advised to include Key Competencies and Levels in this section

Underpinning Knowledge	Underpinning Skills
<ul style="list-style-type: none">• Safety regulations/requirements, equipment, material and personal safety requirements• Tool and equipment selection procedures• Basic maintenance procedures for tooling and equipment• Tool and equipment safety and operating procedures• Types, characteristics, uses and limitations of hand tooling• Types, characteristics, uses and limitations of power tooling• Types, characteristics, uses and limitations of workplace equipment	<ul style="list-style-type: none">• Demonstrate understanding of workplace safety• Identify appropriate tools and equipments• Undertake maintenance of tools and equipments used in the workplace• Operate tools and equipments safely

UNIT TITLE	Perform effective workplace communication				
DESCRIPTOR	This unit covers the competence to communicate in the workplace by oral, written and electronic means.				
CODE	TRN01S1U05V1	LEVEL	2	CREDIT	7

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Write routine text	<p>1.1. Routine texts of one or more sentences composed in accordance with workplace requirements</p> <p>1.2. Routine forms completed in accordance with workplace requirements</p> <p>1.3. Spelling, punctuation and grammar rules followed</p> <p>1.4. Texts self-checked for accuracy and presented for progress checks by relevant persons</p>
2. Read routine documents	<p>2.1. Purpose of the text understood and described</p> <p>2.2. Main points or ideas presented described</p> <p>2.3. New technical words comprehended</p> <p>2.4. The meaning of key words and phrases explained</p>
3. Contribute to workplace communications	<p>3.1. Information accessed to ensure effective communication when sending or receiving information</p> <p>3.2. Assistance provided to colleagues in the workplace , to foster common understanding</p> <p>3.3. Requests for information from colleagues met</p> <p>3.4. Documents kept and maintained in accordance with workplace/enterprise procedures and Government legislation</p>

4. Apply basic computer skills	<p>4.1. Computer turned on according to manufacturer/ component supplier specifications or workplace procedures</p> <p>4.2. Software loaded or selected from menu</p> <p>4.3. File identified and selected or new file</p>
	<p>produced</p> <p>4.4. Information entered, edited or deleted using an input device and within workplace designated speed and accuracy requirements</p> <p>4.5. Document saved regularly to avoid loss of information</p> <p>4.6. Document proof read and amended for accuracy</p> <p>4.7. Document produced in required style and format</p> <p>4.8. Document printed</p> <p>4.9. Files saved and closed and program closed or exited according to manufacturer/component supplier specifications or workplace procedures</p> <p>4.10. Computer turned off according to manufacturer/ component supplier specifications or workplace procedures</p> <p>4.11. Workplace guidelines relating to screen-based equipment and computer workstations observed</p>
5. Operate workplace telephone systems	<p>5.1. Telephone system functions used according to enterprise policy</p> <p>5.2. Outgoing calls completed in accordance with manufacturer instructions and enterprise policy and procedures</p> <p>5.3. Incoming calls answered promptly and in accordance with enterprise policy and procedures</p>

	5.4. Calls transferred or placed on hold 5.5. Caller kept informed of delays and action being taken 5.6. Caller details and purpose of call obtained and documented 5.7. Messages documented and calls promptly returned if required
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Range Statement

- Enterprise may vary in size, type and location, the range of work activities conducted, hours of operation and the number and type of staff
- Staff may work in teams or groups of varying size and structure
- Communication may include face-to-face, telephone, written or electronic means □
Staff must be aware of industry codes.

Tools, equipment and materials used in this unit may include

- Computers and Telephones
- Enterprise policies and procedures relating to workplace forms and documents, computer, telephone use and system operating procedures and necessary industry codes if available.

ASSESSMENT GUIDE

Forms of assessment

Assessment for the unit needs to be a holistic one and must include real or simulated workplace activities.

Assessment context

Elements of competence contain both knowledge and practical components. Knowledge components may be assessed off the job. Practical components should be assessed on the job or in a simulated work environment

Evidence is best gathered using the products, processes and procedures of the workplace as the means by which the candidate achieves industry competencies

Critical aspects (for assessment)

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Writing short routine texts using correct spelling, punctuation and grammar
- Reading, interpreting and applying routine texts in the workplace
- Interpreting and conveying workplace information
- Maintaining workplace communications, including documents
- Applying keyboard skills to prepare and/or edit simple documents using a computer
- Applying enterprise requirements for document style and format
- Applying enterprise requirements for electronic storage and retrieval of documents
- Applying enterprise procedures for incoming and outgoing telephone calls

