

# CPCBC4011B Matrix Map

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## ELEMENTS AND PERFORMANCE CRITERIA

Element	Performance Criteria	Task / Question Map
1. Apply structural principles to the planning of the erection or demolition of a structure.	1.1. Main structural principles that apply to erection or demolition of a low rise commercial structure are identified.	Structural principles - Loads: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Structural principles - Forces: Q1 Q2 Q3 Q4 Structural principles - Properties: Q1 Q2 Q3 Q4 Q5 Structural Principles for Erection and Demolition : Q1 Q2 Q3 Apply structural principles to the planning of the erection or demolition of a structure: Q1
	1.2. Structural performance of a structure is described in terms of the effect of section properties on various materials and their related construction methods.	Structural principles - Properties: Q1 Q2 Q3 Q4 Q5 Structural Principles for Erection and Demolition : Q4 Q5 Q6 Q8 Q9 Apply structural principles to the planning of the erection or demolition of a structure: Q1
	1.3. Structural performance characteristics of slabs, beams, columns and retaining walls are explained and applied to planning of the construction work.	Structural principles - Structural members: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Structural Principles for Erection and Demolition : Q4 Q7 Q8 Q9 Apply structural principles to the planning of the erection or demolition of a structure: Q1 ACTIVITY: Erection or Demolition of a Structure: Q1 Q2 Q3

	<p>1.4. Demolition of existing structures is coordinated in accordance with safe work practices and legislative, environmental and planning requirements.</p>	<p>Structural principles - Demolition: Q1 Q2 Q3          Apply structural principles to the planning of the erection or demolition of a structure: Q1          Quality Assurance - Demolition: Q1 Q2 Q3 Q4 Q5 Q6          Demolition - planning and preparation - Interpretation: Q1 Q2 Q3 Q4 Q5 Q6 Q7          Hazardous substances- demolition (asbestos, lead, fibreglass PCB's : Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14          Demolition Dangers: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10          Demolition - Plan reading: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8          Demolition tips: Q1 Q2 Q3 Q4 Q5 Q6 Q7          Demolishing structures safely: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8          Demolition methods: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11          Order of Demolition: Q1          Loads supporting and structural walls : Q1 Q2 Q3 Q4 Q5 Q6          Identify materials for salvage and recycling: Q1 Q2 Q3 Q4          Cleaning up after demolition: Q1 Q2 Q3 Q4 Q5 Q6 Q7          Structural Integrity for low-rise commercial buildings: Q1 Q2          ACTIVITY: Demolition Plan: Q1</p>
<p>2. Analyse and plan for the structural integrity of Class 2 to 9 buildings.</p>	<p>2.1. Relevant industry professionals are consulted as required to provide advice regarding the design process and structural integrity of proposed commercial low rise building.</p>	<p>Loads supporting and structural walls : Q4          Structural Integrity for low-rise commercial buildings: Q1 Q2</p>
	<p>2.2. Project documentation is collected and analysed to assist in the analysis of plans and specifications.</p>	<p>Structural Principles for Erection and Demolition : Q4 Q5 Q6          ACTIVITY: Demolition Plan: Q1          ACTIVITY: Interpreting Commercial Building Structural Plans: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</p>
	<p>2.3. Project documentation is analysed for compliance with BCA requirements for bushfire, high wind, earthquake and alpine environments.</p>	<p>Structural Principles for Erection and Demolition : Q4 Q5 Q6</p>

	2.4. New and emerging building technologies are assessed for application to the construction process and their compliance with BCA requirements and Australian standards.	Structural Integrity for low-rise commercial buildings: Q3 Structural Insulated Panel System (SIPS): Q1 Q2 Q3 Q4
	2.5. Pre-commencement site inspection is conducted to confirm analysis.	Structural Integrity for low-rise commercial buildings: Q1 Q2 ACTIVITY: Demolition Plan: Q1
3. Plan, coordinate and manage laying of footing systems.	3.1. Footing systems are set out in accordance with building's plans.	ACTIVITY: Planning, coordinating, and managing the laying of footings: Q1 Q2 Laying of Footing Systems: Q1 Q2 Structural Steel Frame Anatomy and Process: Q1
	3.2. Structural integrity of the footings specified in building's plan is assessed for compliance with relevant codes and accepted industry construction principles.	ACTIVITY: Planning, coordinating, and managing the laying of footings: Q1 Q2 Laying of Footing Systems: Q1 Q2 ACTIVITY: Erection or Demolition of a Structure: Q1
	3.3. Footings specified in building's plan are laid and checked for compliance with project documentation.	ACTIVITY: Planning, coordinating, and managing the laying of footings: Q1 Q2 Laying of Footing Systems: Q2 ACTIVITY: Erection or Demolition of a Structure: Q3 Interpreting Specifications for Reinforcing: Q1 Q2
	3.4. Damp coursing and provision of termite barriers and other relevant techniques are planned, implemented and checked in accordance with codes, standards and industry practice.	ACTIVITY: Planning, coordinating, and managing the laying of footings: Q1 Q2 Laying of Footing Systems: Q2 Termite protection methods: Q1 Q2 Q3 Q4 Q5 Q6
4. Plan, coordinate and manage laying of floor system.	4.1. Floor system components specified in building's plan are assessed for structural integrity and compliance with relevant codes and accepted industry construction principles.	Laying of Floor Systems: Q1 Q2
	4.2. Laying of structural floor system specified in building's plan is supervised and checked for compliance with project documentation.	ACTIVITY: Planning, coordinating, and managing the laying of the floor system: Q1 Q2 Laying of Floor Systems: Q1 Q2

