Australian Government

Department of Education, Employment and Workplace Relations

LMFFDT5005A Construct custom furniture using advanced techniques

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit covers the skills and knowledge required to construct original and unique custom furniture using or adapting traditional and innovative construction techniques. It includes interpreting and adapting design specifications that are compatible with the product material, purpose and style of the furniture.

Application of the Unit

Application of the unit	This unit supports the attainment of skills and knowledge required for competent workplace performance in the wide variety of furnishing maker operations. The competency applies to a workshop and on site environment and involves application of skills and knowledge at a highly skilled artisan level. These skills and knowledge are to be used within the scope of the individual's job and authority. This unit requires employability skills in planning and organising, problem solving and technology in order to apply advanced techniques in the making of custom furniture. Self management is applied to ensure quality standards are met.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for work	1.1. Applicable ***legislative***, ***OHS*** and ***organisational requirements*** relevant to constructing custom furniture are verified and complied with 1.2. ***Instructions***, plans and design documents are read and interpreted to identify furniture construction and finishing requirements 1.3. Tools, equipment and materials are selected and checked prior to use to ensure that they are appropriate for the work, serviceable and in a safe condition 1.4. Product purpose, context, furniture style and construction materials are identified 1.5. Work sequence covering each step in the construction process including sub-assemblies, is planned and documented to enterprise requirements 1.6. Quality checking procedures are developed and documented for each step in the construction process
2. Curve and shape components	2.1. ***Techniques for bending***, ***forming and shaping components*** are identified, evaluated and confirmed as being appropriate for the construction requirement 2.2. Component specifications are set out according to work instructions and materials marked according to industry practices 2.3. ***Tools***, ***machines and equipment*** are used in accordance with safety requirements and manufacturer specifications 2.4. ***Materials*** are bent, formed and shaped in accordance with the production plan and workplace procedures 2.5. Components are checked against specified tolerances, fit and accuracy
3. Veneer components	3.1. Suitable ***veneer material*** is identified, evaluated and selected 3.2. ***Tools***, ***machines and equipment*** are used in accordance with safety requirements and manufacturer specifications 3.3. ***Veneer components*** and materials are measured, marked and cut to size 3.4. Veneers are prepared for application and laid out 3.5. Suitable joining processes to backing and adjacent veneers are selected and prepared 3.6. Adhesives are applied according to workplace procedures and/or manufacturer instructions 3.7. Rough veneering components are produced in accordance

ELEMENT	PERFORMANCE CRITERIA
	with the production plan and workplace procedures, including the use of protective equipment 3.8. Final trim and finishing are completed to specifications 3.9. Work is checked against required quality standards 3.10. Any non-conformity with the required quality standard is rectified
4. Make joints	4.1. ***Joints*** are identified and type of joint to be used is selected and adapted/designed as necessary 4.2. ***Tools***, adhesives and fasteners are selected to match the joint type 4.3. Cutting and joining lines are marked out to suit joint type 4.4. Measurements and calculations are checked for accuracy to ensure quality outcomes 4.5. ***Material*** features are identified and optimal usage criteria are observed 4.6. Material is cut to specification, inspected and prepared for joining 4.7. Material is joined in accordance with the job specifications 4.8. Fasteners and adhesives are used to make joints firm where required 4.9. Finished joint is checked against quality requirements
5. Construct sub-assemblies	5.1. Components, materials, including adhesives, trims and accessories, and tools are laid out in accordance with the assembly plan 5.2. Components are checked against specification prior to assembly and out of specification items are rejected 5.3. Sub-assemblies are assembled using appropriate tools, jigs and fixtures and checked against specification for accuracy, fit, twist and distortion 5.4. Sub-assembly quality is checked against plans at identified checkpoints
6. Assemble custom furniture	6.1. Components, ***sub-assemblies*** and ***materials***, including adhesives, trims and accessories, and tools are laid out in accordance with the assembly plan 6.2. Components and sub-assemblies are checked against specification prior to assembly and out of specification items are rejected 6.3. Components are assembled, fitted using appropriate ***tools***, jigs and fixtures and checked against specification for accuracy, fit, twist and distortion 6.4. Hardware and decorative accessories are applied to