Assessment conditions

It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover the varying circumstances. Evidence of performance may be provided by customers, team leaders/members or other appropriate persons, subject to agreed authentication arrangements

Special notes for assessment

- Enterprise may vary in size, type and location, the range of work activities conducted, hours of operation and the number and type of staff
- Staff may work in teams or groups of varying size and structure
- Communication may include face-to-face, telephone, written or electronic means

Resources required for assessment

- A workplace or simulated workplace
- documentation, such as enterprise or sample policies and procedures manuals related to workplace document style, format and layout, workplace communication procedures, workplace documents, telephone protocols and operating procedures, computer system operating procedures
- Enterprise or sample stationery, documents and forms

- Access to enterprise or similar computer hardware and software □ Access to enterprise or similar telephone system

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
□ General knowledge of enterprise forms, documents and stationery	□ Appropriate skills in handling enterprise forms, documents and
□ Operational knowledge of enterprise policies and procedures in regard to: <ul style="list-style-type: none"> ➤ workplace document style, format and layout ➤ workplace communication procedures ➤ workplace documents ➤ telephone protocols and operating procedures ➤ computer system operating procedures 	stationery <ul style="list-style-type: none"> □ Skills in handling the following: <ul style="list-style-type: none"> ➤ workplace document style, format and layout ➤ workplace communication procedures ➤ workplace documents ➤ telephone protocols and operating procedures

UNIT TITLE	Prepare estimates for wooden furniture				
DESCRIPTOR	This unit covers the competencies required to prepare estimates of costs for all types of wooden furniture.				
CODE	CON04S2U01VI	Level	3	Credit	5

ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Determine the quantity of materials required for the job	<p>1.1. Sketch / drawing prepared taking into consideration the requirements of the customer in the absence of such drawing / sketch</p> <p>1.2. List of timber and wood based board components prepared according to the required measurements, types of material and the number of components and specifying moisture content and any other characteristics as applicable</p> <p>1.3. List of other material prepared according to the requirements as per the drawing / sketch and in compliance with the types and specifications</p> <p>1.4. Total amount of timber and material calculated on the basis of above information and making use of appropriate forms / formats</p>
2. Determine the prime cost for the job	<p>2.1. Total cost of timber and other material calculated based on the determined material quantities, allowing for wastage and contingencies as appropriate and in terms of prevailing market prices</p> <p>2.2. Total labour cost calculated in terms of labour hours and according to industry norms</p> <p>2.3. Prime cost calculated using above information</p>
3. Determine selling price of the product	<p>3.1. Overheads calculated accommodating cost for use of plant & equipment, services and infrastructure, including taxes, in accordance with own industry norms</p> <p>3.2. Selling price calculated using the prime cost, the overheads and profit margin</p>

RANGE STATEMENT

Work connected to this unit may take place in a furniture workshop, in a training workshop or at client's office. Restrictions imposed in the use of certain types of timber shall be taken in to consideration. Materials include solid wood as well as wood based boards, used in furniture trade.

The furniture in this unit mainly includes:

- Office furniture
- Bedroom furniture
- Pantry units
- Class room furniture
- Living room furniture
- Children's furniture
- Garden furniture

Following may be considered in calculating the cost of material:

- Timber
- Ply wood
- MDF
- Chipboard
- Hard board
- Boxboard
- Formica sheets
- Wire nails
- Screws
- Iron-mongery, fasteners & fixtures
- Varieties of gums and adhesives
- Stickers
- Decorative material
- Protective surface coatings
- Finishing coatings
- Glass & mirror
- Packing material
- Upholstering material
- Plastic laminated sheet

- Veneers
- Laminations

Equipment required for the unit may include :

- A scale
- Calculator
- Measuring tape

Material may include :

- Paper and pen
- Estimating guidelines of the company if available □ Forms / formats for preparing estimates.

ASSESSMENT GUIDE

Forms of assessment

Assessment should be done as a written test

Assessment context

This unit may be assessed on the job or off the job. The competencies shall be demonstrated by the candidate working alone.

Critical aspects

- Assessment must confirm sufficient knowledge of calculations required in preparing estimates.
- Assessment must confirm the ability to read and understand working drawings used in the furniture trade.

Assessment condition

The candidate will be provided with equipment, material and documents required.

The candidate will be permitted to refer:

- Standard labour wages published by the Department of labour
- Prevailing or current price lists relevant to timber and other materials
- Any relevant drawing

The candidate will be required to:

- Orally or by other method of communication answer questions asked by the assessor.

