

## PRODUCE MASONRY CONSTRUCTION UNITS

**UNIT CODE:** CON/OS/MA/CR/04/4/A

### UNIT DESCRIPTION

This unit specifies the competencies required to produce masonry construction units. It entails interpreting working drawings, estimating and costing materials and supplies, producing clay masonry units, concrete masonry units, hand dressed stones and stabilized soil masonry units

This standard applies in the Construction industry.

### ELEMENTS AND PERFORMANCE CRITERIA

<b>ELEMENT</b> These describe the key outcomes which make up workplace function.	<b>PERFORMANCE CRITERIA</b> These are assessable statements which specify the required level of performance for each of the elements. <i><b>Bold and italicized terms are elaborated in the Range</b></i>
1. Interpret working drawings	1.1 Working drawings are identified based on their features and title block. 1.2 Scale of the drawing is read based on the drawing. 1.3 Measurements are converted based on best practice. 1.4 Symbols are identified based on working drawings standards.
2. Estimate and cost materials and supplies	2.1 <i><b>Materials and supplies</b></i> required for production of construction units are identified based on the working drawings and specifications. 2.2 Schedule of materials and supplies is prepared based on the drawings and specifications. 2.3 Materials and supplies are estimated and costed based on working drawings and specifications.
3. Produce clay masonry units	3.1 Required <i><b>tools and equipment</b></i> for production of clay masonry units are identified based on the working drawings and specifications. 3.2 Tools and equipment are used and maintained based on manufacturers' instructions. 3.3 Required <i><b>PPEs</b></i> are identified and used based on job requirements and manufacturers' instructions. 3.4 Materials and supplies for production of clay masonry units

	<p>are identified based on specifications.</p> <p>3.5 Clay mix is prepared based on best practice.</p> <p>3.6 Clay moulds are assembled and prepared as per standard procedure.</p> <p>3.7 Moulding is carried out and products allowed to dry as per standard procedure.</p> <p>3.8 Dry products are arranged in a kiln in readiness for firing as per best practice.</p> <p>3.9 Firing is carried out as per best practice.</p> <p>3.10 <b>Fired clay products</b> are harvested, sorted and stored as per best practice.</p>
4. Produce concrete masonry units	<p>4.1 Required <b>tools and equipment</b> for production of concrete masonry units are identified based on the working drawings and specifications.</p> <p>4.2 Tools and equipment are used and maintained based on manufacturers' instructions.</p> <p>4.3 Required <b>PPEs</b> are identified and used based on job requirements and manufacturers' instructions.</p> <p>4.4 Materials and supplies for production of concrete masonry units are identified based on specifications.</p> <p>4.5 Concrete mix is prepared based on specifications.</p> <p>4.6 Concrete moulds are assembled and prepared as per standard procedure.</p> <p>4.7 Moulding is carried out and products cured as per standard procedure.</p> <p>4.8 <b>Concrete masonry units</b> are sorted, arranged and stored as per best practice.</p>
5. Produce hand dressed stones	<p>5.1 Required <b>tools and equipment</b> for production of hand dressed masonry units are identified based on the working drawings and specifications.</p> <p>5.2 Tools and equipment are used and maintained based on manufacturers' instructions.</p> <p>5.3 Required <b>PPEs</b> are identified and used based on job requirements and manufacturers' instructions.</p> <p>5.4 Stones for production of hand dressed masonry units are identified based on specifications.</p> <p>5.5 Stones are dressed based on working drawings and specifications.</p> <p>5.6 Dressed stones are sorted based on size and job</p>

	requirements
6. Produce stabilized soil masonry units	<p>6.1 Required <b>tools and equipment</b> for production of stabilized soil masonry units are identified based on the working drawings and specifications.</p> <p>6.2 Tools and equipment are used and maintained based on manufacturers' instructions.</p> <p>6.3 Required <b>PPEs</b> are identified and used based on job requirements and manufacturers' instructions.</p> <p>6.4 Moulding machine/boxes are assembled and prepared based on standard procedure.</p> <p>6.5 Materials are mixed based on best practice and job specification.</p> <p>6.6 <b>Stabilized soil masonry units</b> are moulded, arranged and cured as per standard procedure.</p> <p>6.7 Stabilized soil masonry units are sorted based on quality.</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.

Variables	Range
1. Supplies and Materials may include but not limited to:	<p>Clay masonry units</p> <ul style="list-style-type: none"> <li>• Water</li> <li>• Clay soil</li> <li>• Grass</li> <li>• Used oil</li> <li>• Moulds</li> </ul> <p>Concrete masonry units</p> <ul style="list-style-type: none"> <li>• Ballast</li> <li>• Quarry dust</li> <li>• Cement</li> <li>• Sand</li> </ul>

	<ul style="list-style-type: none"> <li>• Water</li> <li>• Wire mesh</li> <li>• Reinforcement bars</li> <li>• Mould</li> <li>• Used oil</li> </ul> <p>Stabilized soil masonry units</p> <ul style="list-style-type: none"> <li>• Cement</li> <li>• Water</li> <li>• Soil</li> <li>• Sisal</li> <li>• Mould</li> <li>• Used oil</li> </ul> <p>Quarry stones</p> <ul style="list-style-type: none"> <li>• Bush</li> <li>• Smooth</li> <li>• medium</li> </ul>
<p>2. Masonry tools and equipment</p>	<ul style="list-style-type: none"> <li>• Mason square</li> <li>• Trowels</li> <li>• Spades</li> <li>• Wheel barrow</li> <li>• Dumper</li> <li>• Float</li> <li>• Hawk</li> <li>• Concrete mixer</li> <li>• Vibrator</li> <li>• Compactor</li> <li>• Hammer</li> <li>• Mattock</li> <li>• Machete</li> <li>• Buckets</li> <li>• Mixing platform</li> <li>• Hose Pipe</li> <li>• Drum</li> <li>• Moulding boxes</li> <li>• Molding machine</li> <li>• Chisels</li> </ul>

