



**Australian Government**

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

# **CPCCW3003A Apply waterproofing process to external wet areas**

**Release: 1**

## **CPCCW3003A Apply waterproofing process to external wet areas**

### **Modification History**

Not Applicable

### **Unit Descriptor**

**Unit descriptor** This unit of competency specifies the outcomes required to apply waterproofing practices and principles to external wet areas.

It includes identification of the waterproofing system to be used, its preparation and its application.

### **Application of the Unit**

**Application of the unit** This unit of competency supports the attainment of skills and knowledge to apply waterproofing process to external wet areas while working with others and in teams.

### **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

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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.	<p>1.1. Work instructions and operational details are obtained using relevant <b>information</b>, confirmed and applied for <b>planning and preparation</b> purposes.</p> <p>1.2. <b>Safety (OHS)</b> requirements are followed in accordance with safety plans and policies.</p> <p>1.3. Signage and barricade requirements are identified and implemented.</p> <p>1.4. <b>Tools and equipment</b> selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement.</p> <p>1.5. Material quantity requirements are calculated in accordance with plans and specifications and <b>quality requirements</b>.</p> <p>1.6. <b>Materials</b> appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use.</p> <p>1.7. <b>Environmental requirements</b> are identified for the project in accordance with environmental plans and regulatory obligations and applied.</p>
2. Identify waterproofing system.	<p>2.1. Area to be waterproofed is <b>identified</b> from job drawings and specifications or diagnosed for damp fault area.</p> <p>2.2. Area is inspected for structural and surface defects in accordance with job and manufacturer specifications.</p> <p>2.3. Appropriate <b>waterproofing systems</b> and products are identified, analysed and selected for <b>water exclusion</b> in accordance with job and manufacturer specifications and with material safety data sheet (MSDS) directions.</p> <p>2.4. Range of waterproofing materials is checked for product suitability, conformity to specifications and compatibility with surface material, preparation and waterproofing installation technique.</p> <p>2.5. Type of waterproofing material is identified in accordance with job specification, state of structure and job safety requirements with MSDS directions.</p>
3. Prepare for waterproofing installation.	<p>3.1. Wet area site set-out, building alignment and finished levels are checked to conform with specified location, structure and dimensions in accordance</p>

**ELEMENT****PERFORMANCE CRITERIA**

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- with drawings and specifications.
- 3.2. Moisture content in substrate is identified.
  - 3.3. Appropriateness of the system of waterproofing selected for the structure or work is confirmed.
  - 3.4. **Wet area** site levels are checked for conformity to drawings and specifications.
  - 3.5. Access to installation area is assessed for adequacy and safety to allow for installation over the full surface of the work area.
  - 3.6. Provision for drainage is identified and confirmed with supervisor or hydraulic consultant as being appropriate for the installation.
  - 3.7. Existing flashings, new flashings and termination seals are prepared to job requirements and made ready for placement and fixing to job and manufacturer specifications.
  - 3.8. Waterproofing material, quantity and product type are confirmed as conforming to job specification, state of structure and job safety requirements, and MSDS directions.
  - 3.9. **Substrate** is prepared to a smooth and uniform finish with fillets and falls fitted in accordance with manufacturers' instructions and good building practices.
  - 3.10. Surface of **structure** to be waterproofed is prepared and primed ready for waterproofing application in accordance with job specification and to manufacturers' specification and recommendations.
4. Apply waterproofing.
- 4.1. Waterproofing system is applied to primed surface of structure to correct thickness and in accordance with manufacturers' job specification.
  - 4.2. Bond breaker/fillets are installed in accordance with manufacturer specifications.
  - 4.3. Waterproofing material and system are installed using methods and materials consistent with manufacturer specifications.
  - 4.4. Termination seals are installed using methods and materials consistent with manufacturer specifications.
  - 4.5. Completed waterproofing installation is checked for conformity to manufacturer specifications.
  - 4.6. Waterproofing system is water tested to confirm its

ELEMENT	PERFORMANCE CRITERIA
5. Clean up.	fitness for purpose. 4.7. Waterproofing materials and system are protected and drained using methods and materials consistent with manufacturers' specification and good building practice. 4.8. Final inspection of site is undertaken and sign-off and handover of work are carried out in accordance with workplace requirements. 5.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification. 5.2. Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices.