<p>5. Plan, coordinate and manage the building of structural wall systems and wall cladding systems.</p>	<p>5.1. Technical construction principles and performance characteristics of structural wall systems and wall cladding systems are identified and analysed in the planning of the building and construction project.</p>	<p>Quality and quantity of wall frame members: Q1 Q2                      Wall and Wall Cladding Systems: Q1 Q2 Q3                      Structural Insulated Panel System (SIPS): Q1 Q2 Q3 Q4                      ACTIVITY: Erection or Demolition of a Structure: Q1</p>
	<p>5.2. Processes for erecting wall systems and wall cladding systems are identified, implemented and checked for compliance with manufacturer specifications and relevant Australian standards and codes.</p>	<p>Scaffolding Plan: Q1 Q2 Q3 Q4 Q5 Q6 Q7                      Prepare for installation of exterior cladding: Q1                      Wall and Wall Cladding Systems: Q1 Q2 Q3                      Overview of work to be done in cladding a wall: Q1                      ACTIVITY: Planning, coordinating, and managing the building of the structural wall and wall cladding: Q1                      Australian Standards for Brick and Block laying: Q1 Q2 Q3 Q4</p>
	<p>5.3. Building plans and relevant standards and codes are identified and implemented to ensure appropriate allowances have been made for relevant services to be installed.</p>	<p>Wall and Wall Cladding Systems: Q1 Q2 Q3 Q5                      ACTIVITY: Planning, coordinating, and managing the building of the structural wall and wall cladding: Q1                      Australian Standards for Brick and Block laying: Q1 Q2 Q3 Q4</p>
	<p>5.4. Windows and external doors are installed in compliance with relevant codes, manufacturer specifications and accepted industry construction principles.</p>	<p>Wall and Wall Cladding Systems: Q4 Q5                      Overview of work to be done in cladding a wall: Q1                      ACTIVITY: Planning, coordinating, and managing the building of the structural wall and wall cladding: Q1 Q2</p>
<p>6. Plan, coordinate and manage the building of structural roof systems and roof cladding systems.</p>	<p>6.1. Structural integrity of the structural roof system and roof cladding system components specified in building's plan is assessed for compliance with relevant codes and accepted industry construction principles.</p>	<p>Roof and Roof Cladding Systems: Q1 Q2 Q3                      Principles of roof truss design: Q1 Q2 Q3 Q4 Q5                      Positioning girder trusses: Q1 Q2 Q3 Q4 Q5 Q6                      Installation tolerances: Q1 Q2 Q3 Q4 Q5 Q6 Q7                      Permanent Bracing: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9</p>

	<p>6.2. Construction of roof system and roof cladding system, including details of service penetrations, skylights and roof ventilators, is planned, implemented and checked in accordance with building plan's requirements, type of roof being constructed, relevant codes and accepted industry construction principles.</p>	<p>Roof and Roof Cladding Systems: Q1 Q2 Q3                      Roof Shapes - Drawing: Q1                      Permanent Bracing: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9                      ACTIVITY: Interpreting Commercial Building Structural Plans: Q9</p>
	<p>6.3. Processes are put in place and managed to ensure quality of finished roof system.</p>	<p>Roof and Roof Cladding Systems: Q1 Q2 Q3                      Truss - Transport and Storage: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8                      Lifting trusses: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9                      Positioning girder trusses: Q1 Q2 Q3 Q4 Q5 Q6                      Camber in roof trusses: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8                      Installation tolerances: Q1 Q2 Q3 Q4 Q5 Q6 Q7                      Permanent Bracing: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9</p>

