



Australian Government

Department of Education, Employment and Workplace Relations

CPCCB3013A Construct masonry structural systems

Release: 1

CPCCB3013A Construct masonry structural systems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit of competency specifies the outcomes required to construct masonry load bearing walls and engaged and isolated piers. It includes planning, preparation set out and construction requirements of the work.

Application of the Unit

Application of the unit This unit of competency supports achievement of skills for laying bricks or blocks to a specified bond to construct load bearing building structures of a designed structural stability, which includes working with others and as a member of a team.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work.	<p>1.1. Work instructions, including plans, specifications, quality requirements and operational details, are obtained, confirmed and applied from relevant information to determine the required bricklaying and blocklaying tasks.</p> <p>1.2. Safety (OHS) requirements are followed in accordance with safety plans and policies.</p> <p>1.3. Signage and barricade requirements are identified and implemented.</p> <p>1.4. Plant, tools and equipment selected to carry out tasks are consistent with job requirements, checked for serviceability, and any faults are rectified or reported prior to commencement.</p> <p>1.5. Material quantity requirements are calculated in accordance with plans, specifications and quality requirements.</p> <p>1.6. Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use.</p> <p>1.7. Environmental requirements are identified for the project in accordance with environmental plans and statutory and regulatory authority obligations, and are applied.</p>
2. Set out masonry structures.	<p>2.1. Location and structural details of masonry structures are determined from plans and specifications.</p> <p>2.2. Work platform is erected in accordance with regulatory and workplace requirements.</p> <p>2.3. Set out area is correctly located and footing is checked for conformity to dimensions and location as per job specifications.</p> <p>2.4. Masonry structure is set out from drawings and specifications.</p> <p>2.5. Mortar materials are prepared and mixed in accordance with specifications.</p>
3. Construct load bearing walls.	<p>3.1. Masonry load bearing wall structure is laid to set out for base and specified bond in accordance with specifications.</p> <p>3.2. Structural masonry wall is constructed maintaining bond, and is completed to job specifications.</p> <p>3.3. Walls are to be straight, plumb and level within standard tolerances.</p>

ELEMENT	PERFORMANCE CRITERIA
4. Construct load bearing walls with piers.	<p>3.4. Tie down and lateral support system structures are installed to walls in accordance with plans, specifications, codes and standards.</p> <p>4.1. Masonry blockwork is laid to set out on reinforced concrete footing slab and to specified bond.</p> <p>4.2. Masonry blockwork gauge is determined and set out rod is prepared to gauge dimensions in accordance with specifications.</p> <p>4.3. Masonry blocks are cut to work bond and control joints.</p> <p>4.4. Columns are formed using walls and attached/engaged <i>piers</i>, incorporating and maintaining bond and perpendicular intersections of both vertical surfaces.</p> <p>4.5. Reinforcement material is placed and secured to form tie down, bracing and vertical supports for roof structures.</p> <p>4.6. Cores and blocks are cleaned out in preparation for the installation of formwork for concrete core filling in accordance with manufacturer recommendations and specifications.</p> <p>4.7. Concrete grout is mixed, placed and compacted to hollow blocks in accordance with manufacturer recommendations and specifications.</p> <p>4.8. Completed wall is to be straight, plumb and level within standard tolerances.</p>
5. Carry out articulated masonry construction.	<p>5.1. Design principles and methods of construction using <i>articulation joints</i> are identified.</p> <p>5.2. Locations of articulation joints are identified from work drawings specifications.</p> <p>5.3. Type of articulation method is identified and applied in accordance with work drawings, manufacturer recommendations and specifications.</p>
6. Clean and finish mortar joints.	<p>6.1. Joints to laid face brickwork are raked or ruled to correct profile and depth in accordance with job specifications.</p> <p>6.2. Blockwork is brushed down prior to drying.</p>
7. Clean up.	<p>7.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification.</p> <p>7.2. Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with</p>

ELEMENT**PERFORMANCE CRITERIA**

manufacturer recommendations and standard work practices.

Required Skills and Knowledge**REQUIRED SKILLS AND KNOWLEDGE**

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

Required skills

Required skills for this unit are:

- communication skills to:
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - report faults
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- numeracy skills to apply measurements and make calculations
- organisational skills, including the ability to plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
 - use a range of mobile technology, such as two-way radio and mobile phones
 - voice and hand signals to access and understand site-specific instructions.