<p>3. Personal protective equipment may include but not limited to:</p>	<ul style="list-style-type: none"> <li>• Hard hat / helmet</li> <li>• Dust mask</li> <li>• Goggles</li> <li>• Ear plugs / ear muffs</li> <li>• Dust coat / coverall</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Gum boots</li> <li>• Reflector jackets</li> </ul>
<p>4. Concrete masonry units may include but not limited to:</p>	<ul style="list-style-type: none"> <li>• Paving slabs</li> <li>• Channels</li> <li>• Culverts</li> <li>• Roads kerbs</li> <li>• Wall vents</li> <li>• Vent blocks</li> <li>• Hollow blocks</li> <li>• Solid blocks</li> <li>• Concrete posts</li> <li>• Bollards</li> <li>• Balustrades</li> <li>• Interlocking blocks</li> </ul>
<p>5. Fired clay units may include but not limited to:</p>	<ul style="list-style-type: none"> <li>• Roofing tiles</li> <li>• Wall tiles</li> <li>• Window sills</li> <li>• Bricks</li> <li>• Vents</li> <li>• Louvers</li> </ul>
<p>6. Stabilized soil masonry units may include but not limited to:</p>	<ul style="list-style-type: none"> <li>• Interlocking blocks</li> <li>• Blocks</li> </ul>

## 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:

- Interpersonal
- Communication
- Drawing
- Interpretation of working drawings
- Problem-solving
- Critical thinking
- Organizing
- Measuring
- Numeracy
- Mortar handling
- Clay mixing and blending
- Mould assembling and preparing
- Soil mixing and blending
- Time management
- Time work
- Concrete materials mixing
- Masonry units handling
- Moulding masonry units
- Tool and equipment handling

## Required Knowledge

The individual needs to demonstrate knowledge of:

- Interpretation of drawings and symbols
- Estimate and cost
- Conversion of units
- Measurement
- Safety
- Materials properties
- Mould assembling and dismantling
- Moulding masonry units techniques
- Finishing techniques
- concrete
- Aggregates
- Soil types
- lime
- Cement types and uses
- Water
- curing of finished masonry units

- Use and maintenance of tools and equipment
- Type of masonry units and its application
- Extraction of materials

## EVIDENCE GUIDE

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

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ol style="list-style-type: none"> <li>1.1 Identified features correctly</li> <li>1.2 Read Scaled drawing accurately.</li> <li>1.3 Converted Measurements correctly</li> <li>1.4 Identified working drawings Symbols appropriately</li> <li>1.5 Identified Materials and supplies required correctly</li> <li>1.6 Prepared Schedule of materials and supplies correctly</li> <li>1.7 Estimated and costed Materials and supplies accurately</li> <li>1.8 Identified required tools and equipment for production of clay masonry units correctly</li> <li>1.9 Used and maintained Tools and equipment appropriately</li> <li>1.10 Identified and used Required PPEs appropriately</li> <li>1.11 Identified Materials and supplies for production of clay units correctly</li> <li>1.12 Prepared and mixed clay accurately.</li> <li>1.13 Prepared and assembled Clay mould appropriately</li> <li>1.14 Moulded and dried clay products appropriately</li> <li>1.15 Arranged dried products are in a kiln correctly</li> <li>1.16 Fired clay products appropriately</li> <li>1.17 Harvested, sorted and stored Fired clay products appropriately.</li> <li>1.18 Identified tools and equipment required for production of concrete masonry units correctly</li> <li>1.19 Identified Materials and supplies for production of concrete masonry units correctly.</li> <li>1.20 Prepared and mixed concrete correctly.</li> <li>1.21 Prepared and assembled concrete mould appropriately</li> <li>1.22 Moulded and cured concrete products correctly</li> </ol>
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	<p>1.23 Sorted, arranged and stored Concrete masonry products appropriately</p> <p>1.24 Identified tools and equipment required for production of hand dressed masonry units correctly</p> <p>1.25 Identified Stones for production of hand dressed masonry units correctly</p> <p>1.26 Dressed Stones appropriately</p> <p>1.27 Identified tools and equipment required for production of stabilized soil masonry units correctly</p> <p>1.28 Prepared and assembled Moulding machine/boxes are appropriately.</p> <p>1.29 Mixed Materials for stabilized soil masonry units correctly</p> <p>1.30 Moulded, arranged and cured stabilized soil masonry units appropriately.</p> <p>1.31 Sorted Stabilized soil masonry units appropriately</p> <p>1.32 Demonstrated understanding of production of masonry construction units</p>
2. Resource Implications for competence certification	<p>The following resources must be provided:</p> <p>2.1 A functional workshop with basic masonry tools, equipment, materials and supplies.</p> <p>2.2 References and manuals including construction working drawings</p> <p>2.3 Personal protective equipment</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Observation</p> <p>3.2 Oral</p> <p>3.3 Written</p> <p>3.4 Third party report</p> <p>3.5 Portfolio</p>
4. Context of Assessment	<p>Assessment may be done:</p> <p>4.1 On-the-job,</p> <p>4.2 Off-the-job or</p> <p>4.3 During Work placement.</p>
5. Guidance information for assessment	<p>The unit may be assessed alone or together with other related units.</p>



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