## REQUIRED SKILLS

Required Skill	Task / Question Map
Required skills for this unit are:	
<i>analytical skills and the capacity to foresee potential problems</i>	<p>Loads supporting and structural walls : Q1 Q2 Q3 Q4 Q5 Q6</p> <p>Structural Integrity for low-rise commercial buildings: Q1 Q5</p> <p>Truss - Transport and Storage: Q2</p> <p>Camber in roof trusses: Q4</p> <p>ACTIVITY: Demolition Plan: Q1</p>
<i>apply Australian standards, codes and manufacturer specifications</i>	<p>Structural Principles for Erection and Demolition : Q4 Q5 Q6</p> <p>Laying of Footing Systems: Q1</p> <p>Installation tolerances: Q1 Q2 Q3 Q4 Q5 Q6 Q7</p> <p>ACTIVITY: Demolition Plan: Q1</p> <p>Australian Standards for Brick and Block laying: Q1 Q2 Q3 Q4</p>
<i>apply structural principles to a variety of low rise structures</i>	<p>Structural principles - Properties: Q1 Q2 Q3 Q4 Q5</p> <p>Structural principles - Demolition: Q1 Q2 Q3</p> <p>Structural Principles for Erection and Demolition : Q1 Q2 Q3 Q4 Q5 Q6</p> <p>Roof Shapes - Drawing: Q1</p> <p>Positioning girder trusses: Q1 Q2 Q3 Q4 Q5 Q6</p> <p>ACTIVITY: Demolition Plan: Q1</p> <p>Structural Steel Frame Anatomy and Process: Q1 Q2 Q3 Q4 Q5 Q6</p>

<p>construction management and planning techniques</p>	<p>Structural Principles for Erection and Demolition : Q4 Q5 Q6                      Scaffolding Plan: Q1 Q2 Q3 Q4 Q5 Q6 Q7                      Order of Demolition: Q1                      Structural Integrity for low-rise commercial buildings: Q4                      Overview of work to be done in cladding a wall: Q1                      Roof Shapes - Drawing: Q1                      Truss - Transport and Storage: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8                      Lifting trusses: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9                      ACTIVITY: Demolition Plan: Q1                      Calculating bearer materials: Q1 Q2 Q3 Q4</p>
<p>coordination of the work and advice of internal and external professionals</p>	<p>Order of Demolition: Q1                      Structural Integrity for low-rise commercial buildings: Q1 Q2 Q5 Q6                      Overview of work to be done in cladding a wall: Q1                      Positioning girder trusses: Q1 Q2 Q3 Q4 Q5 Q6                      ACTIVITY: Demolition Plan: Q1</p>
<p>communication skills to:</p>	
<p>consult with industry professionals</p>	<p>Structural Integrity for low-rise commercial buildings: Q1 Q2</p>
<p>enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand</p>	<p>Structural Integrity for low-rise commercial buildings: Q5 Q6                      CPCBC4011B Assessment Requirements: Q19</p>
<p>read and interpret project documentation</p>	<p>Structural Principles for Erection and Demolition : Q4 Q5 Q6                      Demolition - planning and preparation - Interpretation: Q1 Q2 Q3 Q4 Q5 Q6 Q7                      Structural Integrity for low-rise commercial buildings: Q4                      ACTIVITY: Demolition Plan: Q1                      ACTIVITY: Interpreting Commercial Building Structural Plans: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10                      Interpreting Specifications for Reinforcing: Q1 Q2</p>
<p>use language and concepts appropriate to cultural differences</p>	<p>Structural Integrity for low-rise commercial buildings: Q5 Q6                      CPCBC4011B Assessment Requirements: Q19</p>

