

## MEASURE AND CALCULATE OBJECTS' PARAMETERS

**UNIT CODE:** CON/OS/MA/CC/01/4/A

### UNIT DESCRIPTION

This unit of competency covers the competencies required to measure and calculate various parameters of an object. It entails identifying objects to be measured and calculated, using and caring for measuring tools and calculation instruments and calculating parameters of a given object.

This standard applies in the Construction industry.

### ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements. <b><i>Bold and italicized terms are elaborated in the Range</i></b>

1. Identify objects to be measured and calculated	<p>1. 1 <b>Object or component</b> to be measured is identified, classified and interpreted according to the appropriate <i>geometric shapes</i>.</p> <p>1. 2 <b>Objects parameters</b> are identified and measured as per the specifications or job requirements</p> <p>1. 3 Specifications for measurement and calculations are obtained from relevant sources.</p>
2. Use and care for measuring tools and calculation instruments	<p>2.1 <b>Measuring tools and calculating instruments</b> are obtained according to job requirements.</p> <p>2.2 Measuring tools and calculation instruments are checked to the limit of accuracy as per manufacturer's manual.</p> <p>2.3 Measuring and calculation instruments are maintained as per manufacturer's instructions.</p> <p>2.4 Personal Protective Equipment is used in line with occupational safety and health regulations.</p>
3. Calculate parameters of a given object.	<p>3.1 Object is measured and readings recorded based of specification of the job.</p> <p>3.2 Systems of measurement are identified and converted according to job requirements.</p> <p>3.3 Calculations needed to complete tasks are performed based on job specifications.</p> <p>3.4 Numerical computation are checked and corrected for accuracy as per workplace policy.</p> <p>3.5 Measurements and calculations are documented as per workplace policy.</p>

## RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range:
1. Objects/components May include but is not limited to:	<ul style="list-style-type: none"> <li>• Building blocks</li> <li>• Bricks</li> <li>• Doors</li> <li>• Windows</li> </ul>

	<ul style="list-style-type: none"> <li>• Aggregates</li> <li>• Cement</li> <li>• Timber</li> <li>• Reinforcement bars</li> </ul>
2. Geometric shapes May include but is not limited to:	<ul style="list-style-type: none"> <li>• Round</li> <li>• Square</li> <li>• Rectangular</li> <li>• Triangle</li> <li>• Sphere</li> <li>• Conical</li> <li>• Prism</li> <li>• cylinder</li> </ul>
3. Measuring tools and calculation instruments May include but is not limited to:	<ul style="list-style-type: none"> <li>• Micrometer gauge (In-out, depth)</li> <li>• Vernier calipers (outside, inside, depth)</li> <li>• Straight edge</li> <li>• Try-square</li> <li>• Protractor</li> <li>• Steel rule</li> <li>• Gauges</li> <li>• Tape measure</li> <li>• Pair of compass</li> <li>• Pair of dividers</li> <li>• Calculator</li> <li>• T-Square</li> <li>• Scale rule</li> <li>• Set square(60<sup>0</sup>and 45<sup>0</sup>)</li> <li>• Digital weighing machine</li> <li>• Optical instruments</li> </ul>

4. Object parameters	<ul style="list-style-type: none"> <li>• Linear</li> <li>• Volume</li> <li>• Area</li> <li>• Displacement</li> <li>• Inside diameter</li> <li>• Circumference</li> <li>• Length</li> <li>• Thickness</li> <li>• Outside diameter</li> <li>• Tapering</li> <li>• Out of roundness</li> </ul>
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## **REQUIRED SKILLS AND KNOWLEDGE**

### **Required Skills and Knowledge**

This section describes the skills and knowledge required for this unit of competency.

#### **Required skills**

The individual needs to demonstrate the following skills:

- Numeracy.
- Measuring
- Problem solving
- Visualizing
- Interpreting
- Tool handling
- Communication
- Inter personal
- Reading
- Analytical
- Teamwork
- Time management

#### **Required knowledge:**

The individual needs to demonstrate knowledge of:

- Four fundamental operations
- Linear measurements
- Dimensions
- Unit conversion
- Ratio and proportion
- Algebraic equations

- Use and maintenance of masonry tools and equipment
- Geometrical shapes.

## EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the Performance Criteria, required skills and knowledge and range

1. Critical Aspects	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Identified objects and object parameters correctly</li> <li>1.2 Selected and prepared measuring and calculation instruments correctly.</li> <li>1.3 Performed measurements and calculations accurately</li> <li>1.4 Checked measuring and calculation instruments accuracy correctly</li> <li>1.5 Measured and recorded object(s) readings accurately</li> <li>1.6 Identified and converted systems correctly</li> <li>1.7 Self-checked and corrected numerical computations accurately</li> </ul>
2. Resource implications for competency certification	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> <li>2 .1Workplace location</li> <li>2 .2 Institutional workshop</li> <li>2 .3 Measuring tools and instruments</li> <li>2 .4 Instructional materials</li> </ul>
3. Methods of assessment	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> <li>3.1Observation.</li> <li>3.2Written test</li> <li>3.3Interview</li> <li>3.4Oral questioning</li> <li>3.5Project</li> </ul>
4. Context of assessment	<p>Competency may be assessed:</p> <ul style="list-style-type: none"> <li>4.1On-the-job,</li> <li>4.2Off-the-job or</li> <li>4.3 During Work placement</li> </ul>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>