

<b>UNIT CODE</b>	CPCCWP5004
<b>UNIT TITLE</b>	Determine origin of water and moisture ingress into buildings
<b>APPLICATION</b>	<p>This unit of competency specifies the skills and knowledge required to determine the origin of water and moisture ingress into buildings.</p> <p>The unit applies to Class 1 and 10 Buildings, and Class 2 to 9 Buildings.</p> <p>The unit covers gathering information, carrying out the investigation, carrying out the analysis and reporting on findings and conclusions.</p> <p>The unit is suitable for builders, building supervisors building surveyors, building designers, architects, waterproofing design specialists, waterproofing supervisors, and consultants, engineers or other design specialists.</p> <p>Licensing, legislative, regulatory or certification requirements may apply to this unit. Relevant work health and safety state and territory regulatory authorities should be consulted to confirm jurisdictional requirements.</p>
<b>PREREQUISITE UNIT</b>	CPCWHS1001 Prepare to work safely in the construction industry
<b>COMPETENCY FIELD</b>	Building and Construction
<b>UNIT SECTOR</b>	Building and Construction

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of the unit.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Gather information.	<p>1.1 Identify the area(s) of water ingress in consultation with stakeholder(s).</p> <p>1.2 Gather relevant drawings, historical reports, design or structural specifications and certification where available.</p> <p>1.3 Identify signs and symptoms of the water or moisture ingress.</p> <p>1.4 Confirm scope of project based on information and evidence.</p>
2. Carry out investigation.	<p>2.1 Identify potential water and moisture ingress points into buildings.</p> <p>2.2 Determine if non-destructive or destructive investigation is required in consultation with stakeholders.</p> <p>2.3 Select tools and technologies to carry out inspections and testing procedures in accordance with site conditions.</p> <p>2.4 Carry out inspection and testing using valid testing methods in accordance with testing protocols and against controls and references.</p> <p>2.5 Record findings of investigation and testing protocols.</p> <p>2.6 Compare findings to information and evidence of water and moisture ingress areas and carry out further investigations where required.</p>
3. Carry out analysis.	<p>3.1 Collate evidence from investigations and testing in accordance with protocols.</p> <p>3.2 Analyse causes of water and moisture ingress as determined by investigations and collected evidence.</p> <p>3.3 Determine if external factors have influenced the findings.</p> <p>3.4 Carry out re-testing to confirm influence of external factors where required.</p> <p>3.5 Record results of analysis for stakeholder(s) in accordance with evidence to inform report.</p>
4. Report findings and conclusions.	4.1 Collate, sort and prioritise information according to the scope requirements within a report.

	<p>4.2 Support diagnostic report findings with relevant references to regulatory requirements, Australian Standards, design and manufacturers' requirements in accordance with stakeholder brief.</p> <p>4.3 Determine requirements for further support testing, follow up investigations and monitoring of area in accordance with inspection and testing protocols.</p> <p>4.4 Communicate relevant and supported conclusions according to stakeholder expectations, context and requirements in accordance with report brief.</p> <p>4.5 Document the report in accordance with report brief.</p>
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<p><b>FOUNDATION SKILLS</b></p> <p>Foundation skills essential to performance are explicit in the performance criteria of this unit of competency</p>	
<b>UNIT MAPPING INFORMATION</b>	No equivalent unit