<p><i>use and interpret non-verbal communication</i></p>	<p><i>Demolition - planning and preparation - Interpretation: Q1 Q2 Q3 Q4 Q5 Q6 Q7</i>  <i>Structural Integrity for low-rise commercial buildings: Q5 Q6</i>  <i>Roof Shapes - Drawing: Q1</i>  <i>ACTIVITY: Demolition Plan: Q1</i>  <i>ACTIVITY: Erection or Demolition of a Structure: Q1 Q2 Q3</i></p>
<p><i>identify and analyse relevant information</i></p>	<p><i>Structural Principles for Erection and Demolition : Q1 Q2 Q3 Q4 Q5</i>  <i>Demolition - planning and preparation - Interpretation: Q1 Q2 Q3 Q4 Q5 Q6 Q7</i>  <i>Structural Integrity for low-rise commercial buildings: Q4</i>  <i>ACTIVITY: Demolition Plan: Q1</i>  <i>ACTIVITY: Interpreting Commercial Building Structural Plans: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i>  <i>Interpreting Specifications for Reinforcing: Q2</i></p>
<p><i>low rise construction building problem solving</i></p>	<p><i>Structural Integrity for low-rise commercial buildings: Q1 Q5</i>  <i>Laying of Floor Systems: Q1</i>  <i>Truss - Transport and Storage: Q3</i>  <i>ACTIVITY: Demolition Plan: Q1</i></p>
<p><i>numeracy skills to apply calculations</i></p>	<p><i>Structural principles - Properties: Q2 Q3 Q4 Q5</i>  <i>Structural principles - Structural members: Q1 Q2 Q3 Q4</i>  <i>Quality and quantity of wall frame members: Q2</i>  <i>Calculating bearer materials: Q1 Q2 Q3 Q4</i>  <i>Calculating joists: Q1 Q2 Q3 Q4 Q5</i></p>
<p><i>select structural members based on project or specification requirements</i></p>	<p><i>Structural principles - Structural members: Q6 Q7 Q8 Q9 Q10</i>  <i>Quality and quantity of wall frame members: Q1</i>  <i>Wall and Wall Cladding Systems: Q3</i>  <i>Roof and Roof Cladding Systems: Q3</i>  <i>Structural Steel Frame Anatomy and Process: Q2 Q3 Q4 Q5</i></p>
<p><i>work safely to OHS regulations and site requirements.</i></p>	<p><i>Scaffolding Plan: Q1 Q2 Q3 Q4 Q5 Q6 Q7</i>  <i>Hazardous substances- demolition (asbestos, lead, fibreglass PCB's : Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14</i>  <i>Demolition Dangers: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i>  <i>Order of Demolition: Q1</i>  <i>Structural Integrity for low-rise commercial buildings: Q1 Q2</i>  <i>ACTIVITY: Demolition Plan: Q1</i></p>



## REQUIRED KNOWLEDGE

Required Knowledge	Task / Question Map
Required knowledge for this unit is:	
<i>building and construction industry contracts</i>	<i>Structural Principles for Erection and Demolition : Q4 Q5 Q6</i> <i>Structural Integrity for low-rise commercial buildings: Q4</i>
<i>new and emerging building technologies, techniques and materials</i>	<i>Structural Integrity for low-rise commercial buildings: Q3</i> <i>Roof and Roof Cladding Systems: Q3</i> <i>Structural Insulated Panel System (SIPS): Q1 Q2 Q3 Q4</i>
<i>relevant state or territory building and construction codes, standards and government regulations</i>	<i>Structural Principles for Erection and Demolition : Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9</i> <i>Structural Integrity for low-rise commercial buildings: Q1 Q2 Q3</i> <i>Laying of Footing Systems: Q1 Q2</i> <i>Laying of Floor Systems: Q1 Q2</i> <i>Wall and Wall Cladding Systems: Q1 Q2 Q3 Q4 Q5</i> <i>Roof and Roof Cladding Systems: Q1 Q2 Q3</i> <i>Installation tolerances: Q1 Q2 Q3 Q4 Q5 Q6 Q7</i> <i>ACTIVITY: Demolition Plan: Q1</i> <i>Australian Standards for Brick and Block laying: Q1 Q2 Q3 Q4</i>
<i>underlying principles related to structural analysis</i>	<i>Structural principles - Loads: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9</i> <i>Structural principles - Forces: Q1 Q2 Q3 Q4</i> <i>Structural principles - Properties: Q1 Q2 Q3 Q4 Q5</i> <i>Structural principles - Structural members: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i> <i>Structural principles - Demolition: Q1 Q2 Q3</i> <i>Laying of Floor Systems: Q1</i> <i>Roof Types: Q1 Q2 Q3 Q4</i> <i>Principles of roof truss design: Q1 Q2 Q3 Q4 Q5</i> <i>ACTIVITY: Demolition Plan: Q1</i>

