



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **CPCCLTC4002A Licence to operate a self-erecting tower crane**

**Release: 1**

## **CPCCLTC4002A Licence to operate a self-erecting tower crane**

### **Modification History**

Not Applicable

### **Unit Descriptor**

**Unit descriptor** This unit specifies the outcomes required to operate a self-erecting tower crane for licensing purposes, and covers the operation of a crane where the tower structure and boom/jib elements are not disassembled into component sections, which can be transported between sites as a complete unit, and where the erection and dismantling processes are an inherent part of the crane's function.

### **Application of the Unit**

**Application of the unit** This unit requires the operator to plan the work, conduct routine checks, transfer loads and shut down and secure the crane.

This unit is based on the requirements of the National Standard for Licensing Persons Performing High Risk Work.

This unit in its current form meets state and territory licensing requirements. Any alteration will result in a unit which is not acceptable to regulators for the purpose of licensing.

### **Licensing/Regulatory Information**

Refer to Unit Descriptor

### **Pre-Requisites**

**Prerequisite units** Nil

**Prerequisite units** Nil

## **Employability Skills Information**

**Employability skills** This unit contains employability skills.

## **Elements and Performance Criteria Pre-Content**

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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 work.	<p>1.1. Potential workplace <i>hazards</i> are identified.</p> <p>1.2. <i>Hazard control measures</i> are identified consistent with <i>appropriate standards</i> to ensure the safety of personnel and equipment.</p> <p>1.3. Weight of the load is identified and estimated in consultation with <i>appropriate personnel</i>.</p> <p>1.4. <i>Crane</i> is <i>appropriate</i> for the load/s and workplace conditions.</p> <p>1.5. The appropriate paths for the movement of loads in the work area are inspected and determined.</p> <p>1.6. Appropriate <i>communication methods</i> are identified with appropriate personnel.</p>
2. Conduct routine checks.	<p>2.1. Crane is visually checked for any damage or defects.</p> <p>2.2. Crane is accessed in safe manner (where applicable).</p> <p>2.3. All <i>signage and labels</i> are visible and legible according to the <i>appropriate standard</i>.</p> <p>2.4. Routine pre-operational crane checks are carried out according to procedures.</p> <p>2.5. All <i>controls</i> located and identified.</p> <p>2.6. Crane <i>service logbook</i> is checked for compliance.</p> <p>2.7. <i>Crane</i> is started according to procedures and checked for any abnormal noises.</p> <p>2.8. All <i>crane safety devices</i> are tested according to procedures.</p> <p>2.9. Post start operational checks are carried out according to procedures.</p> <p>2.10. All <i>communication equipment</i> is checked for serviceability</p> <p>2.11. All damage and defects are reported and recorded according to procedures and appropriate action taken.</p>
3. Transfer loads.	<p>3.1. Lifts are determined within the capacity of the crane.</p> <p>3.2. Appropriate hazard prevention/control measures are applied to the work area according to procedures in consultation with appropriate personnel.</p> <p>3.3. Boom/jib and hoist block is positioned over load following directions from appropriate personnel.</p> <p>3.4. <i>Test lift</i> is carried out to procedures.</p> <p>3.5. Loads are transferred using all <i>relevant crane</i></p>

**ELEMENT****PERFORMANCE CRITERIA**

	<p><i>movements</i> according to procedures and appropriate standards.</p> <p>3.6. All required <i>communication signals</i> are interpreted correctly according to procedures and the appropriate standard.</p> <p>3.7. Crane is operated according to procedures.</p> <p>3.8. Load movement is monitored constantly to ensure safety of personnel, load and crane stability.</p> <p>3.9. <i>Unplanned and/or unsafe situations</i> are responded to in line with procedures.</p>
4. Shut down and secure crane.	<p>4.1. Crane is placed in weather vain mode according to procedures (where applicable).</p> <p>4.2. Relevant motion locks and brakes are applied (where applicable).</p> <p>4.3. Crane and equipment is secured correctly, according to procedures and the appropriate standard.</p> <p>4.4. Crane is <i>shut down</i> according to procedures</p> <p>4.5. Routine post-operational checks on crane are carried out, according to procedures.</p> <p>4.6. All damage and defects are reported and recorded according to procedures and appropriate action taken.</p>

