



Australian Government

Department of Education, Employment and Workplace Relations

CPCCCO3032A Conduct concrete boom delivery operations

Release: 1

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Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to conduct concrete boom delivery operations, using a vehicle-borne pumping system, in support of construction projects. It covers systems with a minimum of two boom stages.

The unit covers planning and preparation for work; the conduct of operational checks; the safe and effective operation of the vehicle and pumping system; the safe establishment, use and monitoring of the boom distribution system; and the conduct of operator maintenance and work finalisation activities.

Application of the Unit

Application of the unit

This unit of competency supports the attainment of the understanding and skills to conduct concrete boom delivery operations, 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

Prerequisite units

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. 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. Conduct boom delivery system pre-operational checks.	2.1. Pre-start, start up, park and shut down procedures are carried out on the vehicle and pump in accordance with manufacturer and/or site specific requirements. 2.2. Vehicle controls and functions, including steering, brakes and manoeuvrability are checked for serviceability and any faults are rectified or reported. 2.3. Distribution system components, including boom components, lines, hoses and adaptors are checked before use. 2.4. Hoppers are cleaned and serviced prior to use.
3. Operate concrete boom delivery vehicle.	3.1. Site hazards associated with vehicle operations are identified and safe operating techniques are used to minimise risk. 3.2. Engine power is managed to ensure efficiency of concrete pump vehicle platform movements and to minimise damage to engine and gears. 3.3. Engine power is coordinated with gear selection ensuring smooth transition and operation within torque range. 3.4. Truck is operated to work instructions in accordance

ELEMENT	PERFORMANCE CRITERIA
4. Deliver concrete.	with company operating procedures. 3.5. Road and traffic conditions are constantly monitored, taking into account road standards, traffic flow, distance and load, ensuring no injury to people or damage to property, equipment, loads and facilities. 3.6. Truck is brought to a halt smoothly, minimising wear and tear on vehicle using the engine retarder, gears and brakes. 4.1. Site hazards associated with positioning of boom delivery components are identified and analysed and safe operating techniques are used to minimise risk. 4.2. Boom delivery vehicle is positioned at site where it can best service the delivery task and provide access to concrete supply vehicles. 4.3. Delivery platform stabilisers are prepared, deployed and checked to manufacturer requirements for operation and safety. 4.4. Delivery system components, including booms, lines and adaptors, are positioned securely and safely, in accordance with manufacturer specifications, and checked prior to use. 4.5. Pumping systems are test run and prepared for use in accordance with equipment specifications. 4.6. Supply of bulk concrete mix to the hopper is coordinated safely with the supply vehicle operators. 4.7. Boom delivery system is operated and its positioning is varied to maintain concrete delivery to the required destination. 4.8. Boom delivery system is safely withdrawn at completion of delivery task.
5. Carry out operator maintenance.	5.1. Boom delivery vehicle is safely parked, prepared for maintenance and shut down as per manufacturers' manual and organisational requirements. 5.2. Inspection and fault finding on the vehicle, pump and boom system components are conducted in accordance with manufacturer specifications and organisational requirements. 5.3. Defective parts are removed and replaced safely and effectively according to manufacturers' manual and organisational requirements. 5.4. Regular programmed maintenance tasks are carried out in accordance with manufacturer and

ELEMENT	PERFORMANCE CRITERIA
6. Clean up.	organisational requirements. 6.1. Work area is cleared and materials disposed of, reused or recycled in accordance with project environmental management plan. 6.2. Vehicle, 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

REQUIRED SKILLS AND KNOWLEDGE

- 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:

- boom and line establishment techniques
- concrete boom delivery vehicle systems, characteristics, technical capabilities and limitations
- construction activity sequences related to bulk concreting operations
- general construction terminology
- job safety analysis (JSA) and safe work method statements
- levelling techniques
- material safety data sheets (MSDS)
- materials handling methods
- operational, maintenance and basic diagnostic procedures
- overhead safety requirements related to boom operations
- processes for interpreting engineering drawings and sketches
- pumps and pumping system operations
- quality requirements
- safe operating techniques in all terrain
- site and equipment safety requirements
- site isolation and traffic control responsibilities and authorities
- state or territory regulatory requirements related to boom delivery system operations.

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
- communicate and work effectively and safely with others
- conduct concrete boom delivery truck system operations, to be performed over not less than three shifts at two different sites and to include:
 - positioning of the vehicle
 - preparation and positioning of the booms and lines
 - preparation of the pump and hopper
 - coordination of maintenance of hopper levels
 - delivery of concrete to required location on work site
 - variation of the boom delivery system positioning to meet changing requirements
 - withdrawal of the boom delivery system
 - application of emergency procedures
 - conduct of authorised operator maintenance.

Context of and specific

This competency is to be assessed using standard

EVIDENCE GUIDE

resources for assessment

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
- 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.

EVIDENCE GUIDE

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. 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

RANGE STATEMENT

Planning and preparation include:

Safety (OHS) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:

- manufacturer specifications and instructions, where specified
- MSDS
- memos
- regulatory and legislative requirements pertaining to concrete boom delivery vehicle systems operations and the environment
- relevant Australian standards
- safe work procedures relating to concrete boom delivery vehicle systems operations and the environment
- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.
- assessment of conditions and hazards
- determination of work requirements and safety plans and policies
- equipment defect identification
- work site inspection.
- 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

RANGE STATEMENT

	• 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.
Tools and equipment include:	• hand tools and maintenance equipment associated with the particular concrete boom delivery vehicle system.
Quality requirements include:	• internal company quality policy and standards • manufacturer specifications, where specified • relevant regulations, including Australian standards • workplace operations and procedures.
Environmental requirements include:	• clean-up management • dust and noise • stormwater management • vibration • waste management.
Vehicles:	• are purpose built vehicles which may vary in size • have 2 to 4 boom stages • have pumping systems that may have integral or independent power sources.
Delivery systems:	• are generally linked to a hopper, which is in turn supplied from secondary delivery sources or vehicles.
Concrete delivery systems:	• include: • boom mounted conveyors • lines • may include adaptors.
Concrete mixes vary in water content and in order from wet to dry and include:	• block-fill • pool-mix • topping • slab • footing • curb and guttering.

RANGE STATEMENT

Operator *maintenance*:

- includes:
 - authorised servicing
 - cleaning
 - monitoring, recording and reporting faults
- may include:
 - conducting authorised minor replacements
 - providing assistance to maintenance personnel during maintenance and repair activities.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area