## 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:

- communication skills to:
  - follow instructions
  - read and interpret:
    - documentation from a variety of sources
    - drawings and specifications
  - recognise procedures
  - report faults
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - use language and concepts appropriate to cultural differences
  - use and interpret non-verbal communication, such as hand signals
  - written skills to record results of checks and tests and relevant work completion procedures
- evaluate own actions and make judgments about performance and necessary improvements

## REQUIRED SKILLS AND KNOWLEDGE

- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- organisational skills, including the ability to plan and set out work
- respond to change and contribute to workplace responsibilities, such as current work site environmental and sustainability frameworks and management systems
- 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:
  - use a range of mobile technology, such as two-way radio and mobile phones
  - voice and hand signals to access and understand site-specific instructions.

### Required knowledge

Required knowledge for this unit is:

- below ground level waterproofing materials, processes and techniques
- characteristics and applications of waterproofing materials and adhesives
- construction systems and waterproofing considerations
- general construction terminology
- job safety analysis (JSA) and safe work method statements
- MSDS
- materials storage and environmentally friendly waste management
- plans, drawings and specifications
- plant, tools and equipment types, characteristics, uses and limitations
- principles and considerations of water exclusion
- processes for the calculation of material requirements
- quality requirements
- termination, cross cavity and overflashing requirements
- testing procedures for waterproof membrane systems
- workplace and equipment safety requirements.

# Evidence Guide

## EVIDENCE GUIDE

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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 provide evidence of the ability to:

- locate, interpret and apply relevant information, standards and specifications
- comply with site safety plan and OHS legislation, regulations and codes of practice applicable to workplace operations
- comply with organisational policies and procedures including quality requirements
- safely and effectively operate and use tools, plant and equipment
- communicate and work effectively and safely with others
- as a minimum:
  - waterproof a concrete slab balcony in a cavity brick building with an integrated rendered brick planter box
  - waterproof a fibrous cement balcony in a cavity brick building where the structural floor levels have a step down of no less than 100mm from internal to external; the balcony is to cross fall to a gutter or drainage and detailing is to be provided through threshold cross-section, indicating how waterproofing would terminate at handrail posts (which are through bolted to the floor frame under the deck)
  - both tasks are to be undertaken ensuring:
    - correct identification of requirement and installation of the waterproofing
    - correct selection and use of appropriate



## EVIDENCE GUIDE

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	<p>processes, tools and equipment</p> <ul style="list-style-type: none"> <li>• completing all work to specification</li> <li>• correct termination and flashing detailing</li> <li>• appropriate membrane testing and application of protection techniques.</li> </ul>
<b>Context of and specific resources for assessment</b>	<p>This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.</p> <p>Assessment of essential underpinning knowledge will usually be conducted in an off-site context.</p> <p>Assessment is to comply with relevant regulatory or Australian standards' requirements.</p> <p>Resource implications for assessment include:</p> <ul style="list-style-type: none"> <li>• workplace location or simulated workplace</li> <li>• materials relevant to waterproofing external wet areas</li> <li>• hand and power tools, plant and equipment appropriate to waterproofing external wet areas</li> <li>• realistic activities covering the mandatory task requirements</li> <li>• specifications and work instructions.</li> </ul> <p>Assessment of this unit of competency may be in conjunction with assessment of other units commonly performed at the same time in normal job roles.</p> <p>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.</p>
<b>Method of assessment</b>	<p>Assessment methods must:</p> <ul style="list-style-type: none"> <li>• satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package</li> <li>• 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</li> </ul>

## EVIDENCE GUIDE

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- 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

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The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. **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.