<i>workplace safety requirements.</i>	<i>Demolition - planning and preparation - Interpretation: Q3</i> <i>Order of Demolition: Q1</i> <i>Structural Integrity for low-rise commercial buildings: Q1 Q2</i> <i>ACTIVITY: Demolition Plan: Q1</i>
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## 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>assess structural integrity of a variety of structures found on building and construction sites</i>	<i>Structural Integrity for low-rise commercial buildings: Q1 Q2 Q3 Q4 Q5 Q6</i> <i>Laying of Footing Systems: Q2</i> <i>Laying of Floor Systems: Q2</i> <i>Wall and Wall Cladding Systems: Q1 Q2 Q3 Q4 Q5</i> <i>Roof and Roof Cladding Systems: Q2 Q3</i> <i>ACTIVITY: Demolition Plan: Q1</i>
<i>apply structural principles behind the safe erection and demolition of low rise structures classified within the BCA as Classes 2 to 9 with a gross floor area not exceeding 2000 square metres but not including Type A or Type B construction</i>	<i>Structural principles - Demolition: Q2 Q3</i> <i>Structural Integrity for low-rise commercial buildings: Q1 Q2 Q3 Q4 Q5 Q6</i> <i>Laying of Footing Systems: Q2</i> <i>Laying of Floor Systems: Q1 Q2</i> <i>Wall and Wall Cladding Systems: Q1 Q2 Q3 Q4 Q5</i> <i>Roof and Roof Cladding Systems: Q2 Q3</i> <i>Principles of roof truss design: Q1 Q2 Q3 Q4 Q5</i> <i>Installation tolerances: Q1 Q2 Q3 Q4 Q5 Q6 Q7</i> <i>ACTIVITY: Demolition Plan: Q1</i>

<p><i>apply technical construction principles to the appropriate selection, integration and building in of construction elements and components</i></p>	<p><i>Structural principles - Structural members: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i></p> <p><i>Structural Integrity for low-rise commercial buildings: Q1 Q2 Q3 Q4 Q5 Q6</i></p> <p><i>Laying of Footing Systems: Q1 Q2</i></p> <p><i>Laying of Floor Systems: Q1 Q2</i></p> <p><i>Wall and Wall Cladding Systems: Q1 Q2 Q3 Q4 Q5</i></p> <p><i>Roof and Roof Cladding Systems: Q2 Q3</i></p> <p><i>Roof Shapes - Drawing: Q1</i></p> <p><i>Principles of roof truss design: Q1 Q2 Q3 Q4 Q5</i></p> <p><i>Positioning girder trusses: Q1 Q2 Q3 Q4 Q5 Q6</i></p> <p><i>Camber in roof trusses: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8</i></p> <p><i>Installation tolerances: Q1 Q2 Q3 Q4 Q5 Q6 Q7</i></p> <p><i>Permanent Bracing: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9</i></p> <p><i>ACTIVITY: Erection or Demolition of a Structure: Q1 Q2 Q3</i></p> <p><i>Structural Steel Frame Anatomy and Process: Q1 Q2 Q3 Q4 Q5 Q6</i></p>
<p><i>coordinate, plan, implement and check building of a low rise structure.</i></p>	<p><i>Order of Demolition: Q1</i></p> <p><i>Structural Integrity for low-rise commercial buildings: Q1 Q2 Q3 Q4 Q5 Q6</i></p> <p><i>Laying of Footing Systems: Q1 Q2</i></p> <p><i>Laying of Floor Systems: Q1 Q2</i></p> <p><i>Wall and Wall Cladding Systems: Q1 Q2 Q3 Q4 Q5</i></p> <p><i>Overview of work to be done in cladding a wall: Q1</i></p> <p><i>Roof and Roof Cladding Systems: Q2 Q3</i></p> <p><i>Truss - Transport and Storage: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8</i></p> <p><i>Lifting trusses: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9</i></p> <p><i>Positioning girder trusses: Q1 Q2 Q3 Q4 Q5 Q6</i></p> <p><i>Installation tolerances: Q1 Q2 Q3 Q4 Q5 Q6 Q7</i></p> <p><i>Permanent Bracing: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9</i></p> <p><i>ACTIVITY: Demolition Plan: Q1</i></p> <p><i>ACTIVITY: Interpreting Commercial Building Structural Plans: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i></p>

