



Australian Government

CPCCWP5003 Design waterproofing to internal wet area

Release: 1

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Modification History

- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 9.0.
Newly created unit.

Application

This unit of competency specifies the skills and knowledge required for designing waterproofing systems to internal wet areas for buildings.

The unit applies to Class 1 and 10 Buildings, and Class 2 to 9 Buildings.

The unit includes planning and preparing to design waterproofing systems, analysing risk, designing waterproofing and evaluating the design of the waterproofing system solution.

The unit is suitable for builders, building designers, architects, building surveyors, waterproofing design specialists and consultants, engineers and other design specialists.

Licensing, legislative, regulatory or certification requirements may apply to this unit. Relevant work health and safety (WHS) state and territory regulatory authorities should be consulted to confirm jurisdictional requirements.

Pre-requisite Unit

Nil.

Unit Sector

Building and Construction

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

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|----------------------|--|
| 1. Plan and prepare. | 1.1 Identify internal wet areas and waterproofing requirements in accordance with National Construction Code (NCC) and from drawings and specifications. |
| | 1.2 Identify types of construction and their permeability to water and moisture, including concrete, masonry and framing. |

- 1.3 Determine the use of the wet area to be waterproofed and categorise as low, medium or high usage, including finishes in accordance with client's needs and use of wet area.
 - 1.4 Identify shower type to inform the design.
 - 1.5 Identify extent of membrane application to inform the design.
 - 1.6 Identify egress points to inform the design.
 - 1.7 Identify potential water ingress points for the construction.
 - 1.8 Determine the scope of project, conditions to be managed and waterproofing requirements to be achieved.
 - 1.9 Determine outfalls to suit water inlet and use of area.
2. Carry out risk analysis.
 - 2.1 Assess risk of water bearing to full extent of application and the effects of charged dynamic water movement in high usage conditions.
 - 2.2 Assess risks of defects in the waterproofing systems.
 - 2.3 Assess consequence of water and moisture ingress into space outside of the wet area.
 - 2.4 Assess and manage interstitial condensation within building elements as part of design.
 - 2.5 Determine effects of water and moisture on building elements.
 - 2.6 Determine feasibility of repair and maintenance of the waterproofing system.
 - 2.7 Identify site environmental conditions according to approved plans, including surface and sub-surface drainage.
3. Carry out waterproofing design.
 - 3.1 Confirm type of wet area for use and confirm shower type and components.
 - 3.2 Confirm other fittings and fixtures in internal wet area,

- including bath type and position, vanity type and position, toilet/bidet type and position.
- 3.3 Identify internal wet area waterproofing systems available to suit the design that are appropriate for the conditions.
 - 3.4 Develop design requirements for level of risk to moisture and water exposure in consultation with stakeholders.
 - 3.5 Provide a scope for the installation of the internal wet area waterproofing system, including substrate considerations and compatibility with finishes, in accordance with specifications.
 - 3.6 Provide quality assurance inspection protocols for internal wet area waterproofing system installation, including substrate assessment for suitability, compliance of membrane installation with manufacturers' specifications, completion inspection processes, and repair and maintenance plan.
4. Evaluate waterproofing design.
- 4.1 Assess effectiveness of internal wet area waterproofing systems design for suitability with site conditions and consequential effect where water bears at the maximum designed level, defects are present in the waterproofing system and defects impact the usage of adjoining areas.
 - 4.2 Review repair and maintenance plan of internal wet area waterproofing system.
 - 4.3 Record and report on compliant internal wet area waterproofing design solutions to stakeholders in accordance with service conditions and manufacturers' specifications, Australian Standards, and NCC performance requirements.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

No equivalent unit.

Links

Companion volumes to this training package are available at the VETNet website -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCWP5003 Design waterproofing to internal wet area

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Performance Evidence

A person demonstrating competency in this unit must satisfy the requirements of the elements, performance criteria and foundation skills of this unit, in addition to the specific performance and knowledge evidence described below.

Candidates must:

- develop two (2) waterproofing designs for internal wet areas.