- Identify superiors who can be approached for collection of competency evidence where appropriate.

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, and that he/she possesses the required underpinning knowledge.

Special notes

During assessment, the candidate will

- Perform all tasks in accordance with standard operating procedures.
- Perform all tasks to specifications
- Take responsibility for the accuracy of his/ her own work
- Use accepted methods for calculation

Resources required for assessment include;

These include material and equipment listed within this unit.

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
<ul style="list-style-type: none"> • Basic arithmetic • Calculation of unit rates • Knowledge of labour rates • How to develop plant and machinery rates • Calculation of the material costs • Knowledge of manufacturing processes of furniture products • Knowledge of current market prices of the products 	<ul style="list-style-type: none"> • Estimate the cost for use of plant and machinery • Calculate unit rates for each tool, equipment & machine • Calculate the material costs • Calculate net profit for a particular product. • Calculate the selling price • Prepare estimates for specific items of timber furniture • Ability to draw basic sketches • Interpret drawings

UNIT TITLE	Make furniture using wood based boards				
DESCRIPTOR	This unit covers the competencies required to make deferent types of furniture out of wood based boards and to ensure safe working at all times in the use of relevant tools, equipment machinery and material.				
CODE	CON04S2U02VI	Level	3	Credit	12

ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Prepare list of components	<p>1.1. List of components prepared in accordance with the measurements, numbers as per the drawing / sketch and specifying the types of materials using an appropriate form / format</p> <p>1.2. List of components prepared including specific characteristics</p>
2. Prepare wood based boards and laminating sheets to required sizes and shapes	<p>2.1. Wood based boards and laminating sheets obtained in accordance with the component list</p> <p>2.2. Tools and equipment selected as required according to the types of material and the operations involved</p> <p>2.3. Operations performed on material after inspecting for any defects and using appropriate tools / equipment, and observing relevant safety and health practices</p>
3. Make templates, jigs and fixtures	<p>3.1. Templates, jigs and fixtures designed / drawn as required for the job</p> <p>3.2. Templates, jigs and fixtures made providing appropriate tolerances and adhering to safety and health practices</p>
4. Prepare components so as to facilitate joining and fixing and to provide for fittings and fixtures	<p>4.1. Positions and profiles marked according to the drawing and as required for joining</p> <p>4.2. Tools and equipment selected as required according to the types of material and the operations involved</p> <p>4.3. Operations performed using the appropriate tools</p>

		and equipment and adhering to relevant safety practices
5. Assemble the components	5.1. 5.2. 5.3. 5.4. 5.5.	Components trial assembled ensuring correct fit Components assembled employing appropriate assembling techniques using appropriate adhesives and / or other fixtures and to comply with the drawing / sketch or site requirements Adhesives used in accordance with manufactures instruction Overall accuracy checked in terms of measurements and standard work practices Quality of the product checked in terms of rigidity, steadiness, angular accuracy and neatness

RANGE STATEMENT

Work connected to this unit may take place in a furniture making workshop or in a training centre or at a work site. It includes all items of furniture made of wood based boards.

The material used for furniture may include the following:

- Plywood
- H. D. F. / M. D. F. board
- Chipboard
- Hard board
- Boxboard
- P. V. C. board
- Laminating board / Sheet
- Veneer sheets
- Fittings & accessories and timber

The following types of joints may be employed in this unit:

- Widening Joints
- Carcass Joints
- Frame Joints

- Frame & Panel Joints

Tools and equipment used in this unit may include:

- Circular saw
- Planer
- Thicknesses
- Moulder
- Woodworking lathe
- Morticer
- Radial arm saw
- Router
- Jig saw/ fret saw/ scroll saw
- Drill
- Sander
- Tool sharpener
- Portable power tools
- Safety gear and equipment
- Cleaning equipment
- Hand tools such as;
 - Bench tools
 - Hand saw (rip, cross cut)
 - Chisels (firmer, bevel)
 - Gouges
 - Mortise chisels
 - Trying plane
 - Jack plane
 - Rebate plane
 - Plough plane
 - Spoke shave
 - Measuring tape
 - Marking knife
 - Marking awl
 - Try square
 - Marking gauge

- Mortise gauge
- Divider
- Callipers
- Sliding bevel
- Rasps (Square)
- Files (flat, triangular, round, square)
- Sharpening stones (Sand / oil)
- Claw hammer
- Pincer
- Tennon saw, dovetail saw, compass saw, frame saw, mitre saw, veneer saw

Work is performed to drawings, sketches, specifications and instructions as appropriate and to predetermined standards of quality and safety while observing all relevant environmental regulations. The scales used for the drawings will include those usually practiced in carpentry and the projections are the first angle and the third angle.

