



Australian Government

CPCCBS6002 Research and evaluate construction methods and materials for commercial buildings to three storeys

Release: 2

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Modification History

Release	Comments
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- | | |
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| 1.1 | Replaces superseded equivalent CPCCBS6002 Research and evaluate construction methods and materials for commercial buildings to three storeys.

This version first released with CPC Construction, Plumbing and Services Training Package Version 1.1. |
| 1 | New unit of competency.

This version first released with CPC Construction, Plumbing and Services Training Package Version 1. |

Application

This unit of competency specifies the outcomes required to develop an understanding of traditional, new and emerging construction methods and materials, including systems and components for services, for those buildings included in classes 2 to 9 as defined in the Building Code of Australia (BCA) and up to three storeys. It applies to researching and analysing construction industry information, including research papers, engineering reports, material specifications and performance data, including fire performance of construction materials; and following information management procedures to ensure that construction methods and materials are evaluated using current and accurate information.

This unit supports the work of building surveyors who provide advisory code-consulting services or authorised statutory services relating to planning or building permit application assessment or building audit and inspection services for class 2 to 9 commercial buildings.

Licensing, legislative, regulatory or certification requirements apply to this unit in some States. Relevant state and territory regulatory authorities should be consulted to confirm those requirements.

Pre-requisite Unit

Nil

Competency Field

Building surveying

Unit Sector

Construction

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.

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|--|--|
| 1. Analyse construction methods for commercial buildings included in classes 2 to 9. | <ul style="list-style-type: none">1.1. Sources of information relating to traditional, new and emerging construction methods for classes 2 to 9 buildings are identified and evaluated, and information is gathered, stored and updated according to workplace procedures.1.2. Information relating to methods for <i>site investigation and preparation</i> is analysed and recorded.1.3. Information relating to applying different construction methods to <i>foundations and footings</i> is analysed and recorded.1.4. Information relating to applying different construction methods to <i>structural and supporting systems</i> is analysed and recorded.1.5. Information relating to applying different construction methods to <i>enclosing systems</i> is analysed and recorded.1.6. Information relating to applying different construction methods to the installation of <i>services</i> is analysed and recorded.1.7. Construction process and trade sequencing for different forms of buildings are analysed and recorded.1.8. Construction methods are evaluated in relation to different geographical locations and climatic conditions, and strengths and weaknesses for particular contexts are noted. |
| 2. Analyse construction materials for | <ul style="list-style-type: none">2.1. Information relating to applying different construction materials to foundations and footings is analysed and recorded. |

commercial buildings included in classes 2 to 9.	2.2.	Information relating to applying different construction materials to structural and supporting systems is analysed and recorded.
	2.3.	Information relating to applying different construction materials to enclosing systems is analysed and recorded.
	2.4.	Construction materials are evaluated in relation to different geographical locations and climatic conditions, and strengths and weaknesses for particular contexts are noted.
	2.5.	Construction materials are evaluated for fire resistance and performance for particular building occupancies and usage.
3. Analyse information relating to service provision for commercial buildings included in classes 2 to 9.	3.1.	Information relating to options for energy supply and infrastructure is analysed and recorded.
	3.2.	Information relating to options for heating and cooling systems is analysed and recorded.
	3.3.	Information relating to options for fire protection is analysed and recorded.
	3.4.	Information relating to options for gas and hydraulic service supply and infrastructure is analysed and recorded.
	3.5.	Service systems and components are evaluated in relation to different user groups, geographical locations and climatic conditions, and strengths and weaknesses for particular contexts are noted.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill

Performance feature

- Learning skills to:
- critically evaluate the validity and reliability of information relating to construction methods and materials based on the source and author of the information, the research methodology used to

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature
	- develop the data, and the currency of information - independently source, access and navigate construction industry information, including the National Construction Code (NCC), to find information relating to construction methods, materials and service provision for buildings included in classes 2 to 9 - use systems for ordering, classifying and storing reference materials and research information for easy retrieval.
Numeracy skills to:	- extract and analyse a broad range of mathematical information from laboratory test reports or research papers relating to the performance and characteristics of construction materials, including: - fractions, decimals, percentages, ratio, rates and proportions - statistical data in complex tables, spreadsheets and graphs - interpret 2-D and 3-D shapes, including: - compound shapes representing the structure of construction materials - examples of how materials are used for different construction methods - use mathematical language relating to properties of materials when discussing findings from research, including fire ratings and load bearing capacities.
Oral communication skills to:	- ask technical questions to clarify information concerning the scope and limitations of different construction methods - consult with manufacturers and make enquiries to extend or clarify research into construction materials and service provision.
Reading skills to:	- locate and interpret complex information about construction methods and material characteristics and properties - understand specialised NCC terminology.
Writing skills to:	- record research findings and add to research over time - record data about construction materials in text, table and diagram format.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Site investigation and preparation must include:

- principles and practices of site establishment, including:
 - underpinning
 - de-watering
 - ground stabilisation
 - demolition procedures
- soil investigation, assessment and clarification.