## RANGE STATEMENT

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**Information** includes:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions, where specified
- MSDS
- memos
- regulatory and legislative requirements pertaining to waterproofing external wet areas
- relevant Australian standards
- safe work procedures relating to waterproofing external wet areas
- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

**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
- handling activities that may require the assistance of others or the use of manual or mechanical lifting devices where size, weight or other issues, such as a disability are a factor
- hazard control
- hazardous materials and substances, including cement and curing agents
- 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:
  - earth leakage boxes
  - lighting
  - power cables, including overhead service trays, cables and conduits
  - restricted access barriers

## RANGE STATEMENT

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- surrounding structures
- traffic control
- trip hazards
- work site visitors and the public
- working at heights
- working in confined spaces
- working in proximity to others
- use of firefighting equipment
- use of tools and equipment
- workplace environmental requirements and safety.

### *Tools and equipment:*

- include:
  - angle grinders
  - brooms
  - brushes
  - buckets
  - caulking gun
  - chisels, including cold chisels
  - cutting blades
  - electric drills and screwdrivers
  - electric hammers
  - extension leads
  - gas burners and torches
  - hammers
  - laser and water levels
  - measuring tapes and rules
  - mixer and mixing apparatus
  - moisture meter
  - rollers
  - scissors
  - spirit level
  - straight edge
  - torches
  - trowels
  - vacuum cleaner
  - wood float
- may include:
  - automatic levels

## RANGE STATEMENT

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- Quality requirements** include relevant regulations, including:
- excavating equipment
  - high pressure water equipment
  - pumps.
  - Australian standards
  - internal company quality policy and standards
  - manufacturer specifications
  - workplace operations and procedures.
- Materials** for below ground application may be:
- liquid applied, including:
    - acrylic
    - cementitious-based
    - injection
    - polyurethane
  - sheet, including:
    - bentonite composites
    - butanol
    - ethylene cop bitumen (ECB)
    - ethylene propylene diene monomer rubber (EPDM)
    - polyvinyl chloride (PVC)
  - waterproofing materials, including:
    - adhesives
    - drainage cell
    - geotech fabric
    - protection board
    - substrate primer.
- Environmental requirements** include:
- clean-up management
  - dust and noise
  - vibration
  - waste management.
- Identification** includes:
- preparation of the substrate and the waterproofing material
  - application to an external wet area
  - process, including testing, drainage and protection of the membrane system and flashings.
- Waterproofing systems** include:
- cement-based waterproofing systems.
  - hot mix bituminous felt material membranes
  - liquid sealants or sealant devices
  - sheet and sprayed material membranes.

## RANGE STATEMENT

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- Considerations in *water exclusion* include:
- capillary action
  - causes of water penetration, including:
    - leakage through wall and floor finishes
    - penetration at joints and junctions
    - movement from shrinkage
    - accumulated drainage
    - failure of or damage to waterproofing system
  - damp proof courses and flashings
  - corners and terminations
  - curing times of compounds and their applications
  - direction of fall of substrate or decorative finish
  - hydrostatic pressure
  - impact of environmental conditions
  - joining
  - perimeter treatment, including:
    - pressure seals
    - cross cavity
    - over flashing
    - thermal shrinkage (expansion and contraction)
  - shelf life of waterproofing products
  - surface applications and protection requirements
  - use of bond-breakers
  - use of sealants
  - waste allowances.
- External *wet area* applications include:
- awnings
  - balconies
  - external vertical walls
  - planter boxes
  - roofs.
- Substrates* include:
- aerated autoclaved concrete materials:
    - Hebel
    - Thermolite
  - blockwork
  - brickwork
  - cement render

## RANGE STATEMENT

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- Structural* considerations include:
- ferrous and non-ferrous piping
  - fibrous cement sheeting
  - pre-cast concrete
  - PVC
  - reinforced in situ concrete
  - timber and timber-based products
  - wet area plasterboard.
  - design principles
  - drainage requirements
  - hydrostatic pressures
  - structural movement
  - substrate type and condition
  - environmental factors, including:
    - allowing water flow
    - slope, fall and grade of surfaces
    - water run-off and impact on adjoining property
    - waterproofing protection.

## Unit Sector(s)

Unit sector                      Construction

## Co-requisite units

Co-requisite units              Nil

## **Functional area**

**Functional area**