ASSESSMENT GUIDE

Forms of assessment

Continuous and holistic assessment is suitable for this unit.

Assessment context

This unit may be assessed on the job, off the job, or a combination of on and off the job, demonstrated by an individual working alone or as member of a team.

This unit shall be assessed individually. The assessment environment should not disadvantage the candidate.

Critical aspects

- Understanding and interpretation of the plans, specifications, sketches and instructions.
- Ability to make component members to given dimensions and shapes using the most appropriate joinery.
- To make the carvings according to the given design.
- To assemble components according to the given sketches, plans and instructions and make the unit rigid and is fit for the purpose and use.
- Safety precautions.

Assessment conditions

The candidate will be provided with all tools, equipment, material and documentation required.

The candidate will be permitted to refer the following documents.

- Relevant workplace procedures
- Relevant manufacturing specifications
- Relevant drawings, manuals, codes, standards, and reference materials. The candidate must be allowed to communicate with superiors regarding the above tasks The candidate will be required to:
 - Orally or by other method of communication answer questions asked by the assessor.
 - Identify superiors who can be approached for collection of competency evidence where appropriate.

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria and that he/she possesses the required underpinning knowledge.

Special notes

During assessment, the candidate will:

- Demonstrate safe-work practices at all times;
- Communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment;
- Take responsibility for the quality of his/her work;
- Plan tasks in all situations and review task requirements as appropriate;
- Perform all tasks in accordance with standard operating procedures;
- Perform all tasks to specifications;
- Use accepted techniques, practices, processes and workplace procedures.

Candidates are required to operate the tools, equipment and machinery according to the correct sequence of operations, diagnose any defects and attend to corrections, as necessary.

Tasks involved will be completed within reasonable time frames relating to typical workplace activities.

Resources required for assessment:

These include all the tools, equipment, machines and related material listed under this unit.

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
<ul style="list-style-type: none"> • Identification and use of different types of wood and wood based materials used for furniture • Selection of appropriate tools, machinery, materials and methods to suit the requirement • Drawings, sketches & instructions • Basic calculations pertaining to timber & other material used for furniture • Appropriate joints, templates, jigs and fixture to suit purpose • Assembling f methods for furniture items • Designs of wood carvings used in furniture • Standard safety practices applicable to the trade • Safety precautions and use of safety gear and equipment 	<ul style="list-style-type: none"> • Read and interpret furniture drawings, sketches & instructions and the ability to make such sketches according to customer's requirements • Perform operations such as cutting, planning, drilling, turning, routing mortising, tennoning and sanding using hand tools, machinery and equipment. • Employ Joinery techniques to produce firm and exact sized component members • Assemble timber and other related material to form furniture. • Make templates as per requirements for repetitive work on timber • Fix and fit locks and other fittings. • Follow relevant safety practices in all operations and use safety gear.

UNIT TITLE	Make furniture using solid wood and wood based boards				
DESCRIPTOR	This unit covers the competencies required to make deferent types of furniture out of solid wood and wood based boards and to ensure safe working at all times in the use of relevant tools, equipment machinery and material.				
CODE	CON04S2U03VI	Level	3	Credit	12

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Prepare list of components	<p>1.1. List of components prepared in accordance with the measurements, numbers as per the drawing / sketch and specifying the types of materials using an appropriate form / format</p> <p>1.2. List of components prepared including specific characteristics such as type of timber, grain, moisture content, etc</p>
2. Prepare wood and wood based boards and laminating sheets to required sizes and shapes	<p>2.1. Wood based boards and laminating sheets obtained in accordance with the component list</p> <p>2.2. Tools and equipment selected as required according to the types of material and the operations involved</p> <p>2.3. Operations performed on material after inspecting for any defects and using appropriate tools / equipment, and observing relevant safety and health practices</p>
3. Make templates, jigs and fixtures	<p>3.1. Templates, jigs and fixtures designed / drawn as required for the job</p> <p>3.2. Templates, jigs and fixtures made providing appropriate tolerances and adhering to safety and health practices</p>
4. Prepare components so as to facilitate joining and fixing and to provide for fittings and fixtures	<p>4.1. Positions and profiles marked according to the drawing and as required for joining</p> <p>4.2. Tools and equipment selected as required according to the types of material and the operations involved</p>

	4.3. Operations performed using the appropriate tools and equipment and adhering to relevant safety practices
5. Assemble the components	5.1. Components trial assembled ensuring correct fit 5.2. Components assembled employing appropriate assembling techniques using appropriate adhesives and / or other fixtures and to comply with the drawing / sketch or site requirements 5.3. Adhesives used in accordance with manufacturer's instructions. 5.4. Overall accuracy checked in terms of measurements and standard work practices 5.5. Quality of the product checked in terms of rigidity, steadiness, angular accuracy and neatness

RANGE STATEMENT

Work connected to this unit may take place in a furniture making workshop or in a training centre or at a work site. It includes all items of furniture made of wood and wood based boards.