Required knowledge

Required knowledge for this unit is:

- articulated and pier construction
- bonding patterns and block bonding techniques
- brick expansion and growth
- characteristics and applications of materials for constructing masonry structural systems

REQUIRED SKILLS AND KNOWLEDGE

- construction terminology
- control joints
- job safety analysis (JSA) and safe work method statements
- material safety data sheets (MSDS)
- materials storage and environmentally friendly waste management
- plans, specifications and drawings
- processes for the calculation of material requirements
- quality requirements for masonry structural systems
- reinforcing of structures and core filling of blockwork
- techniques for constructing masonry structural systems
- types, characteristics, uses and limitations of plant, tools and equipment
- workplace and equipment safety requirements.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of the ability to:

- locate, interpret and apply relevant information, standards and specifications
- comply with site safety plan and OHS legislation, regulations and codes of practice applicable to workplace operations
- comply with organisational policies and procedures, including quality requirements
- safely and effectively use tools, plant and equipment
- communicate and work effectively and safely with others
- as a minimum, given the plans and specifications, construct a block wall, including:
 - confirming that starter bars are correctly positioned
 - reinforcing with horizontal and vertical steel
 - cleaning eyes and tie downs
 - cleaning cores (for installation of formwork and pouring of concrete)
 - mixing, placing and compacting concrete grout
 - finishing wall to specifications
 - a load bearing column (390mm x 390mm) of a minimum of 1m high, including a control joint and a service opening for a door jamb with a bond beam lintel
 - and ensuring:

EVIDENCE GUIDE

Context of and specific resources for assessment

- correct identification of requirement and finishing of the tasks
- correct selection and use of appropriate processes, tools and equipment
- completing all work to specification.

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the mandatory task requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry related systems information.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application

EVIDENCE GUIDE

- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge
- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. **Italicised** wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

RANGE STATEMENT

Information includes:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions where specified
- memos
- MSDS
- organisation work specifications and requirements
- plans and specifications
- regulatory and legislative requirements pertaining to constructing masonry structural systems
- relevant Australian standards
- safe work procedures related to constructing masonry structural systems
- signage
- verbal or written and graphical instructions
- work bulletins
- work schedules.

Bricklaying and blocklaying tasks:

- include all clay brick (wire cut/pressed) and concrete block (hollow and solid) masonry work
- may be performed on a new construction site, an existing structure being renovated or extended or an existing structure subject to service restoration or maintenance.

Safety (OHS) is to be in accordance with legislation, regulations, codes of practice, organisational safety policies and procedures, and project safety plan and may include:

- emergency procedures, including emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation
- handling of materials
- hazard control
- hazardous materials and substances
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
 - earth leakage boxes
 - lighting
 - power cables, including overhead service trays, cables and conduits
 - restricted access barriers

RANGE STATEMENT

- surrounding structures
- traffic control
- trip hazards
- underground services, including water, gas, electricity and communications
- work site visitors and the public
- working at heights
- working in confined spaces
- working in proximity to others
- working with dangerous materials
- organisational first aid
- personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
- use of firefighting equipment
- use of tools and equipment
- workplace environment and safety.

Tools and equipment include:

- include:
 - bolsters
 - bolt cutters
 - brick grabs
 - brooms
 - buckets
 - builders' lines
 - concrete mixers
 - dumpy levels
 - elevators
 - explosive power tools
 - hammers (brickies, club and scutch)
 - hoses
 - jig saws
 - line blocks
 - line pins
 - masonry saws
 - measuring tapes and rules
 - mortar boards
 - pincers
 - plumb rule
 - margin or raking tools

RANGE STATEMENT

- profiles
- shovels
- spirit levels
- steel tying tools
- straight edges
- string line
- trowels
- wheelbarrows
- may include:
 - brick buggies
 - elevators
 - forklifts
 - materials hoists
 - pallet trolleys
 - scaffolds
 - small petrol or diesel engines, compressors or mixers.

Quality requirements include relevant regulations, including:

- Australian standards
- internal company quality policy and standards
- manufacturer specifications, where specified
- workplace operations and procedures.

Materials include:

- aggregates
- cement
- clay bricks (wire cut or pressed)
- lime
- masonry blocks
- non-shrink grout
- sealants
- steel reinforcing materials
- steel ties
- waterproofing materials.

Environmental requirements include:

- clean-up protection
- noise and dust
- vibration
- waste management.

Statutory and regulatory authorities include:

- federal, state and local authorities administering applicable Acts, regulations and codes of practice.

Masonry structure includes:

- articulated masonry joints

RANGE STATEMENT

- retaining walls
 - walls, columns and surrounds of service openings.
- Load bearing walls* include:
- reinforced masonry retaining walls
 - walls directly supporting roof
 - walls/bracing walls for wind loads.
- Structural masonry* includes:
- lateral support systems and reinforcement
 - specified wall ties.
- Piers* include:
- column at a control joint
 - corner column
 - end of wall column
 - straight wall column.
- Articulation joints* include:
- combined flexible panel and control joint
 - compressed foam filler rods
 - compressed foam joint filler
 - compressed foam joint strips
 - flexible panel
 - full height control joint.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area