



Australian Government

Department of Education, Employment and Workplace Relations

CPCCJS3005A Manufacture stair components for curved and geometric stairs

Release: 1

CPCCS3005A Manufacture stair components for curved and geometric stairs

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit specifies the outcomes required to undertake the manufacturing processes required to prepare and manufacture components for the assembly of curved and geometric stairs.

Application of the Unit

Application of the unit This unit of competency supports the achievement of skills and knowledge to manufacture stair components for curved and geometric stairs, which may include working with others and as a member of a team.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units

CPCCOHS2001A	Apply OHS requirements, policies and procedures in the construction industry
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Employability Skills Information

Employability skills 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

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare.	1.1. Work instructions and operational details are obtained using relevant <i>information</i> , confirmed and applied for <i>planning and preparation</i> purposes. 1.2. <i>Safety (OHS)</i> requirements are followed in accordance with safety plans and policies. 1.3. Signage and barricade requirements are identified and implemented. 1.4. <i>Tools and equipment</i> selected to carry out tasks are consistent with job requirements, checked for serviceability and any faults are rectified or reported prior to commencement. 1.5. Material quantity requirements are calculated in accordance with plans, specifications and <i>quality requirements</i> . 1.6. <i>Materials</i> appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use. 1.7. <i>Environmental requirements</i> are identified for the project in accordance with environmental plans and <i>statutory and regulatory authority</i> requirements, and are applied.
2. Manufacture strings for geometric curves.	2.1. Material is prepared to designed structural requirements. 2.2. Curved wall/profile is constructed to curve design of <i>stair</i> . 2.3. Developed pitch is set out to curved wall/profile location. 2.4. String is <i>manufactured</i> in accordance with curved wall and set out to specifications.
3. Prepare strings for assembly.	3.1. Strings are set out for treads and risers with nosing marked accurately, housings cut and waste removed accurately to set-out and depth. 3.2. Grooves or mortises to receive balusters are run/carried out to set-out requirements. 3.3. Open strings are cut to set-out shape for treads and risers and ends of strings are cut to set-out requirements for junction with newels/landing or left long for on-site fitting with string marked for identification where applicable.
4. Set out and manufacture curved and geometric stair post for spiral stairs.	4.1. Curved and geometric stairs are set out to specifications. 4.2. Post is manufactured and/or dressed to designed shape and set out to designed requirements of stair.

ELEMENT

PERFORMANCE CRITERIA

4.3. Housings are cut and made accurately to set-out and required depth.

ELEMENT	PERFORMANCE CRITERIA
5. Prepare newels for assembly.	<p>5.1. Housings are cut and made accurately to newel set-out and required depth.</p> <p>5.2. Mortises are cut and made accurately to set-out and required depth and newels are marked for identification, where applicable.</p>
6. Cut treads, risers and wedges to length and shape.	<p>6.1. Treads are cut to designed length and shape.</p> <p>6.2. Risers are cut to designed length and requirement for junction with string.</p> <p>6.3. Wedges are marked to design and cut to shape and quantity.</p>
7. Prepare balustrade components.	<p>7.1. Handrail is manufactured to shape with groove run for balusters, where applicable, and mortises in handrail for balusters are made accurately to set-out.</p> <p>7.2. Balusters are cut to designed length.</p> <p>7.3. Handrail is cut to length and sections are marked for identification, where applicable.</p>
8. Finish surface and preassemble stair.	<p>8.1. Exposed surfaces of components are sanded to specification for finish and component parts are checked to ensure they will fit to specification.</p> <p>8.2. Components are preassembled to ensure stair will assemble appropriately.</p>
9. Clean up.	<p>9.1. Materials are stacked and/or stored for transportation.</p> <p>9.2. Work area is cleared and waste material disposed of safely.</p> <p>9.3. Tools and equipment are cleaned, maintained and stored.</p>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills for this unit are:

- ability to recognise procedures, respond to change and contribute to workplace responsibilities, such as current work site environmental or sustainability frameworks or management systems
- communication skills to:

REQUIRED SKILLS AND KNOWLEDGE

- enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
- follow instructions
- read and interpret drawings and specifications
- use and interpret non-verbal communication
- use language and concepts appropriate to cultural differences
- innovation skills to select appropriate tools and equipment, respond to workplace challenges and put ideas into action
- numeracy skills to apply measurements and calculations
- planning and organisational skills to identify requirements, apply relevant resources and sequence tasks
- problem solving skills to recognise and take action to rectify minor faults and problems
- teamwork skills to be able to work with others to action tasks and relate to people from a range of cultural, social, ethnic backgrounds and with varying physical and mental abilities.

