

# CPCBC4020A Matrix Map

(Generated Wednesday, 12 Dec 2018, 01:44am)

## ELEMENTS AND PERFORMANCE CRITERIA

Element	Performance Criteria	Task / Question Map
1. Apply legislative and planning requirements for thermal efficiency to the building process.	1.1. Current relevant state, territory and council requirements for building thermally efficient structures are identified.	NCC and Climate Zones: Q1 Q2 Climate and House Design: Q1 Q2 Q3 Q4 Q5 Q6 Legislative and planning requirements for thermal efficiency to the building process: Q1 Q2 Q3 ACTIVITY: Investigating State Energy Efficiency Building Requirements: Q1
	1.2. Factors that contribute to the construction of a five-star rated dwelling identified within the Building Code of Australia (BCA) are identified and the impact of regional climate differences is assessed.	Energy and Greenhouse Gas Emissions: Q3 NCC and Climate Zones: Q1 Q2 Climate and House Design: Q1 Q2 Q3 Q4 Q5 Q6 Passive Cooling - Ventilation Design: Q1 Q2 Q3 Q4 Q5 Insulation for Energy Efficiency: Q1 Q2 Q3 Q4 Legislative and planning requirements for thermal efficiency to the building process: Q1 Q2 Q3
	1.3. Client needs and expectations for the design and construction of thermally efficient structures are identified and negotiated.	ACTIVITY: Communicating as part of building process: Q1 Q2 Q3
	1.4. Expert design and other advice is gathered as part of the planning and construction process.	Building Sustainability Rating tools: Q1 Q2 Q3
	1.5. Relevant Australian standards are consulted to identify the implications for the conduct of the building project.	Climate and House Design: Q4 Q5
2. Review design solutions for effectiveness and compliance.	2.1. Impact of radiation, convection, conduction and evaporation on the thermal comfort of residents is identified.	Occupant Thermal comfort: Q1 Q2 Q3 Q4 Q5 Q6

	2.2. Orientation of the building, location and size of glazing, and use of thermal mass as design features are evaluated for effectiveness and compliance with planning and other regulatory requirements.	Solar passive design II: Q1 Q2 Q3 Q4 Q5 Thermal Mass: Q1 Q2 Q3 Q4 Glazing and Thermal Performance: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 PROJECT: Create a Passive Solar Floor Plan: Q1 Q2 PROJECT: Identify Shading Solutions for Passive Solar Floor plan: Q1
	2.3. Effective strategy for insulating the structure is evaluated, costed and communicated to the client.	Insulation for Energy Efficiency: Q1 Q2 Q3 Q4 PROJECT: Create a Passive Solar Floor Plan: Q1 Q2 ACTIVITY: Communicating as part of building process: Q1 Q2 Q3 Cost effective energy efficiency measures: Q1 Q2
	2.4. Building designs are assessed for their compliance with the energy efficiency requirements of the BCA's five-star rating system.	Passive Cooling - Ventilation Design: Q1 Q2 Q3 Q4 Q5 PROJECT: Identify Shading Solutions for Passive Solar Floor plan: Q1
	2.5. Designers and clients are consulted to ensure final construction plans are effective, efficient and compliant.	ACTIVITY: Communicating as part of building process: Q1 Q2 Q3
3. Manage the building process to ensure an effective outcome.	3.1. Effective communications are established between designers, architects and clients to ensure effective thermal performance is embedded from the design to construction phase.	ACTIVITY: Communicating as part of building process: Q1 Q2
	3.2. Effective quality assurance processes are confirmed as in place to evaluate and implement the building of a five-star dwelling.	
	3.3. Cost effective strategies to achieve desired level of thermal performance are assessed and communicated to client.	PROJECT: Identify Shading Solutions for Passive Solar Floor plan: Q1 Cost effective energy efficiency measures: Q1 Q2
	3.4. Life cycle costs of various construction approaches are assessed and negotiated with the client.	Operational Energy: Q1 Q2 Q3