## 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:

- accurate recording and maintenance of information relating to crane operations
- communication techniques in the workplace including whistles, hand signals and use of two-way radios
- interpersonal communication skills at a level sufficient to communicate with other site personnel
- load data into crane computer (where fitted) and check operation to accurately reflect the crane configuration
- operation of a self-erecting tower crane for the lifting and moving of loads to the

## REQUIRED SKILLS AND KNOWLEDGE

- safe working rated capacity in conjunction with other appropriate personnel.
- risk assessment and hazard control strategies, including hierarchy of control as applied to the positioning and safe operation of the crane including particular awareness of the risks associated with overhead powerlines/electrical cables, wind, and crane stability
- use and interpretation of crane manufacturer's specifications and data, including load charts and ballast, to enable the crane to be configured for the load
- verify problems and equipment faults and demonstrate appropriate response procedures.

### Required knowledge

Required knowledge for this unit is:

- ability to be able to read and comprehend manufacturer's instructions, procedures and safety signs
- appropriate mathematical procedures for estimation of loads
- Commonwealth, state or territory OHS legislation, standards and codes of practice relevant to the full range of processes for the crane class
- organisational and workplace standards, requirements, policies and procedures for conducting operations for the crane class
- understanding of the hierarchy of hazard identification and control
- level of literacy to be able to read and comprehend manufacturer's instructions, procedures and safety signs
- self erecting tower crane operating techniques
- procedures for the recording, reporting and maintenance of workplace records and information
- self-erecting tower crane characteristics and capabilities to allow the operation of the crane to suit the range of loads
- rated capacity and working load limits (including use of crane load charts)
- typical routine problems encountered in the operation of the crane and equipment and adjustments required for correction.

# Evidence Guide

## EVIDENCE GUIDE

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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

Successful assessment of this unit meets the competency requirement of the National Standard for licensing Persons Performing High Risk Work.

State/Territory OHS regulators have mandated the use of Assessment Instruments and Instructions for Assessment for this unit which have been endorsed by the national body responsible for OHS matters.

### 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:

- comply with OHS licensing legislation
- effectively communicate and work safely with others in the work area
- assess risk and management procedures (particular awareness of the risks associated with overhead powerlines/electrical cables, wind and crane stability)
- operate a self-erecting tower crane for the lifting and moving of loads to the safe working rated capacity in conjunction with other appropriate personnel
- apply standard mathematical procedures for estimation of loads.

### Context of and specific resources for assessment

- Assessment of the safe and effective application of knowledge and skill to workplace tasks (performance) must be undertaken using the endorsed Assessment Instrument
- Assessment of performance must be undertaken either in the workplace or in a realistically simulated workplace setting
- Assessors must ensure that the assessment in the workplace is organised to ensure that all the required equipment and materials and a suitable working area is made available to suit the assessment and the workplace
- Assessment must occur under standard and

## EVIDENCE GUIDE

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authorised work practices, safety requirements and environmental constraints

- Assessment is to comply with relevant appropriate standard requirements
- Applicants must have access to:
  - personal protective equipment (PPE) for the purpose of the Performance Assessment.
  - appropriate self-erecting tower crane and associated equipment in safe condition
  - suitable loads as specified by the endorsed assessment instrument
  - communication equipment (eg. two-way radios, whistles, etc)
  - other appropriate personnel to sling and direct the loads.

### Method of assessment

Assessment must be conducted using the endorsed Assessment Instruments. These Instruments provide advice on their application.

The use of '**simulators**' in the assessment of this unit of competency is **not acceptable**.

Assessment may be in conjunction with the assessment of other units of competency.

Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge.

Assessment must confirm a reasonable inference that competency is not only able to be satisfied under the particular circumstances, but is able to be transferred to other circumstances.

### Guidance information for assessment

Further information about endorsed assessment instruments may be obtained from state/territory OHS regulators.

## Range Statement

### RANGE STATEMENT

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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



## RANGE STATEMENT

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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.

**Hazards** may include but not limited to:

- ground stability (e.g. ground condition or slopes for load placement)
- overhead hazards (e.g. power lines, service pipes)
- Insufficient lighting
- traffic (e.g. pedestrians, vehicles, plant)
- environmental conditions (e.g. wind, lightning, storms, etc)
- other specific hazards (e.g. dangerous materials).