Foundations and footings must include at least four of the following:

- anchors, including grouted, mechanical or rock
- basements
- damp proof courses
- footing systems
- grillage
- ground stabilisation
- membranes
- pest control
- retaining walls
- shoring
- systems for earthquake zones
- tanking
- underpinning
- water exclusion.

Structural and supporting systems must include at least four of the following main areas, including any associated subsets:

- forces
- loads
- openings
- spatial relationships
- stresses and strains applied to:
 - arches
 - beams
 - braces
 - columns
 - concrete floor slabs
 - load-bearing walls
 - masonry ties and anchors

- roof frames, including trusses
- structural footings
- structural materials and systems for:
 - floors
 - roofs
 - sub-floors
 - walls
- systems for:
 - cyclonic areas
 - earthquake zones.

Enclosing systems

must include at least four of the following materials, systems and fixings for:

- claddings and linings
- coatings
- finishes
- flashings
- linings, including acoustic system installations and fire-rated systems
- partitioning
- sarking and insulations
- wet areas.

Services must include at least four of the following:

- communication lines, telephones and ICT networks
- energy supply: gas, electricity and renewable sources
- escalators and lifts
- fire detection and protection
- heating, ventilation and air conditioning (HVAC)
- lightning protection
- natural lighting and artificial lighting, and building facades
- security and alarm systems
- ventilation and refrigeration
- water, drainage and plumbing.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for CPCCBS6002 Research and evaluate construction methods and materials for commercial buildings to three storeys

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Performance Evidence

A person demonstrating competency in this unit must satisfy all of the elements, performance criteria and foundation skills of this unit. The person must develop and maintain current research findings to support building surveying services for three different projects, each involving a different class of commercial building (classes 2 to 9 as defined in the Building Code of Australia [BCA]), where:

- one project must incorporate classes 2, 5, 6 and 7a
- one project must incorporate classes 3 or 9c
- one project must incorporate classes 7b and 8.

In doing the above, the person must produce a research report containing research findings, recommendations and supporting evidence for each of the above building projects, based on an evaluation of:

- characteristics and applications of a range of materials suitable for the structural elements and building envelope, including the fire resistance of materials appropriate to the class of building
- different construction methods and systems applicable to structural elements and building envelope
- components and systems for services that consider:
 - relevant compliance requirements
 - installation methods.

The person must also be able to demonstrate a process for:

- seeking feedback on and distributing findings from each of the three research reports
- maintaining the currency of research findings in each report.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- characteristics, including fire resistance and applications of materials suitable for structural elements and building envelope
- compliance requirements relating to construction materials and methods for buildings included in classes 2 to 9 of the BCA, including:
 - Australian standards
 - National Construction Code (NCC) requirements
- construction methods and systems applicable to:
 - site preparation
 - structural elements
 - building envelope
- components and systems for services, including:
 - compliance requirements
 - installation methods
- sources of reliable information on traditional, new and emerging uses of construction materials and methods
- structural engineering principles sufficient to interpret and apply the requirements of the BCA.

Assessment Conditions

Suitable assessment of performance requires:

- equipment:
 - computer with internet access and business software currently in use in building surveying practices
- materials:
 - documentation for the three projects specified in the performance evidence
- specifications:
 - access to relevant and current building control legislation, regulations, codes and standards and state, territory or local authority planning policies.

Assessor requirements

Assessors must satisfy the assessor requirements in the *Standards for Registered Training Organisations* (RTOs) current at the time of assessment.

In addition, assessors must also demonstrate current membership of a relevant industry association and have current registration on the National Building Professionals Register in the Building Industry Control category (level 1) or be accredited under the Australian Institute of Building Surveyors (AIBS) National Accreditation Scheme at Building Surveyor level.

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