The material used for furniture may include the following:

- Timber
- Plywood
- H. D. F. / M. D. F. board
- Chipboard
- Hard board
- Boxboard
- P. V. C. board
- Laminating board / Sheet
- Veneer sheets
- Fittings and accessories

The following types of joints may be employed in this unit:

- Widening Joints

- Carcass Joints
- Frame Joints
- Lengthening Joints
- Leg & Rail Joints
- Frame & Panel Joints

Tools and equipment used in this unit may include:

- Circular saw
- Planer
- Thicknesser
- Moulder
- Woodworking lathe
- Morticer
- Radial arm saw
- Router
- Jig saw/ fret saw/ scroll saw
- Drill
- Sander
- Tool sharpener
- Portable power tools
- Safety gear and equipment
- Cleaning equipment
- Moisture meter
- Hand tools such as;
 - Bench tools
 - Hand saw (rip, cross cut)
 - Chisels (firmer, bevel)
 - Gouges
 - Mortise chisels
 - Trying plane
 - Jack plane
 - Rebate plane
 - Plough plane
 - Spoke shave

- Measuring tape,
- Marking knife
- Marking awl
- Try square
- Marking gauge
- Mortise gauge
- Divider
- Callipers
- Sliding bevel - Rasps (Square)
- Files (flat, triangular, round, square)
- Sharpening stones (Sand / oil)
- Claw hammer
- Pincer
- Tennon saw, dovetail saw, compass saw, frame saw, mitre saw, veneer saw

Work is performed to drawings, sketches, specifications and instructions as appropriate and to predetermined standards of quality and safety while observing all relevant environmental regulations. The scales used for the drawings will include those usually practiced in carpentry and the projections are the first angle and the third angle.

ASSESSMENT GUIDE

Forms of assessment

Continuous and holistic assessment is suitable for this unit.

Assessment context

This unit may be assessed on the job, off the job, or a combination of on and off the job, demonstrated by an individual working alone or as member of a team.

This unit shall be assessed individually. The assessment environment should not disadvantage the candidate.

Critical aspects

- Understanding and interpretation of the plans, specifications, sketches and instructions.
- Ability to make component members to given dimensions and shapes using the most appropriate joinery.
- To assemble components according to the given sketches, plans and instructions and make the unit rigid and fit for the purpose and use.
- Safety precautions.

Assessment conditions

The candidate will be provided with all tools, equipment, material and documentation required.

The candidate will be permitted to refer the following documents.

- Relevant workplace procedures
- Relevant manufacturing specifications
- Relevant drawings, manuals, codes, standards, and reference materials. The candidate must be allowed to communicate with superiors regarding the above tasks The candidate will be required to:
- Orally or by other method of communication answer questions asked by the assessor.
- Identify superiors who can be approached for collection of competency evidence where appropriate.

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria and that he/she possesses the required underpinning knowledge.

Special notes

During assessment, the candidate will:

- Demonstrate safe-work practices at all times;
- Communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment;
- Take responsibility for the quality of his/her work;
- Plan tasks in all situations and review task requirements as appropriate;
- Perform all tasks in accordance with standard operating procedures;
- Perform all tasks to specifications;
- Use accepted techniques, practices, processes and workplace procedures.

Candidates are required to operate the tools, equipment and machinery according to the correct sequence of operations, diagnose any defects and attend to corrections, as necessary.

Tasks involved will be completed within reasonable time frames relating to typical workplace activities.

Resources required for assessment:

These include all the tools, equipment, machines and related material listed under this unit.