## RANGE STATEMENTS

Range Statements	Task / Question Map	
<i>Structural principles include:</i>	<i>loads and loading</i>	<i>Structural principles - Loads: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Structural principles - Forces: Q1 Q2 Q3 Q4 Structural Principles for Erection and Demolition : Q1 Q2 Q7</i>
	<i>section properties</i>	<i>Structural principles - Properties: Q1 Q2 Q3 Q4 Q5 Structural Principles for Erection and Demolition : Q1 Q2 ACTIVITY: Erection or Demolition of a Structure: Q1 Q2 Q3 Structural Steel Frame Anatomy and Process: Q2 Q3 Q4 Q5</i>
	<i>behaviour of structural materials</i>	<i>Structural principles - Structural members: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Structural Principles for Erection and Demolition : Q1 Q2 Q7</i>
	<i>performance of beams</i>	<i>Structural Principles for Erection and Demolition : Q1 Q2 Q7</i>
	<i>performance of columns</i>	<i>Structural Principles for Erection and Demolition : Q1 Q2 Q7 ACTIVITY: Erection or Demolition of a Structure: Q1</i>
	<i>performance of roof trusses</i>	<i>Structural Principles for Erection and Demolition : Q1 Q2 Principles of roof truss design: Q1 Q2 Q3 Q4 Q5</i>
	<i>principles of formwork</i>	<i>Structural Principles for Erection and Demolition : Q1 Q2</i>
	<i>solution of force systems</i>	<i>Structural Principles for Erection and Demolition : Q1 Q2 ACTIVITY: Erection or Demolition of a Structure: Q2</i>
	<i>wind bracing.</i>	<i>Structural Principles for Erection and Demolition : Q1 Q2</i>
<i>Low rise commercial buildings as described within the BCA are:</i>	<i>Classes 2 to 9</i>	<i>Structural Principles for Erection and Demolition : Q3 ACTIVITY: Interpreting Commercial Building Structural Plans: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i>
	<i>with a gross floor area not exceeding 2000 square metres, not including Type A or Type B construction.</i>	<i>Structural Principles for Erection and Demolition : Q3 ACTIVITY: Interpreting Commercial Building Structural Plans: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i>
<i>Materials and their related construction methods may include:</i>	<i>brick veneer and cladding over timber-framed and lightweight section steel-framed construction</i>	<i>Structural Principles for Erection and Demolition : Q4 Quality and quantity of wall frame members: Q2 Australian Standards for Brick and Block laying: Q1 Q2 Q3 Q4</i>

	<i>cavity brick construction</i>	<i>Structural Principles for Erection and Demolition : Q4</i>
	<i>earth-wall construction</i>	<i>Structural Principles for Erection and Demolition : Q4</i>
	<i>lightweight concrete construction, such as construction of autoclaved aerated concrete (AAC)</i>	<i>Structural Principles for Erection and Demolition : Q4</i>
	<i>pole frame construction</i>	<i>Structural Principles for Erection and Demolition : Q5</i>
	<i>portal frame construction</i>	<i>Structural Principles for Erection and Demolition : Q5</i> <i>Structural Insulated Panel System (SIPS): Q1 Q2 Q3 Q4</i> <i>Structural Steel Frame Anatomy and Process: Q1 Q2 Q3 Q4 Q5 Q6</i>
	<i>post and beam construction</i>	<i>Structural Principles for Erection and Demolition : Q5</i> <i>ACTIVITY: Erection or Demolition of a Structure: Q1</i>
	<i>post and truss construction</i>	<i>Structural Principles for Erection and Demolition : Q5</i> <i>Principles of roof truss design: Q1 Q2 Q3 Q4 Q5</i> <i>Lifting trusses: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9</i> <i>Positioning girder trusses: Q1 Q2 Q3 Q4 Q5 Q6</i>
	<i>single-leaf (reinforced) masonry construction</i>	<i>Structural Principles for Erection and Demolition : Q4</i>
	<i>tilt-slab construction.</i>	<i>Structural Principles for Erection and Demolition : Q7 Q8</i> <i>ACTIVITY: Erection or Demolition of a Structure: Q3</i>
<i>Industry professionals include:</i>	<i>architects</i>	<i>Structural Integrity for low-rise commercial buildings: Q3</i>
	<i>draftspersons</i>	<i>Structural Integrity for low-rise commercial buildings: Q3</i>
	<i>engineers</i>	<i>Demolition methods: Q10</i> <i>Loads supporting and structural walls : Q4</i> <i>Structural Integrity for low-rise commercial buildings: Q3</i> <i>ACTIVITY: Interpreting Commercial Building Structural Plans: Q8</i>
	<i>quantity surveyors</i>	<i>Structural Integrity for low-rise commercial buildings: Q3</i>
	<i>surveyors.</i>	<i>Structural Integrity for low-rise commercial buildings: Q3</i>
<i>Project documentation includes:</i>	<i>building approval plans</i>	<i>Structural principles - Demolition: Q1</i> <i>Structural Integrity for low-rise commercial buildings: Q4</i>

