



**Australian Government**

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

# **LMFGG3013C Construct and repair leadlight panels**

**Release: 1**

## **LMFGG3013C Construct and repair leadlight panels**

### **Modification History**

Updated format, added references to restoration and conservation of historically important stained glass and leadlighting works, revised Evidence Guide. Outcome equivalent.

### **Unit Descriptor**

This unit of competency covers the skills and knowledge required to construct and repair leadlight panels and may involve restoration and conservation of historically important stained glass and leadlighting works.

### **Application of the Unit**

This unit requires individuals to demonstrate discretion, judgement and problem solving in the construction/repair of leadlight panels. It involves measuring, design and selection of materials and tools, and disassembly/assembly, weatherproofing and polishing of leadlight panels. Work is generally performed individually or in a team environment, with general supervision, and may be part of a production process.

### **Licensing/Regulatory Information**

Not applicable.

### **Pre-Requisites**

Not applicable.

### **Employability Skills Information**

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 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.

## Elements and Performance Criteria

1	Identify work requirements	1.1	Purpose of the leadlight panel is established, including performance requirements in terms of safety, quality and function
		1.2	Research is conducted, where necessary, to establish if leadlight panels to be repaired are historically important
		1.3	Construction method and materials to be used in the panel to be constructed or repaired are identified
		1.4	Leadlight panel to be <b>repaired</b> is inspected to identify faults and any faults found compared with customer requirements and any previous identified faults
2	Plan leadlight panel construction/repair	2.1	Plan or design of leadlight panel to be constructed/repaired is analysed to identify work requirements, methods and/or specifications
		2.2	<b>Occupational health and safety (OHS) requirements</b> for construction and repair of leadlight panels, including <b>personal protective equipment</b> , are observed throughout the work
		2.3	Work sequences are identified and a personal work plan is developed, when required, compliant with <b>workplace procedures</b>
		2.4	Steps or stages in construction/repair are planned, noting check points for (any) measurements and tests
		2.5	Approval of work construction plan is obtained as required by workplace procedures and a suitable work area identified
3	Identify suitable materials and equipment	3.1	<b>Tools and equipment</b> are selected and checked prior to use to ensure they are appropriate for the work, serviceable and in a safe condition
		3.2	<b>Leadlight construction materials</b> are selected according to specification of performance requirements, proposed use, cost and availability of materials, if required, matching the original texture, colour, thickness and opacity of the stained glass

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|---|--------------------------------------|-----|--|
|   |                                      | 3.3 | Equipment suitable for working the chosen material is identified   |
| 4 | Construct/repair the leadlight panel | 4.1 | Plan is followed to construct/repair the leadlight panel, including any special requirements for historically important works        |
|   |                                      | 4.2 | Checks are conducted at the identified points  |
|   |                                      | 4.3 | Modifications are identified and recommended within workplace procedures   |
|   |                                      | 4.4 | Modifications to the plan are documented and appropriate approvals are sought in accordance with workplace procedures                |
| 5 | Complete work                        | 5.1 | Leadlight panel is inspected for quality of work and repaired or reconstructed, as required, in accordance with workplace procedures |
|   |                                      | 5.2 | Material which can be reused is collected and stored   |
|   |                                      | 5.3 | Waste and scrap material is removed for disposal or recycling, as required   |
|   |                                      | 5.4 | Work area is cleaned and rubbish disposed of, as appropriate   |
|   |                                      | 5.5 | Equipment is cleaned and stored according to workplace requirements  |
|   |                                      | 5.6 | Workplace documentation is completed in accordance with workplace procedures   |

## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills include:

- collecting, organising and understanding information related to work orders, basic plans and safety procedures
- using communication skills to the level required to confirm work requirements and specifications; communicate effectively regarding work requirements with supervisors, other workers and customers; report work outcomes and problems; and relate to people from a range of social, cultural and ethnic backgrounds, and of varying physical and mental abilities
- using literacy skills to the level required to understand information related to work orders, including common industry terminology, plans and safety procedures; prepare reports; and interpret technical information and specifications
- planning and organising activities, including the preparation and layout of the work area, and the obtaining of equipment and materials to avoid any backtracking, workflow interruptions or wastage
- working with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- using mathematical ideas and techniques to correctly complete measurements, calculate work requirements, and optimise glass sizes for economical cutting and assembling of required materials
- using pre-checking and inspection techniques to plan work, and avoid re-working and wastage
- using workplace technology related to the construction/repair of leadlight panels, including restoration and conservation of historically important works
- modifying activities to cater for variations in workplace contexts and environment

### Required knowledge includes:

- end use of leadlight panels and required safety, quality and structural standards
- characteristics, including hazards and workplace safety system requirements associated with the materials used in leadlight panel construction
- operation of tools and equipment used in constructing/repairing leadlight panels
- research techniques to establish the historical importance of stained glass and leadlighting works
- processes and procedures involved in the construction/repair process of leadlight panels, including historically important works
- the impact of design features of the leadlight panel on purpose, materials and construction
- relevant Australian Standards



## Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

<b>Overview of assessment</b>	Assessment processes and techniques must be culturally appropriate and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Assessors must be satisfied that the candidate can competently and consistently:</p> <ul style="list-style-type: none"> <li>• interpret work order/job instruction to identify requirements and plan the process to construct/repair leadlight panels</li> <li>• select and use appropriate materials and processes for the panel being constructed/repared</li> <li>• apply safe handling requirements for equipment, products and materials, including use of personal protective equipment</li> <li>• follow work instructions, operating procedures and inspection practices to:             <ul style="list-style-type: none"> <li>• minimise the risk of injury to self and others</li> <li>• prevent damage to goods, equipment and products</li> <li>• maintain required production output and product quality</li> </ul> </li> <li>• conduct appropriate research to determine if a leadlight panel is historically important and determine appropriate restoration and conservation requirements and techniques</li> <li>• restore and conserve historically important works</li> <li>• as a minimum:             <ul style="list-style-type: none"> <li>• construct leadlight panels</li> <li>• measure openings for leadlight panels</li> <li>• design, including construction of cartoon templates</li> <li>• identify and select materials, including glass and lead came</li> <li>• cut basic and complex shapes in clear, patterned and coloured glass</li> <li>• lead up, flux and solder</li> <li>• weatherproof, cement, pick and polish</li> <li>• glaze, including putty facing and beading up</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• may include reinforcement bar installation</li> <li>• repair leadlight panels: <ul style="list-style-type: none"> <li>• remove leadlight from opening to be repaired</li> <li>• construct templates, cartoons and rubbings</li> <li>• identify and select replacement materials</li> <li>• disassemble lead and broken glass panels</li> <li>• cut glass to suit</li> <li>• lead up, weatherproof, cement, pick and polish</li> <li>• re-glaze repaired leadlight panel</li> </ul> </li> <li>• work effectively with others.</li> </ul>
<b>Context of and specific resources for assessment</b>	<p>The application of competency is to be assessed in the workplace or realistically simulated workplace.</p> <p>Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.</p> <p>Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context.</p> <p>Assessment is to comply with relevant regulatory or Australian Standard requirements.</p> <p>The following resources should be made available:</p> <ul style="list-style-type: none"> <li>• appropriate leadlighting materials</li> <li>• work area</li> <li>• work order</li> <li>• specifications</li> <li>• tools</li> <li>• personal protective equipment</li> <li>• equipment and consumables.</li> </ul>
<b>Method of assessment</b>	<p>Assessment must satisfy the endorsed Assessment Guidelines of the LMF02 Furnishing Industry Training Package.</p> <p>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.</p> <p>Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure correct interpretation and application.</p> <p>Assessment may be applied under project-related conditions (real or simulated) and require evidence of</p>



	<p>process.</p> <p>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.</p> <p>Assessment may be in conjunction with assessment of other units of competency.</p>
<b>Guidance information for assessment</b>	

## 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, if used in the performance criteria, is detailed below. 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) may also be included.

<b><i>Repair methods may include:</i></b>	<ul style="list-style-type: none"> <li>• re-leading</li> <li>• strap repair and lead lifting</li> <li>• restoration and conservation of historically important stained glass and leadlighting works</li> </ul>
<b><i>OHS requirements cover:</i></b>	<ul style="list-style-type: none"> <li>• material handling</li> <li>• work processing</li> <li>• workspace and ventilation considerations</li> <li>• material disposal processes</li> </ul>
<b><i>Personal protective equipment includes:</i></b>	<ul style="list-style-type: none"> <li>• that prescribed under legislation, regulations and enterprise practices and procedures, and may include: <ul style="list-style-type: none"> <li>• glass handling gloves</li> <li>• safety glasses</li> </ul> </li> </ul>
<b><i>Workplace procedures include:</i></b>	<ul style="list-style-type: none"> <li>• workplace procedures relating to constructing/repairing leadlight panels</li> <li>• workplace procedures relating to the handling and movement of glass and glass panels</li> <li>• equipment manufacturer specifications and operational procedures</li> <li>• work instructions, including job sheets, cutting lists, plans, patterns, templates, drawings and/or designs</li> <li>• safety standards, including personal protective equipment, OHS regulations and enterprise requirements</li> </ul>

	<ul style="list-style-type: none"><li>• quality and Australian Standards and procedures</li></ul>
<b><i>Tools and equipment may include:</i></b>	<ul style="list-style-type: none"><li>• timber benches</li><li>• light boxes</li><li>• glass grinders</li><li>• lead knives</li><li>• lead vice</li><li>• lathekins</li><li>• farrier's nails</li><li>• glass cutters</li><li>• grozing and small running pliers</li><li>• soldering irons and bits</li><li>• suede</li><li>• cleaning and polishing brushers and pickers</li></ul>
<b><i>Leadlight construction materials may include, but are not limited to:</i></b>	<ul style="list-style-type: none"><li>• coloured/plain glass panels</li><li>• patterns/templates</li><li>• timber lathes</li><li>• ornamental fittings</li><li>• lead came</li><li>• solder and fluxes</li></ul>

## Unit Sector(s)

Glass and glazing

## Custom Content Section

Not applicable.