Australian Government

Department of Education, Employment and Workplace Relations

CPCCCO2014A Carry out concrete work

Release: 1

CPCCCO2014A Carry out concrete work

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to carry out concreting work on general construction projects for the construction of in situ reinforced concrete structures, such as slabs and other common concrete works.

This unit includes setting out, reinforcing, erecting and dismantling formwork, and placing, finishing and curing concrete.

Application of the Unit

Application of the unit

This unit of competency supports the attainment of the understanding and skills to use the tools, equipment and materials to carry out concrete work, which may include 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. Plan and prepare.	1.1. Work instructions and operational details are obtained using relevant ***information***, confirmed and applied for ***planning and preparation*** purposes. 1.2. ***Safety*** (***OHS***) requirements are followed in accordance with safety plans and policies. 1.3. Signage and barricade requirements are identified and implemented. 1.4. Plant, ***tools and equipment*** selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement. 1.5. Materials quantity requirements are calculated in accordance with plans, specifications and ***quality requirements***. 1.6. ***Materials*** appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use. 1.7. ***Environmental requirements*** are identified for the project in accordance with environmental plans and regulatory obligations and applied.
2. Prepare concreting materials.	2.1. Location of steel reinforcement and formwork is determined from drawings and reinforcement schedule. 2.2. ***Reinforcement*** is checked against reinforcement drawings and specifications. 2.3. ***Formwork*** components and materials are selected consistent with job. 2.4. Fixing and fasteners are selected and used consistent with requirements of the job.
3. Set out for concrete work.	3.1. String lines are set accurately from existing pegs. 3.2. Grades are checked to ensure correct fall. 3.3. Services are identified and protected to prevent damage.
4. Construct and install reinforcement.	4.1. Reinforcing fabric and bars are cut and bent as required to project drawings and specifications. 4.2. Fabric and bars are tied or fixed to configuration from project drawings and specifications. 4.3. Stiffening rods are attached to panels as required to facilitate handling. 4.4. Reinforcement material is located in formwork and

ELEMENT	PERFORMANCE CRITERIA
	placed on bar chairs/spacers as determined from drawings, noting clearance from formwork.
	4.5. ***Cast-in items*** are located and secured.
5. Erect formwork.	5.1. Work area is cleared and surface prepared for safe erection of formwork.
	5.2. Formwork is set out to requirements of drawings and specifications.
	5.3. Formwork is assembled and erected to specifications.
	5.4. Debris, sawdust and other waste material are safely removed from formwork.
	5.5. Form release agent is applied to manufacturer specifications.
6. Carry out concrete work.	6.1. ***Concrete*** is ***transported*** correctly with wheelbarrow and discharged into formwork, using correct manual handling techniques.
	6.2. Discharge of concrete from concrete pump line and/or chute into the formwork is controlled correctly.
	6.3. ***Concrete is placed*** correctly to instruction and screeded to specified levels and grades.
	6.4. Concrete is compacted to specification using immersion vibrator or other specified method.
	6.5. ***Concrete is finished*** and ***curing*** process applied to specifications.
	6.6. Control joints are positioned and installed to specification and to current Australian standard or codes.
	6.7. Dowel joints are positioned to specification.
	6.8. Concrete surface is adequately covered and protected.
7. Strip formwork.	7.1. Edge boxing and braces are removed carefully, safely and sequentially.
	7.2. Timber components are denailed, cleaned and stored or stacked.
	7.3. Steel components are cleaned, oiled and stored or stacked.
	7.4. Damaged formwork components are discarded after stripping.
	7.5. Screens are safely cleaned before movement, where applicable.

