



Australian Government

Department of Education, Employment and Workplace Relations

CPCPRF3012A Fabricate and install roof drainage components

Release: 1

CPCPRF3012A Fabricate and install roof drainage components

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit of competency specifies the outcomes required to fabricate and install roof drainage components and rainwater goods for commercial and residential roof systems.

Application of the Unit

Application of the unit Site location for work application may be either domestic or commercial and may be a new work site or an existing structure being renovated, extended, restored or maintained.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units

CPCPCM2023A

Carry out OHS requirements

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. Prepare for work.	1.1. Drawings and specifications are obtained and confirmed by site inspection. 1.2. Safety (OHS) requirements associated with fabricating and installing roof drainage components, and workplace environmental requirements, are adhered to throughout the work. 1.3. Quality assurance requirements are identified and adhered to in accordance with workplace requirements. 1.4. Tasks are planned and sequenced in conjunction with others involved in or affected by the work and statutory and regulatory authority requirements. 1.5. Tools and equipment, including personal protective equipment, are selected and checked for serviceability. 1.6. Work area is prepared to support the fabrication and installation of roof drainage components.
2. Identify installation requirements.	2.1. Rainwater management system is identified as suitable for preventing rainwater penetration into building structure. 2.2. Roof drainage components required for installation are identified from drawings and specifications. 2.3. Fabrication patterns are drawn based on design and freehand sketch of roof drainage. 2.4. Quantity, type and sizing of drainage components, rainwater materials and accessories required are calculated from drawings and specifications in compliance with relevant Australian standards and local authorities' requirements and relevant information. 2.5. Box gutter support system is fabricated according to relevant Australian standard. 2.6. Materials are identified from drawings, specifications, patterns and/or calculations and ordered and collected in accordance with workplace procedures. 2.7. Materials and equipment are checked for compliance with docket and order form and for acceptable condition, and faults are reported.
3. Fabricate roof drainage	3.1. Method of fabrication, tools and machinery requirements are determined to suit job requirements.

ELEMENT	PERFORMANCE CRITERIA
components.	3.2. Materials are marked out from drawings to fabricate roof drainage components. 3.3. Roof drainage components are fabricated in compliance with relevant Australian standards, drawings, specifications and site measurements. 3.4. Components are marked, packaged and prepared for delivery and installation in accordance with workplace procedures.
4. Set out and install roof drainage components.	4.1. Components are checked for compliance with docket and order form and for acceptable condition, and arranged in order of installation. 4.2. Roof drainage components are set out to comply with job specifications and site measurements. 4.3. Structural supports are installed in compliance with job specifications. 4.4. Roof drainage components are jointed in compliance with job specifications and relevant Australian standards. 4.5. Roof drainage system is installed in accordance with relevant Australian standards and job specifications. 4.6. <i>Sustainability principles and concepts</i> are applied throughout the installation 4.7. System is performance tested for satisfactory installation and remedied.
5. Clean up.	5.1. Work area is cleared and materials disposed of, reused or recycled according to legislation, regulations, codes of practice and job specification. 5.2. Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and workplace procedures. 5.3. Documentation is completed in accordance with workplace requirements.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

REQUIRED SKILLS AND KNOWLEDGE

Required skills

Required skills for this unit are:

- communication skills to:
 - access information
 - complete workplace documentation
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - plan and sequence tasks with others
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- numeracy skills to apply measurements and calculations
- organisational skills, including the ability to plan and set out work
- selecting, fabricating, jointing and installing gutter and downpipe systems to effectively drain a roof to an authorised discharge point
- 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
- technological skills to:
 - access and understand site-specific instructions in a variety of media
 - use mobile communication technology.

