



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **LMFDN4004B Design, construct and test jigs**

**Revision Number: 1**

## LMFDN4004B Design, construct and test jigs

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	This unit addresses the competencies to design, construct and test jigs to accommodate production requirements within the furnishing industry.
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### Application of the Unit

<b>Application of the unit</b>	
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### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

<b>Prerequisite units</b>	
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### Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify production requirements	<p>1.1. Workplace health and safety requirements, including personal protection needs, are observed throughout the work</p> <p>1.2. The item to be produced is identified from a work order</p> <p>1.3. Production requirements are identified from specifications, an existing item or from drawings, patterns and/or templates</p>
2. Design jig	<p>2.1. Design of proposed jig or fixture is produced</p> <p>2.2. Production process incorporating jig is planned</p> <p>2.3. Materials to be used to construct jig are selected</p>
3. Construct jig	<p>3.1. Appropriate tools and equipment are selected</p> <p>3.2. Jig is constructed as per design and within tolerances</p>
4. Test jig	<p>4.1. Jig is used to produce prototype to ascertain its adherence to set tolerances and to assess its match to original design</p> <p>4.2. Jig is adjusted as required to meet the requirements</p>

## 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 jig and fixture design, construction and testing, including the relevant technical, regulatory, environmental and safety requirements
- communicate ideas and information to enable clarification of the requirements, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems
- plan and organise activities, including the preparation and layout of the worksite and the obtaining of equipment, systems and materials to avoid any back tracking, workflow interruptions or wastage
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use mathematical ideas and techniques to correctly complete measurements, calculate area and dimensions, create accurate and scaled designs, and estimate material requirements
- create and apply systematic problem-solving techniques to anticipate jig and fixture design, construction and testing problems, avoid re-working and wastage
- use the workplace technology related to the jig and fixture design, construction and testing, including tools and equipment, calculators and measuring devices and computing/computer-aided systems

#### Required knowledge

- machine technical specifications, including the acceptable criteria for related jigs
- impact of design changes on jig construction
- characteristics, uses and limitations of materials used for jig/fixture construction
- jig and fixture design, construction and testing techniques

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>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.</p>	
<p><b>Critical aspects of evidence</b></p>	<ul style="list-style-type: none"> <li>• Interpret work order and locate and apply relevant information</li> <li>• Apply safety requirements throughout the work sequence, including the use of personal protective clothing and equipment</li> <li>• Follow work instructions, operating procedures and practices to:               <ul style="list-style-type: none"> <li>• prevent damage to materials, equipment or products</li> <li>• maintain the required production output and quality</li> <li>• identify and apply all OHS requirements</li> </ul> </li> <li>• Produce a minimum of two jigs required to create complex fine furnishing items, including a moving jig</li> <li>• Produce a fixture in accordance with acceptable industry tolerances</li> <li>• Modify activities to cater for variations in workplace contexts and environment</li> <li>• Work effectively with others</li> </ul>
<p><b>Resource implications</b></p>	<p>Access to item specifications, design support facilities, jig construction materials, machinery, equipment and hand tools appropriate to the jigs to be produced.</p>
<p><b>Method of assessment</b></p>	<p>Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.</p> <p>Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.</p> <p>Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.</p>
<p><b>Context of assessment</b></p>	<p>Assessment may occur on the job or in a simulated workplace facility with relevant equipment, simulated work instructions and deadlines.</p>

## Range Statement

<b>RANGE STATEMENT</b>	
<p>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.</p>	
<b>Unit scope</b>	<ul style="list-style-type: none"> <li>• This unit applies to the design, construction and testing of jigs required for manufacture, assembly, construction and testing of furnishing items</li> <li>• The employee requires only general supervision in the execution of duties and has discretion in selecting techniques, processes and procedures in the production process</li> </ul>
<b>Unit context</b>	<ul style="list-style-type: none"> <li>• OHS requirements include legislation, building codes, material safety management systems, hazardous substances and dangerous goods codes and safe operating procedures</li> <li>• Work is carried out in accordance with legislative obligations, environmental legislation, relevant health regulations, authorised handling procedures and organisation insurance requirements</li> <li>• Work requires individuals to demonstrate conceptual ability, discretion, judgement and problem solving skills in the completion of this competency</li> </ul>
<b>Workplace environment</b>	<ul style="list-style-type: none"> <li>• Competency may be demonstrated in workplaces which are involved in or provide support for the manufacture and restoration of a wide range of furniture and furnishing items and components</li> <li>• Work is generally performed individually, but may be in a team environment</li> <li>• Customers or suppliers may be internal or external</li> </ul>
<b>Tools may include, but are not limited to:</b>	<ul style="list-style-type: none"> <li>• routers</li> <li>• spindle moulders</li> <li>• panel saws</li> <li>• copy shapers and radial arm saws</li> </ul>
<b>Materials are to include:</b>	<ul style="list-style-type: none"> <li>• solid timbers and manufactured board and may include composites</li> </ul>
<b>Personal protective equipment</b>	<p>Personal protective equipment is to include that prescribed under legislation, regulations and enterprise policies and</p>

<b>RANGE STATEMENT</b>	
	practices
<b>Information and procedures</b>	<ul style="list-style-type: none"> <li>• An enterprise work order which may be raised in response to a customer order, a modification to an item of production, or a new product line of the enterprise</li> <li>• Product drawings, prototype, design brief, patterns, specifications and/or specifications</li> <li>• Machine manufacturer specifications and operational procedures</li> <li>• Workplace instructions, including, job sheets, plans, drawings and designs</li> <li>• Workplace procedures relating to reporting and communicating</li> <li>• Quality and Australian standards and procedures</li> </ul>

### Unit Sector(s)

<b>Unit sector</b>	Furnishing Design
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### Co-requisite units

<b>Co-requisite units</b>	
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### Functional area

<b>Functional area</b>	
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