ELEMENT	PERFORMANCE CRITERIA
	specification 6.5. Product is prepared for final finish including the removal of bruises, scratches, dents and marks 6.6. Product quality is checked against plans at identified checkpoints
7. Finish furniture surface	7.1. Using samples of the type of material surface and specified finish, various finishing options are evaluated and the preferred option is selected 7.2. Sample of material is tested with selected finishing technique to ensure appropriateness 7.3. ***Furniture surface is prepared*** in accordance with the finishing specification 7.4. Imperfections, pores or nail or screw holes on the surface are rectified 7.5. ***Finishing processes and materials*** are applied in accordance with the agreed specifications 7.6. Surface is polished or buffed depending on the shine required 7.7. Work is checked against required quality standards 7.8. Any non-conformity with the required quality standards is rectified
8. Complete housekeeping	8.1. Unused materials are stored or recycled as required 8.2. Tools and equipment are cleaned and stored appropriately 8.3. Faulty or defective equipment is tagged and reported in accordance with workplace practices 8.4. Work area is cleaned and rubbish disposed of appropriately 8.5. Workplace documentation and/or reports are completed, including time log for operations for costing and business improvement activities

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

- collect, organise and understand information related to work orders, basic plans and safety procedures
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with other workers and customers, and the reporting of work outcomes and problems
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise work flow and productivity
- use pre-checking and inspection techniques to anticipate custom furniture construction problems to avoid re-work and wastage
- recognise and respond to circumstances outside instructions or personal competence
- create innovative designs which satisfy the agreed parameters and consider but are not limited by other historical or contemporary influences
- adapt traditional and innovative construction techniques to address unique construction circumstances
- identify new enterprise opportunities when developing product proposals
- adopt a proactive relationship with the clients and other furniture makers
- develop industry networks
- plan and organise activities including the preparation and layout of the worksite and the obtaining of tools and materials to avoid any back tracking, work flow interruptions or wastage
- use mathematical ideas and techniques to correctly complete measurements, calculate area and estimate other material requirements
- clarify and confirm work instructions
- plan work within given task parameters
- accept responsibility for planned tasks
- set, monitor and satisfy personal work goals
- satisfy the competency requirements for the job
- maintain current knowledge of furniture construction techniques and materials
- explore and develop solutions beyond the currently recognised boundaries
- involve others in the learning process
- use the workplace technology related to the selection, preparation, operation and maintenance of hand and power tools, including calculators and measuring devices
- apply knowledge of timber technology to optimise the selection and use of timber varieties and related construction materials.

Required knowledge

- State or Territory OHS legislation, regulations, standards and codes of practice relevant to

REQUIRED SKILLS AND KNOWLEDGE

moisture suppressants and barrier systems
- organisational, workshop and site standards, requirements, policies and procedures for the construction of custom furniture
- types of tools and equipment used in construction and procedures for their safe use, operation and maintenance
- work flow techniques appropriate for the management of the construction work/project
- the presentation and interpretation of plan representation of a furniture design
- techniques for timber bending, forming and shaping
- techniques for the preparation of drawings/set-outs/rods and geometrical concepts
- types, characteristics, uses and limitations of materials
- techniques for the manufacture and application of veneers
- techniques for assembly, fixing and finishing of custom furniture components
- types, characteristics, uses, limitations and safety requirements of adhesives, fasteners and hardware used in custom furniture assembly
- matching requirements of adhesives and fasteners to timbers/materials used
- finishing techniques
- characteristics, properties and selection criteria of finishing materials
- finishing characteristics and properties of timber being used
- environmental protection requirements
- established communication channels and protocols
- problem identification and resolution.

Evidence Guide

EVIDENCE GUIDE The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the relevant Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• Comply with legislation, regulations, standards, codes of practice and established safe practices and procedures for preparing and presenting design information
	• Interpret work order and locate and apply relevant information
	• Apply safe handling requirements for equipment, products and materials, including use of personal protective equipment
	• Follow work instructions, operating procedures and inspection practices to:
	  • prevent damage to goods, equipment and products
	  • maintain required production output and product quality
	  • minimise the risk of injury to self and others
	• Complete all aspects of the construction and finishing of two furniture items requiring advanced construction techniques
	• The furniture item must satisfy high quality custom made furniture standards and expectations in terms of innovation, complexity, tolerance and fit of components and quality
	• Work effectively with others
	• Modify activities to cater for variations in workplace contexts and environment

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or simulated workplace
	• Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
	• Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
	• Assessment is to comply with relevant regulatory or Australian Standards requirements
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • an agreed unique and innovative furniture construction requirement/project for one item
	  • access to appropriate materials, tools and equipment

EVIDENCE GUIDE	
	relevant to the planning and application of construction and finishing techniques • specifications and work instructions
Method of assessment	• Assessment must satisfy the endorsed assessment guidelines of the Furnishing Industry Training Package • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge • Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application • Assessment may be applied under project related conditions (real or simulated) and require evidence of process • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances • Assessment may be in conjunction with assessment of other relevant and contributory units of competency
Guidance information for assessment	

