



**Australian Government**

# **MSFDN4004 Design, construct and test jigs**

**Release: 1**

# MSFDN4004 Design, construct and test jigs

## Modification History

Release 1 - New unit of competency

## Application

This unit of competency covers designing, constructing and testing jigs required for manufacture, assembly, construction and testing of furnishing items.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Pre-requisite Unit

## Competency Field

## Unit Sector

Furnishing design

## Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

|   |                                  |     |                                                                                                                          |
|---|----------------------------------|-----|--------------------------------------------------------------------------------------------------------------------------|
| 1 | Identify production requirements | 1.1 | Work health and safety (WHS) requirements, including personal protection needs, are observed throughout the work         |
|   |                                  | 1.2 | The item to be produced is identified from a work order                                                                  |
|   |                                  | 1.3 | Production requirements are identified from specifications, an existing item or from drawings, patterns and/or templates |
| 2 | Design jig                       | 2.1 | Design of proposed jig or fixture is produced                                                                            |
|   |                                  | 2.2 | Production process incorporating jig is planned                                                                          |
|   |                                  | 2.3 | Materials to be used to construct jig are selected                                                                       |
| 3 | Construct jig                    | 3.1 | Appropriate tools and equipment are selected                                                                             |
|   |                                  | 3.2 | Jig is constructed in accordance with design and within                                                                  |

|   |          |     |                                                                                                                          |
|---|----------|-----|--------------------------------------------------------------------------------------------------------------------------|
|   |          |     | tolerances                                                                                                               |
| 4 | Test jig | 4.1 | Jig is used to produce prototype to ascertain its adherence to set tolerances and to assess its match to original design |
|   |          | 4.2 | Jig is adjusted, as required, to meet the requirements                                                                   |

## Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency. Detail on appropriate performance levels for each furnishing unit of competency in reading, writing, oral communication and numeracy utilising the Australian Core Skills Framework (ACSF) are provided in the Furnishing Training Package Implementation Guide.

## Range of Conditions

Specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Range is restricted to essential operating conditions and any other variables essential to the work environment.

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit context includes:</b> | <ul style="list-style-type: none"> <li>• WHS requirements, including legislation, building codes, material safety management systems, hazardous and dangerous goods codes and local safe operating procedures or equivalent</li> <li>• work is carried out in accordance with legislative obligations, environmental legislation, relevant health regulations, manual 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> <li>• work is performed individually or in a team environment</li> <li>• customers or suppliers may be internal or external</li> </ul> |
| <b>Tools include:</b>         | <ul style="list-style-type: none"> <li>• routers</li> <li>• spindle moulders</li> <li>• panel saws</li> <li>• copy shapers</li> <li>• radial arm saws</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Materials include:</b>     | <ul style="list-style-type: none"> <li>• solid timbers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

- |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal protective equipment includes:</b> | <ul style="list-style-type: none"><li>• manufactured board</li><li>• composites</li><li>• that prescribed under legislation, regulations and enterprise policies and practices</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Information and procedures include:</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 Mapping Information

Supersedes and is equivalent to LMFDN4004B Design, construct and test jigs

## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0601ab95-583a-4e93-b2d4-cfb27b03ed73>

# Assessment Requirements for MSFDN4004 Design, construct and test jigs

## Modification History

Release 1 - New unit of competency

## Performance Evidence

- Interpret work order and locate and apply relevant information
- Apply safe handling requirements for equipment, products and materials, including use of personal protective equipment
- Identify materials used in the work process
- Follow work instructions, operating procedures and inspection processes to:
  - minimise the risk of injury to self or others
  - prevent damage to goods, equipment and products
  - maintain required production output and product quality
- Produce a minimum of two (2) jigs required to create complex fine furnishing items, including a moving jig
- Produce a fixture in accordance with acceptable industry tolerances
- Use mathematical ideas and techniques to correctly complete measurements, calculate area and estimate material requirements
- Communicate ideas and information to enable confirmation of work requirements and specifications and the reporting of work outcomes and problems, interpret basic plans and follow safety procedures
- Avoid backtracking, work flow interruptions or wastage
- Work with others and in a team by recognising dependencies and using cooperative approaches to optimise work flow and productivity

## Knowledge Evidence

- 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

## Assessment Conditions

- Assessors must:
  - hold training and assessment competencies as determined by the National Skills Standards Council (NSSC) or its successors
  - have vocational competency in the furnishing industry at least to the level being assessed with broad industry knowledge and experience, usually combined with a relevant industry qualification

- be familiar with the current skills and knowledge used and have relevant, current experience in the furnishing industry.
- Assessment methods must confirm consistency of performance over time rather than a single assessment event and in a range of workplace relevant contexts.
- Assessment must be by observation of relevant tasks with questioning on underpinning knowledge and, where applicable, multimedia evidence, supervisor's reports, projects and work samples.
- Assessment is to be conducted on single units of competency or in conjunction with other related units of competency. Foundation skills are integral to competent performance in the unit and should not be assessed separately.
- Assessment must occur on the job or in a workplace simulated facility with relevant process, equipment, materials, work instructions and deadlines.
- Access is required to item specifications, design support facilities, jig construction materials, machinery, equipment and hand tools appropriate to the jigs to be produced.

## Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0601ab95-583a-4e93-b2d4-cfb27b03ed73>