



Australian Government

Department of Education, Employment and Workplace Relations

CPCCWP3004A Apply waterproofing remedial processes

Release: 1

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Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to apply remedial waterproofing processes to external and below ground level wet areas, using injection epoxy, cement crystallisation or hydrostatic coating methods.

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 remedial processes 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

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.	<p>1.1. Work instructions and operational details are obtained using relevant <i>information</i>, confirmed and applied for <i>planning and preparation</i> purposes.</p> <p>1.2. <i>Safety (OHS)</i> 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. <i>Tools and equipment</i> 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 <i>quality requirements</i>.</p> <p>1.6. <i>Materials</i> appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use.</p> <p>1.7. <i>Environmental requirements</i> 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 <i>identified</i> from a technical report or diagnosed damp fault area and inspected for <i>defects</i> and soundness in accordance with job and manufacturer specifications.</p> <p>2.2. Area of structure for <i>waterproofing surface application</i> is inspected for defects and soundness in accordance with job and manufacturer specifications.</p> <p>2.3. Appropriate <i>remedial waterproofing systems</i> and products are identified, analysed and selected 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 specification and compatibility with surface material, preparation and waterproofing installation technique.</p> <p>2.5. Type of waterproofing material is identified in accordance with type of <i>substrate</i>, job specification, state of structure and job safety requirements with MSDS directions.</p>
3. Prepare for	3.1. Site to be repaired is confirmed to be in accordance

ELEMENT	PERFORMANCE CRITERIA
waterproofing process.	with drawings, specifications and manufacturers' specification. 3.2. Construction/installation site is set out to specified location, structure and dimensions in accordance with drawings and specifications.
4. Apply waterproofing using injection.	4.1. Injection hole set-out spacings and depth are determined and measured in accordance with manufacturer recommendations. 4.2. Materials are prepared for injection method application in accordance with manufacturer recommendations. 4.3. Injection equipment is prepared and set up for injection process in accordance with manufacturer recommendations. 4.4. Injection system is tested and flushed in accordance with manufacturer specifications. 4.5. Damp course is made water resistant and capped using injection method in accordance with manufacturer recommendations and to specifications.
5. Apply waterproofing using hydrostatic barrier coatings.	5.1. Area to be repaired is located from job instructions, drawings and specifications. 5.2. Materials are prepared for remedial coating method application in accordance with manufacturer recommendations. 5.3. Application equipment is prepared and set up for application process in accordance with manufacturer recommendations. 5.4. Injection system is tested and flushed in accordance with manufacturer specifications. 5.5. System is connected to tubing caps and damp course is made water resistant and capped using injection method in accordance with manufacturer recommendations and to specifications.
6. Clean up	6.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification. 6.2. 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
- 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:

- characteristics and applications of remedial waterproofing materials
- construction systems and waterproofing considerations
- general construction terminology
- job safety analysis (JSA) and safe work method statements
- materials storage and environmentally friendly waste management

REQUIRED SKILLS AND KNOWLEDGE

- MSDS
- 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
- remedial waterproofing materials, processes and testing techniques
- 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 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:
 - repair a crack in a concrete basement wall or a suspended car park slab, identifying remedial waterproofing method to be used, determining the type of material to be used and the repair requirement (e.g. spacing of injection ports/packers if using an injection method), and testing the application
 - inject a chemical damp course into a solid 230 brick wall/party wall and a cavity brick wall, plugging each procedure with epoxy plug, ensuring:
 - correct identification of requirement and installation of the waterproofing
 - correct selection and use of appropriate processes, tools and equipment
 - completing all work to specification.

Context of and specific resources

This competency is to be assessed using standard and

EVIDENCE GUIDE

for assessment

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:

- workplace location or simulated workplace
- materials relevant to remedial waterproofing processes
- hand and power tools, plant and equipment appropriate to remedial waterproofing processes
- realistic activities covering the mandatory task requirements
- specifications and work instructions.

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.

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

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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 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
- MSDS
- memos
- regulatory and legislative requirements pertaining to remedial waterproofing processes

RANGE STATEMENT

Planning and preparation

include:

- relevant Australian standards
- safe work procedures relating to remedial waterproofing processes
- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.
- 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
 - 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

RANGE STATEMENT

- Tools and equipment*** include:
- use of tools and equipment
 - workplace environmental requirements and safety.
 - angle grinders
 - chisels
 - electric drills and screwdrivers
 - hammers
 - impact drills
 - measuring tapes and rules
 - mixing equipment
 - pressure injection equipment, including:
 - cartridge applications
 - compressors
 - hoses
 - pumps
 - vacuum pumps
 - spirit levels
 - straight edges.
- Quality requirements*** include relevant regulations, including:
- Australian standards
 - internal company quality policy and standards
 - manufacturer specifications
 - workplace operations and procedures.
- Remedial injection ***materials*** include:
- cementitious products
 - epoxies
 - expanding polyurethane foam
 - polyurethane resin systems
 - silicon, silane and siloxane products
 - single and dual component resins.
- Environmental requirements*** include:
- clean-up management
 - dust and noise
 - vibration
 - waste management.
- Identification*** includes:
- preparation of the waterproofing material
 - application to a structural substrate.
- Defects*** that may be addressed using injection methods include:
- cracks in concrete walls and floors
 - damp or wet areas occurring in structures.
- Waterproofing surface applications*** include:
- floor surfaces
 - roof surfaces
 - standard wet areas

RANGE STATEMENT

Remedial waterproofing systems include:

- wall surfaces.
- barrier of silicon to stop rising damp
- concrete crystallisation or by injection
- concrete repair injection hydrostatic barrier coatings
- membranes
- saturants on an external wall (in case of flood).

Substrates include:

- aerated autoclaved concrete materials:
 - Hebel
 - Thermolite
- blockwork
- brickwork
- cement render
- ferrous and non-ferrous piping
- fibrous cement sheeting
- pre-cast concrete
- polyvinyl chloride (PVC)
- reinforced in situ concrete
- timber and timber-based products
- wet area plasterboard.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area