



Australian Government

CPCPRF2024A Fabricate roof coverings for curved structures

Release 1

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Modification History

Prerequisite unit changed

Changes to performance criteria, required skills and knowledge, range statement and critical aspects

Not equivalent to CPCPRF2014A

Unit Descriptor

This unit of competency specifies the outcomes required to design and fabricate curved industrial roof coverings.

Application of the Unit

Site location for work application will normally be industrial and may be a new work site or an existing structure being renovated, extended, restored or maintained.

Licensing/Regulatory Information

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, regulatory or certification requirements.

Pre-Requisites

CPCPCM2043A Carry out WHS requirements

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 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

- | | | |
|----------|--------------------------|--|
| 1 | Prepare for work. | <p>1.1 Plans and specifications are obtained for component to be designed and fabricated.</p> <p>1.2 <i>Work health and safety</i> (WHS) and <i>environmental requirements</i> associated with the design and fabrication of curved roof coverings are adhered to throughout the work.</p> <p>1.3 <i>Quality assurance requirements</i> are identified and adhered to according to workplace requirements.</p> <p>1.4 Tasks are planned and sequenced in conjunction with others involved in or affected by the work and <i>statutory and regulatory authorities'</i> requirements.</p> <p>1.5 <i>Tools and equipment</i>, including personal protective equipment, are selected and checked for serviceability and <i>faults are reported</i>.</p> <p>1.6 Work area is prepared to support efficient design and fabrication of <i>curved roof coverings</i>.</p> |
| 2 | Design covering. | <p>2.1 Roofing material is selected that is suitable for the fabrication process, job requirements and relevant <i>information</i>.</p> <p>2.2 Curvature of roof covering is ascertained and used to determine the starting and finishing points of curves.</p> <p>2.3 Design and freehand sketch of roof covering are created to form the basis of <i>fabrication patterns</i>.</p> <p>2.4 Fabrication patterns are drawn based on design and</p> |

- freehand sketch of roof covering.
- 2.5 *Sustainability principles and concepts* are observed when preparing for and undertaking work process.
- 3 Fabricate covering.**
- 3.1 *Material* list is determined from patterns and calculations.
- 3.2 Method of fabrication, tools and machinery for fabrication are determined to suit job requirements.
- 3.3 Roof covering is marked out according to drawings, patterns, or calculations and prefabricated.
- 3.4 Components are marked and packaged for delivery to point of installation.
- 4 Clean up.**
- 4.1 Work area is cleared and materials disposed of, reused or recycled according to legislation, regulations, codes of practice, and job specification.
- 4.2 Tools and equipment are cleaned, checked, maintained and stored according to manufacturer recommendations and workplace procedures.
- 4.3 Documentation is completed according to workplace requirements.

Required Skills and Knowledge

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

Required skills

- communication skills to:
 - access information
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - report faults
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- literacy skills to:
 - complete written workplace documentation
 - develop materials list
 - read and interpret:
 - documentation from a variety of sources
 - plans and specifications
- numeracy skills to apply measurements and calculations
- planning and organising skills to:
 - plan and sequence tasks with others
 - plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technical skills to identify and accurately report to appropriate personnel any faults in tools, equipment or materials
- technology skills to:
 - access and understand site-specific instructions in a variety of media
 - use mobile communication technology

Required knowledge

- capillary action, thermal expansion and fabrication techniques to prevent leaking installations
- characteristics of various metals and finishes
- design concepts and performance measures for curved roof coverings

- electrolysis and problems associated with the use of dissimilar metals
- job safety analysis (JSA) and safe work method statements (SWMS)
- processes of designing and fabricating curved roof coverings
- relevant statutory and regulatory authority requirements related to metal roofs
- SI system of measurement

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.

Overview of assessment

This unit of competency could be assessed in the workplace or a close simulation of the workplace environment providing that simulated or project-based assessment techniques fully replicate plumbing and services workplace conditions, materials, activities, responsibilities and procedures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of:

- locating, interpreting and applying relevant information, standards and specifications for the design and fabrication of curved roof coverings
- applying safety requirements throughout the work sequence, including electrical safety requirements and the use of personal protective clothing and equipment
- given the plans and specifications of a bull nosed verandah roof incorporating one internal and one external angle, designing and fabricating the curved roof coverings, ensuring:
 - application of sustainability principles and concepts
 - correct identification of design criteria and fabrication requirements
 - fabrication conforms with the design requirements
 - correct selection and use of appropriate processes, tools and equipment
 - completing all work to specification
 - compliance with regulations, standards and organisational quality procedures and processes
 - communicating and working effectively and safely with others.

Context of and specific resources for assessment

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the minimum task requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe working practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry-related systems information.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning

experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge

- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

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.

Work health and safety is to be according to commonwealth, state and territory legislation and regulations and may include:

- handling of materials
- hazard control
- personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including recognising and preventing hazards associated with:
 - electricity
 - hazardous materials and substances
 - service lines
 - surrounding structures and facilities
 - trip hazards
 - use of tools and equipment
 - work site visitors and the public
 - working at heights

- working in proximity to others
- use of firefighting equipment
- use of first aid equipment
- workplace environment and safety.

Environmental requirements cover water quality management and may include:

- clean-up protection
- stormwater protection
- waste management.

Quality assurance requirements may include:

- Environment Protection Authority (EPA)
- internal company quality assurance policy and risk management strategy
- International Standards Organisation
- site safety plan
- workplace operations and procedures.

Statutory and regulatory authorities include:

- commonwealth, state or territory, and local authorities administering applicable Acts, regulations and codes of practice.

Tools and equipment may include:

- drafting equipment
- hand and power tools
- lifting and load shifting equipment, including:
 - chain blocks
 - forklifts
 - hand trolleys
 - hoists and jacks
 - rollers
- machinery for shaping the roof material
- measuring equipment.

Fault reporting:

- may be written or verbal
- is to be according to company workplace procedures.

Curved roof covering may be:

- barrel shaped
- concave
- convex

- hyperbolic
- paraboloid.

Information may include:

- charts and hand drawings
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions
- material safety data sheets (MSDS)
- memos
- organisation work specifications and requirements
- plans and sketches
- regulatory and legislative requirements, particularly those pertaining to:
 - building codes
 - WHS and environmental requirements
 - plumbing regulations
- relevant Australian standards
- safe work procedures relating to the design, and fabrication of coverings for curved roofs
- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

Fabrication patterns may be:

- actual size or scaled.

Sustainability principles and concepts:

- cover the current and future social, economic and environmental use of resources
- may include:
 - efficient energy use
 - efficient use and recycling of material
 - disposing of waste material to ensure minimal environmental impact
 - selecting appropriate components to ensure minimal environmental impact.

Materials may include:

- drawing materials
- manufacturer catalogues and specifications
- metal roof sheeting of concealed or fixed type and accessories.

Unit Sector(s)

Functional area

Unit sector Plumbing and services

Custom Content Section

Not applicable.