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
<ul style="list-style-type: none"> • Identification and use of different types of wood and wood based materials used for furniture • Selection of appropriate tools, machinery, • Materials and methods to suit the requirement • Drawings, sketches & instructions • Basic calculations pertaining to timber & other material used for furniture • Appropriate joints, templates, jigs and fixture to suit purpose • Assembling f methods for furniture items. • Designs of wood carvings used in furniture • Standard safety practices applicable to the trade • Safety precautions and use of safety gear and equipment 	<ul style="list-style-type: none"> • Read and interpret furniture drawings, sketches & instructions and the ability to make such sketches according to customer's requirements • Perform operations such as cutting, planning, drilling, turning, routing mortising, tenoning and sanding using hand tools, machinery and equipment • Employ Joinery techniques to produce firm and exact sized component members • Assemble timber and other related material to form furniture • Make templates as per requirements for repetitive work on timber • Fix and fit locks and other fittings • Follow relevant safety practices in all operations and use safety gear

UNIT TITLE	Finish wood and wood based board furniture				
DESCRIPTOR	This unit covers the competencies required to carry out finishing processes on wood and wood based board furniture and to ensure safe working at all times in the use of relevant tools, equipment machinery and material.				
CODE	CON04S2U04VI	Level	3	Credit	8

ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Prepare furniture surfaces to accommodate finishing material	<p>1.1. Surface inspected to identify any defects or deficiencies including excessive moisture to be rectified</p> <p>1.2. Surface defects rectified using putty / filler etc. as appropriate and sanding using abrasive paper</p> <p>1.3. Surfaces smoothened by sanding adhering to appropriate sanding techniques and to relevant safety and health practices</p>
2. Apply sealer / base coat	<p>2.1. Sealer / base coat mixed to the required viscosity and in compliance with manufactures specifications</p> <p>2.2. Sealer / base coat applied using brush / spray gun / pad as applicable adhering to relevant safety practices</p> <p>2.3. Surface smoothened by sanding using appropriate abrasive paper</p> <p>2.4. Required surface smootheness obtained by repeating 2.2 and 2.3 as applicable</p>
3. Apply stain	<p>3.1. Stain mixed to required colour in terms of the base material or the customer requirement, in accordance with manufacturers instructions and to required viscosity</p> <p>3.2. Stain applied in accordance with industry practices and using brush or spray gun as appropriate and adhering to safety practices</p>

	3.3. Required surface smoothness obtained by
	repeating 2.2 and 2.3 as applicable
4. Apply, Lacquer / Top coat / Automotive paint	<p>4.1. Mixture prepared to the required viscosity, according to manufacturers instructions and adding, retardants if required according to climatic conditions</p> <p>4.2. Finishing material applied under suitable environmental conditions using brush / spray gun / pounce bag and adhering to relevant safety and health practices</p> <p>4.3. Final finish obtained to comply with the specified surface finish</p>
5. Finish furniture items with enamel paint	<p>5.1. Wood aluminium sealer dissolved in appropriate solvent applied using brush</p> <p>5.2. Filler / putty applied as required using filler knife / scraper</p> <p>5.3. Surface smoothed using appropriate abrasives</p> <p>5.4. Enamel paint / Auto paint and matting base applied using brush / spray gun as appropriate and adhering to safety practices</p>
6. Store wood finishing equipment and material	<p>6.1. Finishing equipment stored in appropriate places after proper cleaning</p> <p>6.2. Finishing material stored in appropriate places ensuring that the lids of the containers are properly closed where applicable</p> <p>6.3. Finishing material stored following appropriate safety practices / precautions</p>
7. Inspect and store finished furniture	<p>7.1. Quality of the product checked in terms of the given specifications or the clients instructions</p> <p>7.2. Finished products packaged, where relevant in a manner appropriate to facilitate easy assembly, disassembly and re-assembly</p>

	7.3. Finished products stored ensuring proper protections to those items
	7.4. House keeping duties undertaken according to work place requirements

RANGE STATEMENT

Work connected to this unit may take place in a furniture making workshop or in a training workshop or at the place where the furniture is used. It includes application of different surface finishes to all types of furniture made of wood and / or wood based boards. Work should be carried out under suitable climatic conditions.

Tools and equipment used may include:

- Scraper
- Filling knives set
- Sanding machine
- Paint mixing machine
- Brushes ½ ", 1", 1 ½ ", 2"
- Varnish brush
- Sanding block
- Spray Gun and air compressor
- Paint viscosity measuring cup
- Goggles
- Respirator
- Hand gloves
- Safety gear and equipment

The material used may include:

- Wall filler
- Wood filler
- Wood Aluminium sealer
- Sanding sealer
- Water based stain / paint
- Solvent based stain

- Colour Varnish
- Polyurethane Varnish
- Adhesives
- P.U. finishing material
- A.C. finishing material
- Non toxic Material
- Masking Tape
- French polish
- Enamel paint
- Turpentine
- NC Thinner
- White sprit
- Acetone
- Accelerators
- Retarders