<b>TITLE</b>	Assessment Requirements for CPCCWP5004 Determine origin of water and moisture ingress into buildings
<b>PERFORMANCE EVIDENCE</b>	<p>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.</p> <p>Candidates must conduct three (3) water and moisture ingress investigations and provide diagnostic reports for three (3) different areas, chosen from list provided:</p> <ul style="list-style-type: none"> <li>• one investigation and report from an internal wet area which includes a shower</li> <li>• one investigation and report of water ingress through: <ul style="list-style-type: none"> <li>○ an external wall, adjacent to a waterproofed balcony or deck; OR</li> <li>○ water ingress below a concrete roof terrace</li> </ul> </li> <li>• one investigation and report of water ingress below a waterproofed, lightweight, flat roof structure or balcony</li> <li>• one investigation and report of water ingress to habitable space below ground.</li> </ul> <p>In doing so, the diagnosis and evidence reports must be written in such a way as to inform a remedial waterproofing design and scope of works and must include:</p> <ul style="list-style-type: none"> <li>• all relevant background information</li> <li>• investigation methodology</li> <li>• record of findings</li> <li>• identification of the cause(s) of the water and moisture ingress</li> <li>• review of evidence against site factors and influences</li> <li>• assessment of waterproofing design and application against compliance with NCC performance requirements, Australian Standards, manufacturers' recommendations, building design and use of area.</li> </ul>
<b>KNOWLEDGE EVIDENCE</b>	<p>To be competent in this unit, a candidate must demonstrate knowledge of:</p> <ul style="list-style-type: none"> <li>• application of scientific methodology</li> <li>• diagnostic procedures – non-destructive and destructive, including: <ul style="list-style-type: none"> <li>○ site investigation</li> <li>○ inspecting protocols</li> <li>○ analysing evidence</li> <li>○ suitable technologies: <ul style="list-style-type: none"> <li>○ thermal</li> <li>○ microwave</li> <li>○ ground penetrating radar (GPR)</li> <li>○ dye water testing</li> </ul> </li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ impedance and capacitance technologies</li> <li>○ electronic field vector mapping</li> <li>○ high and low voltage holiday testing</li> <li>• setting control parameters and testing methods, including: <ul style="list-style-type: none"> <li>○ selection of appropriate test method</li> <li>○ calibration of testing equipment</li> <li>○ effects on testing equipment by site conditions and testing procedures</li> </ul> </li> <li>• contributing site factors and influence, including: <ul style="list-style-type: none"> <li>○ water ingress sources</li> <li>○ surface water pathways</li> <li>○ sub-surface water pathways</li> <li>○ properties of water and moisture movement</li> <li>○ gradient and falls</li> <li>○ hydrostatic pressure</li> <li>○ effects of finishes on surface tension</li> <li>○ capillarity</li> <li>○ size and effectiveness of outfalls</li> <li>○ penetrations and intrusion points</li> <li>○ condensation</li> <li>○ ventilation</li> </ul> </li> <li>• building elements and integration, including: <ul style="list-style-type: none"> <li>○ principles of water shedding</li> <li>○ relationship between structural components</li> <li>○ building movement</li> <li>○ wind loadings</li> <li>○ construction materials and their properties</li> </ul> </li> <li>• National Construction Code (NCC) performance requirements relevant to areas tested, including: <ul style="list-style-type: none"> <li>○ waterproofing</li> <li>○ damp proofing</li> <li>○ condensation management</li> </ul> </li> <li>• NCC evidence of suitability in relation to waterproofing system performance, including: <ul style="list-style-type: none"> <li>○ independent test reports</li> <li>○ CodeMark Australia</li> <li>○ other independent testing organisations</li> </ul> </li> <li>• Australian Standards and design requirements relevant to areas inspected</li> <li>• waterproofing system manufacturers' requirements, including: <ul style="list-style-type: none"> <li>○ data sheets and specifications</li> <li>○ installation method statements</li> <li>○ performance of system according to service conditions</li> <li>○ suitability of materials as fit for purpose</li> <li>○ compatibility of components within the system</li> </ul> </li> <li>• stakeholders:</li> </ul>
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	<ul style="list-style-type: none"> <li>○ architect</li> <li>○ engineer</li> <li>○ builder</li> <li>○ building owner</li> <li>○ consumer</li> <li>○ design team</li> <li>○ construction team</li> <li>○ certifier</li> <li>○ building surveyor</li> <li>○ regulators</li> </ul> <ul style="list-style-type: none"> <li>● report content and communication of findings, including: <ul style="list-style-type: none"> <li>○ types of diagnostic reports and structures</li> <li>○ tables and diagrams</li> <li>○ photographic evidence</li> <li>○ interpreting test results</li> <li>○ references to Australian Standards and designs</li> <li>○ verbal communication strategies</li> <li>○ different audiences</li> <li>○ presenting evidence.</li> </ul> </li> </ul>
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<b>ASSESSMENT CONDITIONS</b>	<p>Assessment of performance must be undertaken in the workplace or in a simulated workplace environment. Where the assessment occurs in a simulated workplace environment, the appropriate simulation(s) must reflect realistic workplace situations.</p> <p>Candidates must have access to:</p> <ul style="list-style-type: none"> <li>▪ relevant task</li> <li>▪ Australian Standards, relevant building legislation, industry codes, National Construction Code and requirements of workplace policies and procedures as required by Commonwealth, state and territory regulators</li> <li>▪ relevant environmental requirements.</li> </ul>
<b>LINKS</b>	<p>Link to Companion Volume Implementation Guide will be inserted here.</p>