In doing so, the candidate must:

- develop one (1) design for wet areas and change rooms, including open unenclosed group showers with multiple wastes and disabled access which must include:
 - a cross-section design of the complete system, including strata layers, provision of falls, water stop details, extent of membrane application and compatible finishes for intended use
- develop one (1) design for a high risk and high usage wet area selected from one of the following:
 - douche room with handheld rose
 - steam room
 - birthing suite with a birthing bath and access steps
 - bathroom with type 2 open unenclosed shower, with window in shower area, free standing bath, wall mount vanity and falls to full floor areasand must include:
 - a cross-section design of the complete system, including strata layers, provision of falls, water stop details, extent of membrane application, water inlet and outfalls and compatible finishes for intended use
- confirm screen/barrier, water inlet positions, number and position of floor wastes, floor water stop positions and vertical water stop positions
- provide evidence of compliance with principal design requirement, stakeholder needs, National Construction Code (NCC) performance requirements, Australian Standards, work health and safety (WHS), environmental requirements, manufacturer's specifications, and drawings and specifications.

The evidence of compliance report must detail:

- class of building
- type of construction
- category of wet area
- category of shower
- water inlet and outfalls
- overflows effects to area affected by leaks adjoining and below the wet area
- compatibility of materials specified, including finishes
- provide a risk assessment report for the two (2) required designs detailing the:
 - waterproofing system solution for the intended service use and site condition
 - management of potential defects in the waterproofing system
 - consequences of water entering the relevant space
 - feasibility of repair of the waterproofing system.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- key principles of surface water movement and sub-surface water movement, drainage and capillarity
- role for waterproofing, including:
 - retention within a wet area
 - exclusion from non-water-resistant materials
 - design for surface conditions
- various types of construction and their permeability to water and moisture, including:
 - concrete
 - masonry
 - framed
- methods of waterproofing to internal wet areas suited to type of construction
- key design philosophies for internal wet area waterproofing, including:
 - deformation, stress/strain, especially flexural, compressive and tensile stresses
 - incorporation of acoustic systems
 - energy efficiency, including:
 - ventilation requirements in buildings
 - incorporation of heating elements such as under-floor heating
- internal wet area waterproofing systems available and knowledge of their properties for system selection for the conditions, including:
 - bonded sheet membranes
 - liquid applied membranes
- building elements and integration, including:
 - product properties and compatibility with building elements
 - installation method and practices

- stages of installation and inspection benchmarks
- waterproofing systems design and relationship with building design
- risk assessment of internal wet areas, including:
 - assessment of service conditions
 - risk and management of interstitial condensation within building elements as part of design
 - consequence of defects affecting the use of the intended area
 - feasibility of repair of the waterproofing system
- stakeholders:
 - architect
 - engineer
 - builder
 - building owner
 - consumer
 - design team
 - construction team
 - certifier
 - building surveyor
 - regulators
- properties of waterproofing systems available:
 - substrate assessment and preparation
 - combining components to form a system
 - component compatibility in a combined system
 - component properties for site conditions
- component installation practices
- system analysis for effectiveness
- assessment of complex water and moisture ingress situations:
 - moisture and water remedial system relationships
 - combination of systems to form multiple barriers
- application rates of specified waterproofing systems and installation procedures
- methods for calculating the quantities of product required to complete the waterproofing works specified
- the advantages and disadvantages of the different systems, including:
 - combinations of different systems and their limitations
 - maintenance and aftercare requirements
 - the form and feasibility of remedial work
- types of finishing systems, including decorative finishes
- implications of dampness affecting timber in buildings, including:
 - identification of timbers that have been affected by water, decay fungi or wood consuming insects

- providing suitable advice on the need for specialist assessment.

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

Assessment of performance must be undertaken in the workplace or simulated workplace environment. A simulated workplace is one that fully replicates the resources, environment and any time and productivity pressures that exist in the actual workplace, and which meets industry standards for safety and environmental practices.

Candidates must have access to:

- relevant task or design specifications
- Australian Standards, relevant building legislation, industry codes, NCC and requirements of workplace policies and procedures as required by Commonwealth, state and territory regulators
- relevant environmental requirements.

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