



**Australian Government**

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

# **LMFFDT4014A Research and select furniture materials and technology**

**Revision Number: 1**

## LMFFDT4014A Research and select furniture materials and technology

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	This unit specifies the outcomes required to research and select furniture materials and technologies in order to meet design requirements.
------------------------	---

### Application of the Unit

<b>Application of the unit</b>	<p>This unit supports the attainment of skills and knowledge required for competent research and selection including of traditional, new and emerging materials and technologies.</p> <p>This unit requires employability skills in initiative and enterprise and problem solving in order to direct the research and selection of materials and technology. Communication skills are used to access and interpret information using information technologies and complete required documentation. Self management and learning skills are applied in the review of information and arrangements to ensure project needs are met.</p>
--------------------------------	---

### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

<b>Prerequisite units</b>		

## Employability Skills Information

<b>Employability skills</b>	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 for material research	1.1. Applicable <b>OHS, legislative</b> and <b>organisational requirements</b> relevant to researching and recommending materials are verified and complied with 1.2. <b>Design brief</b> is reviewed, confirmed and clarified with <b>appropriate personnel</b> 1.3. <b>Communication</b> with others is established and maintained in accordance with OHS requirements 1.4. <b>Client</b> requirements and desires are reviewed, confirmed and clarified
2. Research materials	2.1. <b>Aesthetic</b> requirements of the material are assessed 2.2. New <b>material</b> technologies are researched and reported 2.3. <b>Tactile</b> requirements of the material in relation to the design is researched 2.4. <b>Manufacturing processes</b> and available expertise for the desired material are assessed 2.5. Costs of materials are assessed and compared 2.6. <b>Environmental impact</b> of materials are assessed 2.7. <b>Longevity and restorability</b> of materials are researched 2.8. <b>Hazards</b> associated with the use and application of materials, including handling, are researched 2.9. Quality of materials are assessed and reported
3. Select materials	3.1. Research information is <b>critically analysed</b> in the context of the design brief requirements 3.2. Materials and their <b>elements of design</b> are promoted, research explained and evaluated for the client 3.3. Materials and their <b>principles of design</b> are promoted, research explained and evaluated for the client 3.4. Presentation of research information is made, highlighting the findings and rationale for the materials chosen
4. Research furniture making technology	4.1. Information sources on traditional, new and emerging <b>technologies</b> used in the production of furniture are identified and assessed for usefulness 4.2. Traditional furniture making technologies are identified and their application analysed to determine advantages and disadvantages 4.3. New and emerging technologies are identified and analysed for relevance in furniture designs 4.4. Environmental and safety aspects of technologies are identified and implications for use assessed

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
	4.5. Information is collected and stored for future use
5. Select technology for furniture	5.1. Research information is critically analysed in the context of the design brief requirements 5.2. The relevance of technology to specific design solutions is determined and technology selected 5.3. Presentation of research information is made, highlighting the findings and rationale for the technology chosen

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

- collect, organise and understand information related to work briefs, basic plans and safety procedures
- communicate ideas and information
- accurately record and maintain information
- use computer operations for internet access and searches
- analyse performance characteristics
- compare findings
- communicate with suppliers
- maintain accurate records
- clarify and check task-related information
- carry out work according to OHS practices
- recognise and respond to circumstances outside instructions or personal competence
- use mathematical ideas and techniques to correctly complete measurements, calculate area and volume, and estimate other material requirements
- maintain current knowledge of furniture design and production techniques
- use the workplace technology related to the use of tools including calculators, measuring and recording devices.

#### Required knowledge

- State or Territory OHS legislation, regulations, standards and codes of practice relevant to researching and recommending materials
- organisational and site standards, requirements, policies and procedures for researching and recommending materials
- elements and principles of design
- aesthetic values
- types of tools and equipment and procedures for their safe use, operation and maintenance
- characteristics of materials, products and defects
- computer programs
- research techniques
- material types and manufacturing processes
- technologies used in furniture production
- storage systems and labelling
- procedures for the recording, reporting and maintenance of workplace records and information
- appropriate mathematical procedures for estimation and measurement
- environmental protection requirements

<b>REQUIRED SKILLS AND KNOWLEDGE</b>
--------------------------------------

- |   |
|---|
| <ul style="list-style-type: none"><li>• established communication channels and protocols</li><li>• problem identification and resolution.</li></ul> |
|---|

## 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

- Effectively research and select materials and technology to assist with informing the design process and arrive at a solution which meets client requirements
- Effectively apply design elements and principles to the research and selection of materials and technology
- Effectively research and select materials and technology in accordance with the concepts and design brief
- Comply with legislation, regulations, standards, codes of practice and established safe practices and procedures for researching and recommending materials and technology
- Communicate effectively and work safely with others in the work area

#### 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
  - materials and equipment relevant to researching and recommending materials
  - 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