Required knowledge

Required knowledge for this unit is:

- capacity of fabrication machinery involved in the production of roof drainage components
- capillary action, thermal expansion and fabrication techniques to prevent leaking installations
- characteristics of various metals and finishes
- corrosion prevention treatment requirements of cut sheets
- design concepts and performance measures for roof drainage components
- electrolysis and problems associated with the use of dissimilar metals
- job safety analysis (JSA) and safe work method statements (SWMS)

REQUIRED SKILLS AND KNOWLEDGE

- joining of materials
- processes of fabricating, jointing and fixing roof drainage components
- relevant OHS regulations and fall protection codes and requirements
- relevant statutory and authority requirements related to fabricating and installing roof drainage components
- SI system of measurement
- types of fasteners, fixings and sealants and their application to the fabrication and installation of roof coverings.

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 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, relevant Australian standards and specifications to the fabrication and installation of roof drainage components
- applying safety requirements throughout the work sequence, including electrical requirements and the use of personal protective clothing and equipment
- as a minimum the ability to, given the plans and specifications of a roof management system for a roofed area of at least 4 square metres, determine the requirements, select, fabricate and install:
 - valley gutter
 - box gutter, to include a sump or rainhead and overflow
 - eaves gutter and downpipe system, complete with gutter supports, expansion joints and caps
- ensuring:
 - application of sustainability principles and concepts throughout the installation
 - correct identification of requirements and details of proposed installation
 - correct fit of the completed installation
 - correct selection and use of appropriate processes, tools and equipment
 - completing all work to specification

EVIDENCE GUIDE

Context of and specific resources for assessment

- compliance with regulations, relevant Australian standards and organisational quality procedures and processes
- communicating and working effectively and safely with others.

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

EVIDENCE GUIDE

- 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

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

RANGE STATEMENT

situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Safety (OHS) is to be in accordance with 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)
- environment policy
- 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 and local authorities administering applicable Acts, regulations and codes of practice.

Tools and equipment may include:

- drawing equipment
- fall protection equipment
- hand and power tools
- ladders
- lifting and load shifting equipment, including:

RANGE STATEMENT

- Roof drainage components** may include:
- chain blocks
 - cranes
 - elevated work platforms
 - forklifts
 - hand trolleys
 - hoists and jacks
 - restricted height scaffolds
 - rollers
 - measuring equipment.
 - box gutters
 - downpipes
 - eaves gutters
 - gutter support system
 - parapet gutters
 - rainwater heads
 - siphonic drainage downpipe systems and materials
 - standing overflows
 - sumps
 - valley gutters.
- Fabrication patterns** may be:
- actual size or scaled.
- Information** may include:
- charts and hand drawings
 - diagrams or sketches
 - instructions issued by authorised organisational or external personnel
 - manufacturer specifications and instructions
 - material safety data sheets (MSDS)
 - memos
 - organisation work specifications and requirements
 - regulatory and legislative requirements, particularly those pertaining to:
 - building codes
 - OHS and environmental requirements
 - plumbing regulations
 - relevant Australian standards
 - safe work procedures relating to fabricating and installing roof drainage components
 - signage

RANGE STATEMENT

Materials for fabricating and installing roof drainage components may include:

- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.
- fibreglass
- laminate
- metal gutter and structural supports
- metal rainwater goods
- metal roof covers of concealed or pierce fixed types
- metal self drilling and tapping screws
- plastic building sheets for walls and roofs
- polyethylene
- PVC sheet goods
- rivets and sealants
- thermal insulation of reflective foil
- roof tiles.

Fault reporting:

- may be written or verbal
- is to be in accordance with company's workplace procedures.

Sustainability principles and concepts:

- cover the current and future social, economic and environmental use of resources
- may include:
 - appropriate component selection that has minimal environmental impact
 - rainwater harvesting
 - efficient energy use
 - efficient use and recycling of material
 - correct handling of hazardous materials
- disposal of waste material to ensure minimal environmental impact.

Unit Sector(s)

Unit sector Plumbing and services

Co-requisite units

Co-requisite units Nil

Functional area

Functional area