Depending on the finish required for the furniture, a selection may be made from the following :

- Enamel paint finish
- Varnish finish
- French polish finish
- Poly Urethane finish
- Water based finish (WB)
- Nitro Cellulose finish (NC)
- Automotive paint finish
- Polyester finish (PE)
- Ultra violet (UV)
- Acid curing finish (AC)
- Special finishes to withstand and or resist chemicals and also to resist fire for short durations
- Special decorations including template copying and fixing stickers for furniture such as those for nursery, children's, and other decorative uses

ASSESSMENT GUIDE

Form of assessment

Continues assessment is suitable for this unit.

Assessment context

This unit may be assessed on the job, off the job, or a combination of on and off the job demonstrated by an individual working alone or as a member of a team.

This unit should be assessed individually. Assessment environment should not disadvantage the candidate.

Critical aspects of assessment

- Sufficient knowledge of finishing materials and finishing process.
- Ability to carry out finishing processes.
- Safety procedures.

Assessment conditions

The candidate will have access to:

- All tools, equipment, material and documentation required.

The candidate will be permitted to refer to the following documents:

- Relevant workplace procedures
- Relevant product specifications
- Relevant drawings, manuals, codes, standards and reference material The candidate will be required to:
 - Orally, or by other methods of communication, answer questions asked by the assessor.
 - Identify superiors / clients who can be approached for the collection of competency evidence where appropriate.
- Present evidence of credit for any off-job training related to this unit.

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, and that he/she possesses the required underpinning knowledge.

Special notes

During assessment, the candidate will:

- Demonstrate safe-work practices at all times;
- Communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment;
- Take responsibility for the quality of his / her own work;
- Plan tasks in all situations and review task requirements as appropriate;
- Perform all tasks in accordance with standard operating procedures;
- Perform all tasks to specifications;
- Use accepted wood finishing techniques, practices, processes and workplace procedures.

Tasks involved will be completed within reasonable time frames relating to typical workplace activities.

Resources required for assessment:

There include material, tools, equipment and machines listed within this unit.

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
<ul style="list-style-type: none"> • Basic components and characteristics of paints • Different types of paints, varnishes and lacquer used as wood finishing. • Properties and selection of solvents to suit the application • Calculations pertaining to wood finishing materials • Effects of weather conditions in painting • Viscosity of different paints for applications • Sequence of applying coatings of paint • Drying time • Acceptable standards of finished surfaces • Basic calculations of volumes, ratios etc 	<ul style="list-style-type: none"> • Mixing of paints & painting materials. • Use of filling knives • Applying paints, varnishes and lacquer • Use of brushes, rollers and spray gun • Use of sanding block/ sanding machine • Use of pounce bag • Checking the surface for the required smoothness prior to applying coatings of paint, varnishes and lacquer • Cleaning of used brushes and spray gun • Rectifying surface defects • Safe handling of paints, tools & equipment and use of safety gear
<ul style="list-style-type: none"> □ Safety practices related to handling of different finishing materials and carrying out wood finishing activities and use of safety gear 	

UNIT TITLE	Sharpen carpentry tools and maintain relevant hand tools, basic power tools and machinery				
DESCRIPTOR	This unit covers the competencies required to sharpen carpentry tools and to maintain hand tools, basic power tools and machinery used in furniture making and to ensure safety in the use of such tools and machinery and relevant material.				
CODE	CON04S2U05VI	Level	3	Credit	3

ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Sharpen Chisels and Planer blades	<p>1.1. Grinding wheel / stone selected according to the state of the tool edge to be sharpened</p> <p>1.2. Tool blades ground maintaining the appropriate grinding angle and adhering to relevant safety practices</p> <p>1.3. Tool blades sharpened maintaining the appropriate cutting angles using the appropriate oil stone and the lubricants</p> <p>1.4. Tool blades and sharpening stone cleaned ensuring removal of oil and any metal particles</p>
2. Sharpen Hand Saws	<p>2.1. Sharpening steps to be undertaken, decided in terms of the condition of saw teeth</p> <p>2.2. Saw teeth jointed using mill saw flies and ensuring that all the teeth are brought to a level</p> <p>2.3. Saw teeth reshaped conforming to the specified pitch and using the appropriate file</p> <p>2.4. Saw teeth set using the saw set plier and in compliance with the relevant specification</p> <p>2.5. Saw sharpened using the appropriate file, maintaining the correct angles and filing in the appropriate directions</p>