<b>EVIDENCE GUIDE</b>	
	<p>(real or simulated) and require evidence of process</p> <ul style="list-style-type: none"><li>• 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</li><li>• Assessment may be in conjunction with assessment of other units of competency</li></ul>
<b>Guidance information for assessment</b>	

## 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.

<b>OHS requirements</b>	<ul style="list-style-type: none"> <li>are to be in accordance with Commonwealth, State or Territory legislation and regulations, organisational safety policies and procedures</li> <li>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 of hazardous materials and substances, manual handling including lifting and carrying</li> </ul>
<b>Legislative requirements</b>	<ul style="list-style-type: none"> <li>are to be in accordance with applicable legislation from all levels of government that affect organisational operation</li> <li>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</li> </ul>
<b>Organisational requirements</b>	<ul style="list-style-type: none"> <li>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)</li> </ul>
<b>Design brief</b>	<ul style="list-style-type: none"> <li>may include but not be limited to client needs and objectives, client aims and objectives and criteria for evaluation, milestones, organisational or personal profiles and aims, image requirements and function, target market, budget, timeline, consultation requirements and colour requirements</li> </ul>
<b>Appropriate personnel</b>	<ul style="list-style-type: none"> <li>may include but not be limited to trainers, supervisors, suppliers, clients, colleagues and managers</li> </ul>
<b>Communication</b>	<ul style="list-style-type: none"> <li>may include verbal and non-verbal language, constructive feedback, active listening, questioning to clarify and confirm understanding, use of positive, confident and cooperative language, use of language and concepts appropriate to individual social and cultural differences, control of tone of voice and body language</li> </ul>

<b>RANGE STATEMENT</b>	
<b>Clients</b>	<ul style="list-style-type: none"> <li>may include but not be limited to suppliers, manufacturers, private clients, colleagues, retailers or the public</li> </ul>
<b>Aesthetics</b>	<ul style="list-style-type: none"> <li>are to include the consideration of appeal to a large number of people; products are pleasing to the eye of many who view it</li> </ul>
<b>Material</b>	<ul style="list-style-type: none"> <li>may include but not be limited to solid timber (native and imported), manufactured timber products, reconstituted products, composite materials, plastic, metal, alloys, stone based products, glass, textiles, fibreglass, foam, synthetics, cardboard, paper products or any other manipulable substance</li> </ul>
<b>Tactile</b>	<ul style="list-style-type: none"> <li>is to include that perceived by the sense of touch and producing the effect of three dimensional depth</li> </ul>
<b>Manufacturing process</b>	<ul style="list-style-type: none"> <li>may include but not be limited to the methods by which the product will be produced, these steps usually entail working from working drawings and specifications, producing components utilising machine operations, assembly of the components and finishing techniques</li> </ul>
<b>Environmental impact</b>	<ul style="list-style-type: none"> <li>is to include but not be limited to how the sourcing and use of materials effects the environment and how its continued use will effect the area the material was sourced from, energy consumption in processing the material, greenhouse gases created, waste levels and resource utilisation. Similarly what impact will be felt by reducing or stopping use of the material</li> </ul>
<b>Longevity and restorability</b>	<ul style="list-style-type: none"> <li>are to include an analysis of how long the material is expected to maintain its structure and colour, while maintaining quality of aesthetic value and how readily the material can be repaired or replaced</li> </ul>
<b>Hazards</b>	<ul style="list-style-type: none"> <li>may include but not be limited to overweight loads, bowing or cupping material causing collapse, materials handling incidents, splinters, chips or fragments being lodged in the hands or eyes</li> </ul>
<b>Critical analysis</b>	<ul style="list-style-type: none"> <li>may include but not be limited to comparing, contrasting, reflecting, critiquing, considering merit, discussion and debate</li> </ul>
<b>Elements of design</b>	<ul style="list-style-type: none"> <li>may include but not be limited to line, shape, form (geometric or organic), texture, colour, and function</li> </ul>
<b>Principles of design</b>	<ul style="list-style-type: none"> <li>may include but not be limited to balance, proportion (symmetry, asymmetry), harmony, contrast, pattern, movement, rhythm, unity, style, focus, scale, dominant, sub dominant or subordinate relationship, emphasis, proximity, alignment, space, anthropometry, ergonomics, arrangement, workload, materials handling capacity, skills, control, equipment capabilities, aesthetic relations, tension and development methods</li> </ul>

**RANGE STATEMENT**

<b>Technology</b>	<ul style="list-style-type: none"> <li>may include but not be limited to manufacturing processes including volume and custom production processes, computer aided drafting (CAD) software programs and digital design tools, machinery, tools, techniques, laser cutting, water jet cutting, CNC router cutting, foundries and casting, and soft furnishing technology</li> </ul>
-------------------	---

**Unit Sector(s)**

<b>Unit sector</b>	Furniture design and technology.
--------------------	----------------------------------

**Competency field**

<b>Competency field</b>	
-------------------------	--

**Co-requisite units**

<b>Co-requisite units</b>		