



Australian Government

CPCCBBC4020 Build thermally efficient and sustainable structures

Release: 3

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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.
Element 1.2 changed to allow for continuing compliance with NCC.
- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
Supersedes and is equivalent to CPCBC4020A Build thermally efficient and sustainable structures. Updated to meet the Standards for Training Packages 2012.

Application

This unit of competency specifies the skills and knowledge required to apply sound principles of thermal efficiency as part of the implementation of sustainable building and construction processes in response to the need to respond to growing consumer demand for sustainable buildings and environmentally friendly developments.

It applies to National Construction Code (NCC) classifications:

- Residential - Class 1 and 10 buildings, maximum two storeys
- Commercial - Class 2 to 9, Type C only constructions.

This unit of competency supports the needs of builders, site managers and forepersons, and estimators in the building and construction industry.

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.

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|--|---|
| 1 Apply legislative and planning requirements for thermal efficiency to the building process. | <div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">1.1</div><div>Identify current relevant state, territory and council requirements for building thermally efficient structures.</div></div> <div style="margin-top: 10px;"><div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">1.2</div><div>Identify factors that contribute to the construction of a star rated dwelling identified within the NCC and assess the impact of regional climate differences.</div></div><div style="margin-top: 10px;"><div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">1.3</div><div>Identify and negotiate client needs and expectations for the design and construction of thermally efficient structures.</div></div><div style="margin-top: 10px;"><div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">1.4</div><div>Gather expert design and other advice as part of the planning and construction process.</div></div><div style="margin-top: 10px;"><div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">1.5</div><div>Consult relevant Australian Standards to identify the implications for the conduct of the building project.</div></div></div></div></div></div> |
| 2 Review design solutions for effectiveness and compliance. | <div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">2.1</div><div>Identify impact of radiation, convection, conduction and evaporation on the thermal comfort of residents.</div></div> <div style="margin-top: 10px;"><div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">2.2</div><div>Evaluate orientation of the building, location and size of glazing, and use of thermal mass as design features for effectiveness and compliance with planning and other regulatory requirements.</div></div><div style="margin-top: 10px;"><div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">2.3</div><div>Evaluate, cost and communicate effective strategies for insulating the structure to the client.</div></div><div style="margin-top: 10px;"><div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">2.4</div><div>Assess building designs for their compliance with the energy efficiency requirements of the NCC.</div></div><div style="margin-top: 10px;"><div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">2.5</div><div>Consult designers and clients to ensure final construction plans are effective, efficient and compliant.</div></div></div></div></div></div> |
| 3 Manage the building process to ensure an effective outcome. | <div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">3.1</div><div>Establish effective communications between designers, architects and clients to ensure effective thermal performance is embedded from the design to construction phase.</div></div> <div style="margin-top: 10px;"><div style="display: flex; align-items: flex-start;"><div style="margin-right: 10px;">3.2</div><div>Confirm effective quality assurance processes are in place to evaluate and implement the building of a</div></div></div> |

five-star dwelling.

- 3.3 Assess and communicate to client, cost-effective strategies to achieve desired level of thermal performance.
- 3.4 Assess and negotiate life cycle costs of various construction approaches with the client.

Foundation Skills

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

- technology skills to:
 - use digital tools and devices to communicate and collaborate effectively with others
 - use equipment and programs to access and extract information and develop relevant documentation.

Unit Mapping Information

Supersedes and is equivalent to CPCBC4020A Build thermally efficient and sustainable structures

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 CPCBC4020 Build thermally efficient and sustainable structures

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Performance Evidence

To demonstrate competency, a candidate must meet the elements and performance criteria of this unit by effectively applying mechanical services principles and concepts to the construction of a thermally efficient and sustainable building structure.

In doing this, the candidate must:

- sourcing and analysing legislative and planning requirements for thermal efficiency in the building process
- calculating costs and savings of implementing alternative thermally efficient systems
- applying principles of thermal efficiency to planning of a building project
- producing work plans that reflect effective thermal efficiency.

Knowledge Evidence

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

- building and construction industry processes for building sustainability
- requirements for building thermally efficient structures:
 - appropriate use of thermal mass (noting impact of climatic conditions)
 - glazing size and orientation
 - insulation
 - orientation of building
 - use of relevant construction methods
- regional climate differences areas:

- cooling climates
- hot arid climates
- hot humid climates
- mixed climates
- relevant state or territory building and construction codes, standards and government regulations
- underlying mathematics related to the calculation of thermal efficiency
- workplace safety requirements.

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 be provided with:

- relevant government building and construction regulations
- current building and construction codes and standards
- the NCC
- construction plans, site plans and specifications
- policies and procedures
- environmental, sustainability and other quality documentation to undertake the performance criteria and evidence requirements
- digital technology devices, applications and software to source and document information.

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