	<i>contract plans</i>	<i>Demolition - Plan reading: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8</i> <i>Structural Integrity for low-rise commercial buildings: Q4</i> <i>ACTIVITY: Interpreting Commercial Building Structural Plans: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i>
	<i>design and specifications</i>	<i>Demolition - planning and preparation - Interpretation: Q1 Q2 Q3 Q4 Q5 Q6 Q7</i> <i>Structural Integrity for low-rise commercial buildings: Q4</i> <i>Laying of Footing Systems: Q1 Q2</i> <i>ACTIVITY: Interpreting Commercial Building Structural Plans: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i> <i>Interpreting Specifications for Reinforcing: Q1 Q2</i>
	<i>engineer's footing design and specifications</i>	<i>Structural Integrity for low-rise commercial buildings: Q4</i> <i>Laying of Footing Systems: Q1 Q2</i> <i>ACTIVITY: Interpreting Commercial Building Structural Plans: Q2 Q3</i>
	<i>original contour survey plans</i>	<i>Structural Integrity for low-rise commercial buildings: Q4</i>
	<i>registered plans</i>	<i>Structural Integrity for low-rise commercial buildings: Q4</i> <i>ACTIVITY: Interpreting Commercial Building Structural Plans: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i>
	<i>retaining walls and tanking design and specifications</i>	<i>Structural principles - Structural members: Q9</i> <i>Structural Integrity for low-rise commercial buildings: Q4</i> <i>ACTIVITY: Erection or Demolition of a Structure: Q2</i>
	<i>site plans</i>	<i>Structural Integrity for low-rise commercial buildings: Q4</i> <i>ACTIVITY: Interpreting Commercial Building Structural Plans: Q1</i>
	<i>soils investigation reports</i>	<i>Structural Integrity for low-rise commercial buildings: Q4</i>
	<i>structural floor systems, wall systems and roof systems</i>	<i>Structural Integrity for low-rise commercial buildings: Q4</i> <i>ACTIVITY: Interpreting Commercial Building Structural Plans: Q6</i>
	<i>underpinning, rock anchors and shoring design and specifications.</i>	<i>Structural Integrity for low-rise commercial buildings: Q4</i> <i>ACTIVITY: Demolition Plan: Q1</i>
<i>Footing systems include:</i>	<i>concrete slab floors</i>	<i>Structural Principles for Erection and Demolition : Q7 Q8</i> <i>Laying of Footing Systems: Q1 Q2</i> <i>Interpreting Specifications for Reinforcing: Q1 Q2</i> <i>Structural Steel Frame Anatomy and Process: Q1</i>

	<i>drilled or driven piles</i>	<i>Structural Principles for Erection and Demolition : Q7 Q8 Laying of Footing Systems: Q2</i>
	<i>mass concrete piers</i>	<i>Structural Principles for Erection and Demolition : Q7 Q8 Laying of Footing Systems: Q2</i>
	<i>reinforced concrete piers and beams</i>	<i>Structural Principles for Erection and Demolition : Q7 Q8 Laying of Footing Systems: Q2 ACTIVITY: Erection or Demolition of a Structure: Q1</i>
	<i>screw piles</i>	<i>Structural Principles for Erection and Demolition : Q7 Q8 Laying of Footing Systems: Q2</i>
	<i>waffle pod slabs.</i>	<i>Structural Principles for Erection and Demolition : Q7 Q8 Laying of Footing Systems: Q2</i>
<i>Structural floor system includes:</i>	<i>brick bases</i>	<i>Laying of Floor Systems: Q1 Q2</i>
	<i>engineered timber products</i>	<i>Laying of Floor Systems: Q1 Q2 Support systems for floor frames: Q1 Q2 Q3 Q4</i>
	<i>panel systems of concrete and AAC</i>	<i>Laying of Floor Systems: Q1 Q2 ACTIVITY: Erection or Demolition of a Structure: Q3 ACTIVITY: Interpreting Commercial Building Structural Plans: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10</i>
	<i>suspended and slab-on-ground concrete slab floors</i>	<i>Laying of Floor Systems: Q1 Q2</i>
	<i>timber and steel floor construction.</i>	<i>Laying of Floor Systems: Q1 Q2 Support systems for floor frames: Q1 Q2 Q3 Q4 Calculating bearer materials: Q1 Q2 Q3 Q4</i>
<i>Structural wall systems include:</i>	<i>composite walls featuring tilt-slab, post and beam, pole and truss and portal frame</i>	<i>Structural Integrity for low-rise commercial buildings: Q1 Q2 Structural Insulated Panel System (SIPS): Q1 Q2 Q3 Q4 ACTIVITY: Erection or Demolition of a Structure: Q1 Q2 Q3 ACTIVITY: Interpreting Commercial Building Structural Plans: Q4 Q5 Q6</i>
	<i>earth walls, including rammed earth and mud brick</i>	<i>Structural Integrity for low-rise commercial buildings: Q1 Q2</i>