3. Sharpen Drill Bits	3.1. Tool grinding equipment selected ensuring the availability of the appropriate grinding wheel for the job and the required accessories
	3.2. Drill Bit sharpened ensuring specified angle and the pointer and adhering to relevant safety practices
4. Maintain Tools and Machinery	4.1. Oiling and greasing points identified according to manufactures specifications 4.2. Regular maintenance checks carried out in accordance with a maintenance schedule 4.3. Repairs / replacements attended in terms of the outcome of regular checks and in accordance with company procedures

RANGE STATEMENT

This unit includes regular maintenance of all tools used in manufacture of timber furniture and sharpening of basic carpentry tools which include Chisels, Planer Blades, Hand Saws and Drill Bits. Work connected to this unit may take place in a furniture workshop, in a training workshop or in a tool maintenance unit.

The tools and machinery which are to be maintained may include the following :

- Circular saw
- Planer
- Thicknesser
- Moulder
- Band saw
- Woodworking lathe
- Morticer
- Radial arm saw
- Sander
- Router
- Jig saw
- Drill
- Tool sharpener

- Portable power tools
- Safety gear and equipment
- Cleaning equipment
- Hand tools such as;
 - Bench tools
 - Hand saw (rip, cross cut)
 - Tennon saw & dovetail saw
 - Chisels (firmer, bevel)
 - Gouges
 - Mortice chisels
 - Trying plane
 - Jack plane
 - Rebate plane
 - Plough plane
 - Spoke shave
 - Measuring Tape,
 - Marking knife
 - Marking awl
 - Marking gauge
 - Mortice gauge
 - Divider
 - Callipers
 - Sliding bevel
 - Rasps
 - Files (flat, triangular, round, square)
 - Sharpening stones (Sand / oil)
 - Claw hammer
 - Pincer

The tools & equipment included would cover the following;

- Grinding machines
- Saw setting plier / tool
- Set of drill bits
- Triangular, flat and round files of appropriate sizes

- Oil stones, sand stones, emery stones
- Hammer
- Bench vice
- Carpenter's vice
- Set of screw drivers & pincer

ASSESSMENT GUIDE

Forms of assessment

Continuous assessment is suitable for this unit

Assessment context

This unit may be assessed on the job, off the job, or a combination of on and off the job demonstrated by an individual working alone. This unit could be assessed individually or in conjunction with other relevant units. The assessment environment should not disadvantage the candidate.

Critical aspects

- Knowledge of maintenance procedures as applicable to tools and machinery used in furniture making
- Knowledge of processes and procedures for sharpening carpentry tools
- Ability to perform tool shapening operations
- Safety procedures

Assessment conditions

The candidate will have access to:

- All tools, equipment, material and documentation required.

The candidate will be permitted to refer to the following documents:

- Relevant workplace procedures.
- Relevant product specifications.
- Relevant drawings, manuals, codes, standards and reference material.

The candidate will be required to:

- Orally, or by other methods of communication, answer questions asked by the assessor.

- Identify superiors / clients who can be approached for the collection of competency evidence where appropriate.
- Present evidence of credit for any off-job training related to this unit.

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, and that he/she possesses the required underpinning knowledge.

Special notes

During assessment, the candidate will:

- Demonstrate safe-working practices at all times;
- Communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment;
- Take responsibility for the quality of his/her work;
- Plan tasks in all situations and review task requirements as appropriate;
- Perform all tasks in accordance with standard operating procedures;
- Perform all tasks to specifications;
- Use accepted engineering techniques, practices, processes and workplace procedures.

Tasks involved will be completed within reasonable time frames relating to typical workplace activities.

Resources required for assessment:

These include material, tools, equipment and machines listed within this unit.

UNDERPINNING KNOWLEDGE AND SKILLS

Underpinning Knowledge	Underpinning Skills
<ul style="list-style-type: none"> • Identification of different types of carpentry tools & machinery • Cutting process and cutting angles of different tools in relation to hard and soft timbers • Types of sharpening stones appropriate for sharpening different tools • Saw setting pliers • Different saw setting systems • Sharpening angles for tools used for different purposes • Methods of storing sharpened tools. • Knowledge of carbide tipped tools. 	<ul style="list-style-type: none"> • Operate and use hand tools & carpentry machinery • Maintain relevant sharpening angles on chisels • Set & file a saw by self • Check the sharpened edges for finish • Follow safety precautions use of safety gear
<ul style="list-style-type: none"> □ Safety precautions and procedures and safety gear 	