## REQUIRED SKILLS

Required Skill	Task / Question Map
Required skills for this unit are:	
<i>application of Australian standards and manufacturer specifications</i>	<i>Climate and House Design: Q3</i>
<i>application of BCA Part 3.12</i>	<i>NCC and Climate Zones: Q1 Q2</i>
communication skills to:	
<i>communicate information to client</i>	<i>ACTIVITY: Communicating as part of building process: Q1 Q2 Q3</i>
<i>consult designers</i>	<i>Sustainability in the Building Industry: Q1</i>
<i>enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand</i>	<i>ACTIVITY: Communicating as part of building process: Q1 Q2 Q3</i>
<i>identify and negotiate client requirements</i>	<i>ACTIVITY: Communicating as part of building process: Q1 Q2 Q3</i>
<i>read and interpret legislative and planning requirements</i>	<i>NCC and Climate Zones: Q1 Q2</i> <i>Climate and House Design: Q1 Q2 Q3 Q4 Q5 Q6</i> <i>ACTIVITY: Investigating State Energy Efficiency Building Requirements: Q1</i>
<i>seek advice</i>	<i>Life Cycle Analysis: Q4</i>
<i>use and interpret non-verbal communication</i>	<i>Solar passive design II: Q1 Q2 Q3 Q4 Q5</i> <i>PROJECT: Create a Passive Solar Floor Plan: Q1 Q2</i> <i>ACTIVITY: Communicating as part of building process: Q1 Q2</i>
<i>use language and concepts appropriate to cultural differences</i>	<i>ACTIVITY: Communicating as part of building process: Q1 Q2</i>
<i>evaluation of the thermal efficiency of building design solutions</i>	<i>Solar passive design II: Q1 Q2 Q3 Q4 Q5</i> <i>Climate and House Design: Q1 Q2 Q3 Q4 Q5 Q6</i> <i>Thermal Mass: Q1 Q2 Q3 Q4</i> <i>Glazing and Thermal Performance: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8</i> <i>PROJECT: Create a Passive Solar Floor Plan: Q1 Q2</i> <i>ACTIVITY: Communicating as part of building process: Q1 Q2</i>

*apply numeracy skills to workplace requirements.*

*ACTIVITY: Quantify different insulation options for the building envelope: Q5*

## REQUIRED KNOWLEDGE

Required Knowledge	Task / Question Map
Required knowledge for this unit is:	
<i>building and construction industry processes for building sustainability</i>	<p><i>Solar passive design II: Q1 Q2 Q3 Q4 Q5</i></p> <p><i>Sustainability in the Building Industry: Q1 Q2 Q3 Q4 Q5 Q6 Q7</i></p> <p><i>Climate and House Design: Q1 Q2 Q3 Q4 Q5 Q6</i></p> <p><i>Passive Cooling - Ventilation Design: Q1 Q2 Q3 Q4 Q5</i></p> <p><i>Thermal Mass: Q1 Q2 Q3 Q4</i></p> <p><i>Glazing and Thermal Performance: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8</i></p> <p><i>Insulation for Energy Efficiency: Q1 Q2 Q3 Q4</i></p> <p><i>Legislative and planning requirements for thermal efficiency to the building process: Q1 Q2 Q3</i></p> <p><i>PROJECT: Create a Passive Solar Floor Plan: Q1 Q2</i></p>
<i>relevant state or territory building and construction codes, standards and government regulations</i>	<p><i>Building Sustainability Rating tools: Q1 Q2 Q3</i></p> <p><i>NCC and Climate Zones: Q1 Q2</i></p> <p><i>Climate and House Design: Q1 Q2 Q3 Q4 Q5 Q6</i></p> <p><i>Legislative and planning requirements for thermal efficiency to the building process: Q1 Q2 Q3</i></p> <p><i>ACTIVITY: Investigating State Energy Efficiency Building Requirements: Q1</i></p>
<i>underlying mathematics related to the calculation of thermal efficiency</i>	<i>ACTIVITY: Quantify different insulation options for the building envelope: Q5</i>
<i>workplace safety requirements.</i>	<i>Safety considerations when insulating building envelope: Q1 Q2</i>