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

Required knowledge for this unit is:

- basic curved stair design
- Building Code of Australia (BCA) requirements relevant to stair construction
- commonly used stair construction and joining methods
- interpretation of drawings and specifications
- job safety analysis (JSA) and safe work method statements
- material identification marking systems
- measuring and setting out processes relevant to curved stair construction
- organisation's quality assurance requirements
- types and characteristics of stairs
- types and use of adhesives, fixings and fasteners related to stair construction
- types and use of static machines
- types of materials and their characteristics related to stair construction
- workplace and equipment safety requirements.

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, 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, provided that simulated or project-based assessment techniques fully replicate construction 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 produce all components for assembly of two stair types, one with a cut and closed string and one an open string, providing evidence of the ability to:

- comply with OHS regulations applicable to workplace operations
- apply organisational quality procedures and processes within context of manufacturing

EVIDENCE GUIDE

components for curved stairs

- identify design of stair and details of component composition and design
- identify methods of manufacturing, setting out techniques and materials required
- select and use appropriate processes, tools and equipment to construct and manufacture components
- select appropriate material and safe and effective procedures to use machines and prepare material to initial requirements
- adopt appropriate and efficient procedures to construct curved strings to designed requirements
- use correct procedures in setting out and using machines, power tools and hand tools to mould and manufacture components to designed shape
- safely and efficiently prepare all components for assembly
- check all component connections to ensure joints will fit in assembly
- adopt safe and effective handling procedures for movement and placement of materials and components
- identify typical faults and problems that occur and action required to rectify them
- communicate with others to ensure safe and efficient workshop operations.

EVIDENCE GUIDE

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.

1.1. Resource implications for assessment include:

- workshop location and appropriate workspace
- static machines appropriate for activity
- set-out materials and components prepared for manufacturing processes
- tools and equipment appropriate for activity
- drawings and documentation relevant to design.

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 a reasonable inference that competency is not only verified under the particular assessment circumstance, but is 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

EVIDENCE GUIDE

- and 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

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.

Information includes:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions, where specified
- material safety data sheets (MSDS)
- memos
- regulatory and legislative requirements

RANGE STATEMENT

- pertaining to manufacturing stair components
- relevant Australian standards
 - safe work procedures relating to manufacturing stair components
 - signage
 - verbal, written and graphical instructions
 - work bulletins
 - work schedules, plans and specifications.

RANGE STATEMENT

Planning and preparation include:

- assessment of conditions and hazards
- determination of work requirements and safety plans and policies
- equipment defect identification
- work site inspection.

Safety (OHS) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:

- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- hazard control
- hazardous materials and substances
- organisational first aid
- PPE prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
 - concealed services (water, power and gas)
 - lighting
 - restricted access barriers
 - traffic control
 - work site visitors and the public
 - working at heights
 - working in confined spaces
 - working in proximity to others
- use of firefighting equipment
- use of static machines
- use of tools and equipment
- workplace environmental requirements and safety.

Tools and equipment include:

- chisels
- clamps
- hammers
- hand saws
- jig saws
- measuring tapes and rules
- power drills
- power saws
- routers
- saw stools
- spirit levels

RANGE STATEMENT

- Quality requirements*** include:
- squares
 - work bench.
 - attention to machining processes
 - control of handling procedures
 - quality of materials
 - relevant regulations, including:
 - AS1473 Guarding and safe use of woodworking machinery
 - internal company quality policy and standards
 - manufacturer specifications where specified
 - workplace operations and procedures
 - use and maintenance of equipment
 - workplace operations and procedures.
- Materials*** include:
- metal
 - timber.
- Environmental requirements*** include:
- clean-up management
 - dust and noise
 - stormwater protection
 - waste management.
- Statutory and regulatory authority*** includes:
- federal, state and local authorities administering applicable Acts, regulations and codes of practice.
- Stair*** includes:
- curved
 - geometric
 - open or closed strings
 - spiral.
- Manufactured*** may include using:
- band saw
 - buzzer
 - docking saw
 - mortiser
 - spindle shaper.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area