

## APPLY PRINCIPLES OF BUILDING TECHNOLOGY

**UNIT CODE:** CON/OS/ARC/CC/04/5/A

### UNIT DESCRIPTION

This unit describes the competence required to conduct site investigations, identify building elements, draw substructure, draw superstructure, prepare reinforced concrete, apply building finishes and fittings, draw architectural landscape and apply alternative building technologies.

### ELEMENTS AND PERFORMANCE CRITERIA

| ELEMENT<br>These describe the key outcomes which make up workplace function. | PERFORMANCE CRITERIA<br>These are assessable statements which specify the required level of performance for each element.<br><i>(Bold and italicized terms are elaborated in the Range)</i>   |
|--|---|
| 1. Conduct site investigations   | 1.1 Site boundaries are established based on the architect's instructions<br>1.2 Site characteristics are assessed and documented<br>1.3 Location of proposed building is identified based on the architect's drawings and plans<br>1.4 Construction site is prepared based on the architect's drawings and plans |
| 2. Identify building elements  | 2.1 <b>Precast concrete</b> production is identified<br>2.2 <b>Timber components</b> are identified<br>2.3 <b>Metal components</b> are identified<br>2.4 <b>Stabilized soil components</b> are identified   |
| 3. Draw substructure details   | 3.1 <b>Foundation</b> details are drawn as per the design<br>3.2 Foundation slab, walls, columns or beams are drawn as per the design   |
| 4. Draw superstructure details   | 4.1 Concrete slab details are drawn as per the design<br>4.2 Walls, columns and beams are drawn as per the design<br>4.3 <b>Roof</b> is drawn as per the design   |
| 5. Prepare <b>reinforced concrete</b>  | 5.1 <b>Formwork</b> is prepared as per building specifications<br>5.2 Steel fixing is performed as per design<br>5.3 Concreting is done as per design   |
| 6. Apply building finishes and fittings                                      | 6.1 Building surfaces are prepared to receive finishes<br>6.2 <b>Building finishes and fittings</b> are installed/ applied based on the type of fitting/finish<br>6.3 Finishes are inspected as per workplace procedures  |
| 7. Draw architectural landscape  | 7.1 Ground is prepared<br>7.2 Pathways and driveways are set out as per the design<br>7.3 Plants and vegetation are established   |

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|---|--|
|   | 7.4 Pathways and driveways are laid as per the design  |
| 8. Apply alternative building technologies  | 8.1 <b><i>Alternative building technologies</i></b> are identified<br>8.2 Alternative building technologies are drawn as per the design  |

### **RANGE**

| <b>Variable</b>  | <b>Range</b>   |
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| 1. Foundation may include but is not limited to:                     | <ul style="list-style-type: none"> <li>● Strip foundation</li> <li>● Pad foundation</li> <li>● Pile foundation</li> <li>● Raft foundation</li> </ul> |
| 2. Roof may include but is not limited to:                           | <ul style="list-style-type: none"> <li>● Flat roof</li> <li>● Pitched roof</li> </ul>  |
| 3. Reinforced concrete may include but is not limited to:            | <ul style="list-style-type: none"> <li>● RC slabs</li> <li>● RC beams</li> <li>● RC columns</li> </ul>   |
| 4. Precast concrete may include but is not limited to:               | <ul style="list-style-type: none"> <li>● Paving slabs</li> <li>● Road kerbs and channels</li> <li>● Precast concrete slabs</li> </ul>                |
| 5. Formwork may include but is not limited to:                       | <ul style="list-style-type: none"> <li>● Timber</li> <li>● Aluminium</li> <li>● Steel</li> </ul>   |
| 6. Timber components may include but is not limited to:              | <ul style="list-style-type: none"> <li>● Chip boards</li> <li>● Ply wood</li> <li>● MDF boards</li> <li>● Marine boards</li> </ul>                   |
| 7. Metal components may include but is not limited to:               | <ul style="list-style-type: none"> <li>● Steel bars</li> <li>● Aluminium frames</li> </ul>   |
| 8. Stabilized soil components may include but is not limited to:     | <ul style="list-style-type: none"> <li>● Clay roofing tiles</li> <li>● Clay bricks</li> <li>● Clay vents</li> </ul>                                  |
| 9. Building finishes and fittings may include but is not limited to: | <ul style="list-style-type: none"> <li>● Paint</li> <li>● Tiles</li> <li>● Ceiling</li> <li>● Gypsum</li> </ul>                                      |

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|  | <ul style="list-style-type: none"> <li>• Wardrobes</li> <li>• Kitchen cabinets</li> </ul>  |
| 10. Alternative building technologies may include but is not limited to: | <ul style="list-style-type: none"> <li>• EPS (expanded polystyrene systems)</li> <li>• Interlocking blocks</li> <li>• Prefabricated wall panels</li> <li>• Metal panels</li> <li>• Timber panels</li> <li>• Plastics</li> <li>• Glass panels</li> <li>• Traditional construction materials.</li> </ul> |

### REQUIRED KNOWLEDGE

- Safety precautions
- Masonry
- Carpentry and joinery
- Surveying
- Finishes and fittings
- Metal works
- Construction materials, tools and equipment
- Occupational health and safety

### SKILLS

- Measuring
- Planning and organizing
- Analytical skills
- Management skills
- Finishing
- Mathematical skills
- Observation skills

### EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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|-----------------------------------|--|
| 1. Critical Aspects of Competency | <p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Identified building elements</li> <li>1.2 Drew substructure details</li> <li>1.3 Drew superstructure details</li> <li>1.4 Applied building finishes and fittings</li> <li>1.5 Drew architectural landscape</li> <li>1.6 Drew alternative building technologies</li> </ul> |
| 2. Resource Implications          | <p>The following resources should be provided:</p> <ul style="list-style-type: none"> <li>2.1 Access to relevant workplace or appropriately simulated environment where assessment can take</li> </ul>   |

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|  | place<br>2.2 Materials relevant to the proposed activity or tasks  |
| 3. Methods of Assessment               | Competency may be assessed through:<br>3.1 Observation<br>3.2 Oral questioning<br>3.3 Projects               |
| 4. Context of Assessment               | Competency may be assessed<br>4.1 On the job<br>4.2 Off the job<br>4.3 During Industrial Attachment          |
| 5. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

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