

CONSTRUCT BUILDING SUPERSTRUCTURE

UNIT CODE: CON/OS/MA/CR/02/4/A

UNIT DESCRIPTION:

This unit specifies the competencies required to construct building superstructure. It entails interpreting working drawings, estimating and costing materials and supplies, Setting out building super structures, preparing position and cast columns , constructing super-structure walling and suspended floor slab and beams

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. <i>Bold and italicized terms are elaborated in the Range</i>
1. Interpret working drawings	1.1 <i>Working drawings</i> 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>Materials and supplies</i> required for masonry works are identified based on the drawing and site. 2.2 Schedule of materials and supplies is prepared based on the drawings. 2.3 Materials and supplies are estimated and costed based on working drawings and specifications.

<p>3.Set-out building super structure</p>	<p>3.1 Personal Protective Equipment is identified and used in line with occupational safety and health regulations.</p> <p>3.2 Masonry tools and equipment are used and maintained based on manufacturer’s instructions.</p> <p>3.3 Preliminary preparation activities are carried out as per drawings and standard procedures</p> <p>3.4 Reference points are located on the floor slab as per drawings.</p> <p>3.5 Measurements are transferred from profile boards to the floor slab according to drawings and standard procedures.</p> <p>3.6 Measurement and square-ness are checked based on standard procedure.</p> <p>3.7 Profile lines are marked on the floor slab according to the drawings.</p> <p>3.8 Column kickers are casted as per the standard procedures</p> <p>3.9 Wall screeding is done as per working drawings and specification.</p> <p>3.10 Masonry tools and equipment are maintained and stored based on manufacturer’s instructions and best practice.</p>
<p>4.Prepare, position and cast columns</p>	<p>4.1 Measurements are transferred to the floor slab based on specifications.</p> <p>4.2 Formwork is prepared and positioned based on working drawings and standard procedure.</p> <p>4.3 Reinforcement bars are prepared and positioned based on working drawings and based on specifications.</p> <p>4.4 Columns are casted based on working drawings and specifications.</p> <p>4.5 Columns vertical alignment is checked as per standard procedures.</p> <p>4.6 Columns are cured as per standard procedure.</p>
<p>5.Construct super-structure walling</p>	<p>5.1 Superstructure walling units are identified based on specifications.</p> <p>5.2 Wall openings are marked based on working drawings and specifications.</p> <p>5.3 Masonry in-fills are constructed as per working drawings</p>

	<p>and best practice.</p> <p>5.4 Masonry works horizontal and vertical alignment is checked as per standard procedures.</p> <p>5.5 Masonry in-fills are cured as per standard procedure.</p>
6. Construct suspended floor slab and beams	<p>6.1 Measurements for the <i>floor slab(s)</i> and the beams are transferred from the reference point and marked as per working drawing.</p> <p>6.2 Formwork is prepared and positioned based on working drawings and standard procedure.</p> <p>6.3 Reinforcement bars are prepared, positioned and fixed based on working drawings and based on specifications.</p> <p>6.4 Beams and slabs are casted based on working drawings and specifications.</p> <p>6.5 Slab and beams levelness and horizontal alignment is checked as per standard procedures.</p> <p>6.6 Slab and beams are <i>cured</i> as per standard procedure.</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. Working drawings may include but not limited to:	<ul style="list-style-type: none"> • Architectural drawings • Structural • MEP drawings • Site development drawings • Survey maps
2. Supplies and Materials may include but not limited to:	<ul style="list-style-type: none"> • Ballast • Sand • Cement • Additives • Water • Timber • Scaffolds • Used oil • Binding wire • Deformed Steel Bars