## CRITICAL ASPECTS

Critical Aspects	Task / Question Map
A person who demonstrates competency in this unit must be able to provide evidence of the ability to:	
<i>source and analyse legislative and planning requirements for thermal efficiency in the building process</i>	<i>NCC and Climate Zones: Q1 Q2</i> <i>Climate and House Design: Q1 Q2 Q3 Q4 Q5 Q6</i> <i>Passive Cooling - Ventilation Design: Q1 Q2 Q3 Q4 Q5</i> <i>Glazing and Thermal Performance: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8</i> <i>Legislative and planning requirements for thermal efficiency to the building process: Q1 Q2 Q3</i> <i>ACTIVITY: Investigating State Energy Efficiency Building Requirements: Q1</i>
<i>calculate costs and savings of implementing alternative thermally efficient systems</i>	<i>Energy and Buildings: Q1 Q2 Q3</i>
<i>apply principles of thermal efficiency to planning of a building project</i>	<i>Solar passive design II: Q1 Q2 Q3 Q4 Q5</i> <i>Passive Cooling - Ventilation Design: Q1 Q2 Q3 Q4 Q5</i> <i>Glazing and Thermal Performance: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8</i> <i>Insulation for Energy Efficiency: Q1 Q2 Q3 Q4</i> <i>PROJECT: Create a Passive Solar Floor Plan: Q1 Q2</i> <i>PROJECT: Identify Shading Solutions for Passive Solar Floor plan: Q1</i> <i>ACTIVITY: Communicating as part of building process: Q1 Q2</i>
<i>produce work plans that reflect effective thermal efficiency.</i>	<i>Solar passive design II: Q1 Q2 Q3 Q4 Q5</i> <i>Passive Cooling - Ventilation Design: Q1 Q2 Q3 Q4 Q5</i> <i>Thermal Mass: Q1 Q2 Q3 Q4</i> <i>PROJECT: Create a Passive Solar Floor Plan: Q1 Q2</i> <i>PROJECT: Identify Shading Solutions for Passive Solar Floor plan: Q1</i>

## RANGE STATEMENTS

Range Statements	Task / Question Map	
<i>Requirements for building thermally efficient structures include:</i>	<i>appropriate use of thermal mass (noting impact of climatic conditions)</i>	<i>Climate and House Design: Q1 Q2 Q3 Q4 Q5 Q6 Thermal Mass: Q1 Q2 Q3 Q4</i>
	<i>glazing size and orientation</i>	<i>Glazing and Thermal Performance: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8</i>
	<i>insulation</i>	<i>Insulation for Energy Efficiency: Q1 Q2 Q3 Q4</i>
	<i>orientation of building</i>	<i>Solar passive design II: Q1 Q2 Q3 Q4 Q5 PROJECT: Create a Passive Solar Floor Plan: Q1 Q2 PROJECT: Identify Shading Solutions for Passive Solar Floor plan: Q1</i>
	<i>use of relevant construction methods.</i>	<i>Solar passive design II: Q5 PROJECT: Identify Shading Solutions for Passive Solar Floor plan: Q1</i>
<i>Regional climate differences and the impact on effective design solutions include areas with:</i>	<i>cooling climates</i>	<i>NCC and Climate Zones: Q1 Q2 Climate and House Design: Q1 Q6</i>
	<i>hot arid climates</i>	<i>NCC and Climate Zones: Q1 Q2</i>
	<i>hot humid climates</i>	<i>NCC and Climate Zones: Q1 Q2 Climate and House Design: Q2</i>
	<i>mixed climates.</i>	