	<i>framed walls incorporating timber, engineered timber products and lightweight section steel</i>	<i>Structural Integrity for low-rise commercial buildings: Q1 Q2 Quality and quantity of wall frame members: Q1 Q2 Structural Steel Frame Anatomy and Process: Q1 Q2 Q3 Q4 Q5 Q6</i>
	<i>masonry walls incorporating cavity brick, single-leaf masonry and lightweight concrete (AAC).</i>	<i>Structural Integrity for low-rise commercial buildings: Q1 Q2</i>
<i>Wall cladding systems include:</i>	<i>boarding</i>	<i>Structural Integrity for low-rise commercial buildings: Q1 Q2 Overview of work to be done in cladding a wall: Q1</i>
	<i>coatings over base materials</i>	<i>Structural Integrity for low-rise commercial buildings: Q1 Q2</i>
	<i>sheeting</i>	<i>Structural Integrity for low-rise commercial buildings: Q1 Q2</i>
	<i>tilt-slab</i>	<i>Structural Integrity for low-rise commercial buildings: Q1 Q2 ACTIVITY: Erection or Demolition of a Structure: Q3 ACTIVITY: Interpreting Commercial Building Structural Plans: Q6</i>
	<i>unfired, fired and autoclaved masonry.</i>	<i>Structural Integrity for low-rise commercial buildings: Q1 Q2 Australian Standards for Brick and Block laying: Q1 Q2 Q3 Q4</i>
<i>Relevant services may include:</i>	<i>ducting for heating and cooling</i>	<i>Wall and Wall Cladding Systems: Q5 ACTIVITY: Interpreting Commercial Building Structural Plans: Q9</i>
	<i>electrical, electronic and communication systems</i>	<i>Demolition - planning and preparation - Interpretation: Q7 Wall and Wall Cladding Systems: Q5 ACTIVITY: Interpreting Commercial Building Structural Plans: Q9</i>
	<i>extractive vacuum and exhaust systems</i>	<i>Wall and Wall Cladding Systems: Q5 ACTIVITY: Interpreting Commercial Building Structural Plans: Q9</i>
	<i>passive and active fire detection and prevention systems</i>	<i>Wall and Wall Cladding Systems: Q5 ACTIVITY: Interpreting Commercial Building Structural Plans: Q9</i>
	<i>plumbing and drainage</i>	<i>Demolition - planning and preparation - Interpretation: Q7 Wall and Wall Cladding Systems: Q5 ACTIVITY: Interpreting Commercial Building Structural Plans: Q9</i>
	<i>powered systems for operating doors and windows</i>	<i>Wall and Wall Cladding Systems: Q5 ACTIVITY: Interpreting Commercial Building Structural Plans: Q9</i>
	<i>smoke control and containment systems.</i>	<i>Wall and Wall Cladding Systems: Q5 ACTIVITY: Interpreting Commercial Building Structural Plans: Q9</i>

Structural roof system includes:	for roof types including:	
	<i>gable including dual pitch</i>	<i>Roof and Roof Cladding Systems: Q1 Roof Types: Q1 Q2 Q4 Roof Shapes - Drawing: Q1</i>
	<i>hip</i>	<i>Roof and Roof Cladding Systems: Q1 Roof Types: Q1 Roof Shapes - Drawing: Q1</i>
	<i>north light</i>	<i>Roof and Roof Cladding Systems: Q1 Roof Shapes - Drawing: Q1</i>
	<i>rafter and purlin</i>	<i>Roof and Roof Cladding Systems: Q1</i>
	<i>skillion</i>	<i>Roof and Roof Cladding Systems: Q1 Roof Types: Q3</i>
	<i>prefabricated and site fabricated trussed roof framing.</i>	<i>Roof and Roof Cladding Systems: Q1 Principles of roof truss design: Q1 Q2 Q3 Q4 Q5 Truss - Transport and Storage: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Lifting trusses: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Positioning girder trusses: Q1 Q2 Q3 Q4 Q5 Q6 Camber in roof trusses: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Installation tolerances: Q1 Q2 Q3 Q4 Q5 Q6 Q7 Structural Insulated Panel System (SIPS): Q1 Q2 Q3 Q4 ACTIVITY: Interpreting Commercial Building Structural Plans: Q8</i>
<i>Roof cladding system includes:</i>	<i>concrete, clay and metal tiles</i>	<i>Roof and Roof Cladding Systems: Q1</i>
	<i>shakes and shingles</i>	<i>Roof and Roof Cladding Systems: Q1</i>
	<i>short and long run metal sheeting.</i>	<i>Roof and Roof Cladding Systems: Q1</i>