	<ul style="list-style-type: none"> • Damp proof course • Lime • Chalk • Nails • Strings • BRC • Poles
3. Personal Protective Equipment may include but not limited to:	<ul style="list-style-type: none"> • Hard hat / helmet • Dust Mask • Goggles • Ear plugs / ear muffs • Dust coat / coverall • Gloves • Safety boots • Gum boots • Reflector jackets
4. Masonry tools and equipment may include but not limited to:	<ul style="list-style-type: none"> • Mason square • Spirit level • Plumb bob • Trowels • Spades • Wheel barrow • Dumper • Mason string • Straight edge • Float • Concrete mixer • Dumpy level • Vibrator • Compactor • Hammer • Bend bar • Mattock • Machete • Sledge Hammer • Buckets • Mixing platform • Hose Pipe

5. Preliminary preparation activities may include but not limited to:	<ul style="list-style-type: none"> • Ground floor slab preparation <ul style="list-style-type: none"> ○ Cleaning ○ Watering ○ Hacking • Wall screeding • Kickers preparation
6. Reference points may include but not limited to:	<ul style="list-style-type: none"> • Datum • Building line • Temporary bench mark (TBM) • Profile boards
7. Superstructure walling units may include but not limited to:	<ul style="list-style-type: none"> • Dressed quarry stones • Common bricks • Concrete blocks • Machine cut stones
8. Slabs may include but not limited to:	<ul style="list-style-type: none"> • Suspended hollow pots • Suspended solid slab • Waffled slab • Inclined/stairs
9. Damp proofing may include but not limited to:	<ul style="list-style-type: none"> • Damp Proofing Membrane • Damp Proof Spray • Waterproofing additives • Bituminous
10. Curing may include but not limited to:	<ul style="list-style-type: none"> • Water spraying • Jute sacks • Blankets • Sand • Pool curing • Curing agents

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
- Concrete materials mixing
- Masonry units handling
- Tool and equipment handling
- Team work
- Time management

Required Knowledge

The individual needs to demonstrate knowledge of:

- Interpretation of drawings and symbols
- Estimate and cost
- Conversion of units
- Measurement
- Safety and access
- Scaffold erection and dismantling
- Square-ness checking techniques
- Concrete mix ratios (Batching)
- Aggregates
- Additives
- Damp proofing materials
- Cement types and uses
- Types of suspended slabs and applications
- Types of timber
- Water
- Concreting
- Formwork
- Levelling
- Structural alignment
- Steel reinforcement fixing
- Masonry units
- Masonry works curing
- Use and maintenance of tools and equipment
- Curing

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 of Competency	Assessment requires evidence that the candidate: <ul style="list-style-type: none">1.1 Identified working drawings correctly.1.2 Read drawing scale correctly.1.3 Converted measurements accurately.1.4 Identified symbols correctly.1.5 Identified masonry materials, supplies, tools and equipment correctly.1.6 Prepared schedule of materials and supplies appropriately.1.7 Estimated and costed materials and supplies accurately.1.8 Identified appropriate personal protective equipment.1.9 Used personal protective equipment correctly.1.10 Used and maintained masonry tools and equipment appropriately.1.11 Carried out preliminary preparation activities appropriately.1.12 Located reference points on the ground floor accurately.1.13 Transferred measurements from profile boards to the ground floor accurately.1.14 Checked measurement and square-ness correctly.1.15 Marked profile lines on the ground floor accurately.1.16 Maintained and stored masonry tools and equipment appropriately.1.17 Prepared ground floor slab appropriately.1.18 Laid wall screeding layer correctly.1.19 Laid damp proofing appropriately.1.20 Prepared and positioned column formwork accurately.1.21 Prepared and positioned column reinforcement bars accurately.1.22 Casted columns correctly.1.23 Cured columns adequately1.24 Identified superstructure in-fill walling units correctly.1.25 Laid superstructure walling units correctly.1.26 Prepared, positioned and fixed suspended floor slab and beams formwork accurately.1.27 Fixed and positioned suspended floor slab and beams reinforcement accurately.
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	<p>1.28 Casted concrete suspended floor slab and beams appropriately.</p> <p>1.29 Cured concrete suspended floor slab and beams appropriately.</p> <p>1.30 Demonstrated understanding of construction of building super-structure.</p>
2. Resource implications	<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 Portfolio</p> <p>3.5project</p> <p>3.6Third party report</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>