ELEMENT	PERFORMANCE CRITERIA
8. Clean up.	8.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification. 8.2. Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with 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
- evaluating own actions and making judgments about performance and necessary improvements
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- organisational skills, including the ability to plan and set out work
- recognising procedures, following instructions, responding to change and contributing to workplace responsibilities, such as current work site environmental and sustainability frameworks or management systems
- teamwork skills to coordinate own 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:

REQUIRED SKILLS AND KNOWLEDGE

- 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:

- concrete characteristics and properties
- concreting principles
- equipment types, characteristics, technical capabilities and limitations
- formwork
- general construction terminology
- job safety analysis (JSA) and safe work method statements
- material safety data sheets (MSDS)
- materials handling methods
- operational, maintenance and basic diagnostic procedures
- processes for interpreting engineering drawings
- quality requirements
- site and equipment safety requirements
- site isolation and traffic control responsibilities and authorities
- steel reinforcement characteristics
- structural technology.

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 operate and use tools, plant and equipment • communicate and work effectively and safely with others • complete at least three concreting projects (each a minimum of two cubic metres of concrete), incorporating a minimum of two different finishes with at least one project containing angled formwork and bent reinforcement and all projects being completed to job specifications.
Context of and specific resources for assessment	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:

EVIDENCE GUIDE

- 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
- 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

EVIDENCE GUIDE

	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. Bold 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.

Information includes:	• diagrams or sketches • instructions issued by authorised organisational or external personnel • manufacturer specifications and instructions, where specified • MSDS • memos • regulatory and legislative requirements pertaining to carrying out concrete work • relevant Australian standards • safe work procedures relating to concreting

RANGE STATEMENT

	• signage • verbal, written and graphical instructions • work bulletins • work schedules, plans and specifications.
Planning and preparation include:	• assessment of conditions and hazards • determination of work requirements and safety plans and policies • equipment defect identification • work site inspection.

Safety (***OHS***) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:	• emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
	• handling activities that may require the assistance of others or the use of manual or mechanical lifting devices where size, weight or other issues, such as a disability are a factor
	• hazard control
	• hazardous materials and substances
	• organisational first aid
	• PPE prescribed under legislation, regulations and workplace policies and practices
	• 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
	  • surrounding structures
	  • traffic control
	  • trip hazards
	  • work site visitors and the public
	  • working at heights
	  • working in confined spaces
	  • working in proximity to others
	• use of firefighting equipment
	• use of tools and equipment
	• workplace environmental requirements and safety.

RANGE STATEMENT

Tools and equipment include:

- bolt cutters
- brushes
- buckets
- chutes
- curing agent applicator
- edging tools
- floats
- hammers
- hoses
- kibble
- mesh guillotine
- nips
- rakes
- reinforcement benders
- rods
- screeds
- short handle shovels
- shutters
- sponges
- steam generator
- tarpaulins
- tremmies
- trowels
- vibrators
- wheelbarrows.

Quality requirements include:

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

Materials include:

- bar chairs
- cement
- concrete blend
- curing compounds
- form release agents
- formwork components
- membranes
- pre-mix concrete
- sand
- steel reinforcing

RANGE STATEMENT

	• vapour barriers • water.
Environmental requirements include:	• clean-up management • dust and noise • stormwater management • vibration • waste management.
Reinforcement components include:	• ligatures • mesh • reinforcement bars and rods.
Formwork includes:	• expanded polystyrene • fibreglass • masonry • plywood • steel shutters • structural cardboard • timber.
Cast-in items include:	• services and fixtures tied to the reinforcement.
Concreting work includes:	• beams • columns • footings • footpaths • lintels • pads • ramps • repairing of kerb and channel • slabs on ground • stairs • structural members • suspended slab • walls.
Transporting of concrete includes:	• crane and kibble • pre-mix truck • pumping equipment • wheelbarrow.
Placing of concrete includes:	• kibble • pumping equipment • shovelling • tremmies

RANGE STATEMENT

	• truck placed • vibrating • wheelbarrow.
Concreting finishing techniques include:	• broom finished • brushed • bull float • mechanical trowelling machine • steel trowel • wood float.
Curing includes:	• applied moisture • coating with a membrane • curing compound • flooding • plastic sheeting • steam.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area