Range Statement

RANGE STATEMENT The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Legislative requirements	• are to be in accordance with applicable legislation from all levels of government that affect organisational operation • requirements may include but not be limited to award and enterprise agreements, industrial relations, Australian Standards, confidentiality and privacy, OHS, the environment, equal opportunity, anti-discrimination, relevant industry codes of practice, duty of care and heritage
OHS requirements	• are to be in accordance with Commonwealth, State or Territory legislation and regulations, organisational safety policies and procedures • requirements may include but not be limited to the use of personal protective equipment and clothing, fire fighting equipment, first aid equipment, hazard and risk control and elimination, control of hazardous materials and substances, manual handling, including lifting and carrying
Organisational requirements	• may include but not be limited to legal, organisational and site guidelines, policies and procedures relating to own role and responsibility, quality assurance, procedural manuals, quality and continuous improvement processes and standards, OHS, emergency and evacuation, ethical standards, recording and reporting, access and equity principles and practices, equipment use, maintenance and storage, environmental management (waste disposal, recycling and re-use guidelines)
Instructions	• may include but not be limited to workplace procedures relating to the use and operation of tools and equipment, production planning figures, workplace instructions including job sheets, set-outs, plans, specifications, drawings and designs, workplace procedures relating to reporting and communications, and manufacturer instructions for the use of equipment and materials
Shaping, bending and forming techniques	• may include but not be limited to steam/heat bending, curfing, pressure bending and shaping by hand or static machine
Shaped components	• include timber shaped by hand or static machine tools

RANGE STATEMENT	
Cutting and shaping tools and equipment	• may include but not be limited to measuring tapes for rules, hammers, mallets, squares, bevels, chisels, planes, hand saws, power saws, power drills/screwdrivers, pneumatic tools, clamps, screwdrivers, pincers, rasps, surface planers, panel planers, belt sanders, horizontal borers, vertical drill presses, table saws, dove-tailers, pedestal grinders, wood turning lathes, veneer guillotines and presses
Materials	• may include but not be limited to timber, glass, metal, manufactured board, furniture hardware, adhesives, screws, nails, dowels, decorative finishes and finishing material
Veneering tools and equipment	• may include but not be limited to knives, chisels, measuring tapes or rules, mallets, squares, levels, planes, bandsaws, power saws, pneumatic tools, vacuum bags and presses, clamps, moulds, jigs and fixture, rollers, laminate trimmers, cutters and hand routers, sand paper, wire wool and sanding block
Veneered components	• refers to the thin slices of wood, usually thinner than 3 mm (1/8"), which is usually glued onto a substrate
Veneer materials	• may include but not be limited to timber, manufactured board, laminates, timber strips, adhesives, cleaning materials and tapes
Joints for custom furniture	• may include but not be limited to variations of dowel, mortise and tenon, dovetail, lap joint, biscuit joint, finger joint, housing joint, mitre or bridle joints
Jointing tools and equipment	• may include but not be limited to chisels, mallets, mortise gauges, vernier callipers, vices, dovetail saws, tenon saws, coping saws, planes, files, hand drills, power drills, dowel jigs, power routers, jigs and fixtures • may also include portable biscuit machines and power saws
Jointing materials	• may include but not be limited to timber (both indigenous and overseas), adhesives and fasteners
Sub-assembly	• are part-constructions of the main assembly needed to allow for gluing and clamping of internal and intricate parts of the furniture item
Assembly materials	• may include but not be limited to timber (both indigenous and overseas), adhesives, screws, dowels, furniture hardware, glass and decorative finishes
Assembly tools and equipment	• may include but not be limited to measuring tapes or rules, hammers, mallets, squares, clamps and presses
Furniture surface preparation	• may include but not be limited to sanding by hand or power sander, scraping, planing or other smoothing technique

RANGE STATEMENT	
	• is to take account of the fact that the wood's colour may be changed by staining, bleaching, painting, ammonia fuming and/or a number of other techniques
Surface may be filled	• using, wood plugs or other fillers
Finishing processes and materials	• may include but not be limited to waxing, shellacking, nitrocellulose lacquering, conversion lacquering, linseed oiling, tung oiling, alkyd varnishing, polyurethane varnishing, water-based polyurethane and/or oil-varnish mixes, depending on the finish required, the furniture's use and the material type used

Unit Sector(s)

Unit sector	Furniture design and technology.

Competency field

Competency field	

Co-requisite units

Co-requisite units		