



Australian Government

CPCCB6013 Evaluate concrete performance for multi-storey buildings

Release: 3

CPCBC6013 Evaluate concrete performance for multi-storey buildings

Modification History

- Release 3 Updated reference to general construction induction training program.
- Release 2 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.1.
Minor typographical error corrected in Foundation Skills.
- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
Supersedes and is equivalent to CPCBC6013A Evaluate materials for multi-storey buildings. Updated to meet the Standards for Training Packages 2012.

Application

This unit of competency specifies the skills and knowledge required to evaluate the performance of concrete for use in the construction of multi-storey buildings. It includes evaluating the properties and performance of concrete, impacts on concrete integrity and analysing the ability of concrete to withstand fire.

This unit of competency applies to builders, project managers and related construction industry professionals responsible for evaluating and considering a range of factors vital to ensuring the integrity of concrete used in the construction of commercial and residential multi-storey buildings.

This unit of competency is suitable for those who have a broad range of cognitive, technical and communication skills to identify, analyse, evaluate and synthesise information from a range of sources.

Completion of the general construction induction training program specified by the model Code of Practice for Construction Work is required for any person who is to carry out construction work. Achievement of *CPCWHS1001 Prepare to work safely in the construction industry* meets this requirement.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

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.
1 Identify and assess the application of concrete materials.	1.1 Identify the application of concrete from project plans and confirm details and specifications for different building and construction types. 1.2 Determine distribution methods of concrete following analysis of site access. 1.3 Manage correct distribution and placement methods of concrete. 1.4 Identify reasons and effects of compaction on both plastic and hardened concrete. 1.5 Compare immersion, surface and form vibration. 1.6 Maintain accurate records relating to the application of concrete. 1.7 Identify and record types of curing methods and detrimental effects on concrete of poor or no curing.
2 Assess the nature and performance of concrete.	2.1 Identify and record plastic and hardened concrete properties for building types. 2.2 List sources of aggregate and detail the properties of each. 2.3 Describe and record effects of impurities in concrete. 2.4 Conduct testing of concrete in accordance with relevant Australian Standards.
3 Evaluate methods undertaken to repair concrete.	3.1 Identify live and dormant cracks. 3.2 Describe and record causes of cracked concrete, concrete cancer and repair methods.

	3.3	Diagnose and record faults in concrete following organisational requirements.
4 Evaluate effects of fire and heat on concrete.	4.1	Test reinforced concrete for effects of fire and heat.
	4.2	Determine and apply methods of fire protection for concrete elements.
	4.3	Establish that fire resistance and stability meet the Performance Requirements of the National Construction Code (NCC).
5 Monitor environmental impacts of concrete.	5.1	Confirm compliance of concrete used in buildings with the organisation's sustainability policies.
	5.2	Monitor and apply new technologies in concrete in the construction of multi-storey buildings.
	5.3	Apply performance requirements of concrete in fire resistance construction in accordance with the NCC.
	5.4	Identify cost-effectiveness of using recycled materials in accordance with acceptable standard construction practices.

Foundation Skills

As well as the foundation skills explicit in the performance criteria of this unit, candidates require:

- writing skills to:
 - record information and maintain records
 - communicate non-compliant products
- technology skills to:
 - use digital tools and devices to communicate and collaborate effectively with others
 - use equipment and programs to access, extract information and complex data to analyse for strategic purposes.

Unit Mapping Information

Supersedes and is equivalent to CPCBC6013A Evaluate materials for multi-storey buildings.

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 CPCBC6013 Evaluate concrete performance for multi-storey buildings

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Performance Evidence

To demonstrate competency, a candidate must meet the elements and performance criteria of this unit by evaluating the nature and performance of concrete materials and products that form the structural components of a complex multi-storey building project.

In doing this, the candidate must:

- determine compliance with the National Construction Code (NCC)
- ensure the Performance Requirements within the NCC are satisfied.

Knowledge Evidence

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

- working drawings, details and specifications
- the NCC:
 - Performance Requirements
 - Performance Solutions
 - Deemed-to-Satisfy Solutions
 - Assessment Methods
- government building and construction legislation and regulations
- characteristics, applications and limitations of concrete:
 - alternative uses
 - cost effectiveness
 - hazard potential and environmental safety

- installation requirements
- need for use of cranes and hoists
- recycling capacity
- rubbish removal demands
- transport problems and restrictions
- applications of structural principles in buildings
- building types:
 - bridge and pier construction
 - buildings with concrete skeleton and slabs
 - concrete column or wall 10 metres high
 - slab on ground floor
- design principles and behaviour of structural members undergoing stress, strain, compression, bending or combined actions
- work health and safety (WHS) Acts and regulations and workplace safety requirements
- type, nature and performance of concrete:
 - properties and uses of cement
 - reinforced concrete:
 - methods of pre-stressed concrete
 - principles of reinforced concrete using steel, wire, fibres, etc
 - types of curing methods:
 - accelerated curing
 - continuously wetting concrete
 - impermeable membrane curing
- records, including details of:
 - causes of surface defects during concrete placement
 - compaction of concrete
 - finishing processes and surface treatments to slab concrete.

Assessment Conditions

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

Assessment can be undertaken in the workplace or in a simulated workplace environment.

A simulated environment is one that realistically replicates workplace conditions, materials and equipment, interactions with others and workplace irregularities, and which meets industry standards for safety and environmental practices.

Candidates must have access to:

- project working drawings, details and specifications
- government building and construction legislation
- current version of *AS 3600 Concrete structures* series of concrete standards

- the NCC
- concrete test results
- business equipment and technology to record sampling and testing data and to facilitate evaluation of concrete products for multi-storey buildings.

Links

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