**Hazard control measures:**

Refers to the systematic process of eliminating or reducing the risk to personnel and property through the application of controls.

It includes the application of the hierarchy of control, the six-step preference of control measures to manage and control risk:

- elimination
- substitution
- isolation
- engineering control measures
- using safe work practices
- personal protective equipment.
- codes of practice
- legislation
- Australian Standards
- manufacturer's specifications
- industry standards (where applicable).
- riggers
- doggers.

**Appropriate standards** may include:

**Appropriate personnel** may include but not limited to:

**Crane**

Self-erecting tower crane covers the operation of a crane where the tower structure and boom/jib elements are not disassembled into component sections, which can be transported between sites as a complete unit, and where the erection and dismantling processes are an inherent part of the crane's function.

## RANGE STATEMENT

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- Appropriate*** may include but is not limited to:
- crane capabilities
  - environmental conditions (e.g. wind, lightning, storms, etc).
- Communication methods*** may include but are not limited to:
- verbal and non-verbal language
  - written instructions
  - signage
  - hand signals
  - listening
  - questioning to confirm understanding
  - appropriate worksite protocol.
- Signage and labels*** may include but not limited to:
- crane data plates/labels
  - load charts
  - crane decals
  - control labels.
- Procedures*** may include but are not limited to:
- manufacturer's guidelines (instructions, specifications or checklists),
  - industry operating procedures
  - workplace procedures (work instructions, operating procedures, checklists).
- Controls*** may include but not limited to:
- luffing levers (where applicable)
  - hoisting and lowering levers
  - slewing levers including brake
  - trolley levers (where applicable).
- Service logbook*** may include but is not limited to:
- any logbook
  - service book
  - history record system where the service and maintenance history is kept.
- Crane safety devices*** may include but not limited to:
- audible and visual warning devices
  - operator restraint devices (where applicable)
  - lights (where applicable).
- Communication equipment*** may include but not limited to:
- two-way radios
  - whistles
  - bells
  - buzzers.
- NB:** where radio communication equipment is used the transmitting frequencies of the equipment must be selected to prevent interference to or from other radio equipment being used in the vicinity of the crane.
- Hazard prevention/control***
- safety tags on electrical switches/isolators

## RANGE STATEMENT

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***measures*** may include but are not limited to:

- power lines are insulated
- safety observer used inside exclusion zone
- power disconnected
- traffic barricades and control
- pedestrian barricades
- trench covers
- movement of obstructions
- personal protective equipment
- adequate lighting
- suitable site for the crane
- counterweights (ballast).

***Test lift***

The load is lifted just clear of the lifting plane to allow for checks to be safely made in consultation with appropriate personnel to ensure that:

- near capacity loads do not overload the crane
- loads of unusual shape or weight distribution are correctly slung
- load measuring equipment can be used to verify the calculated weight of the load
- all crane equipment is functioning properly
- adjustments to the slinging can be made in a safe manner.

***Relevant crane movements*** may include but not limited to:

- luffing (where applicable)
- slewing
- trolleying
- hoisting and lowering loads.

***Communication signals*** may include but not limited to:

- stop - hand
- stop - whistle
- hoist up - hand
- hoist up - whistle
- hoist down - hand
- hoist down - whistle
- luff boom down - hand (where applicable)
- luff boom down - whistle (where applicable)
- luff boom up - hand (where applicable)
- luff boom up - whistle (where applicable)
- trolleying out - hand
- trolleying out - whistle
- trolleying in - hand
- trolleying in - whistle

## RANGE STATEMENT

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***Unplanned and/or unsafe situations*** may include but not limited to:

- slew left - hand
- slew left - whistle
- slew right - hand
- slew right - whistle.
- failure/lose of control e.g. slew brake hoist drum
- failure of equipment e.g. hydraulic system
- environmental conditions (e.g. wind, lightning, storms, etc).

***Shut Down*** may include but not limited to:

- boom/jib slewed to clear buildings and structures (where applicable)
- trolleying hoist block to park position (where applicable)
- weather vain mode
- retracting hoist rope&hook block
- idle engine to stabilise temperature
- turning off engine
- isolating power supply (where applicable)
- remove key from ignition/control panel
- lock and secure cabin (where applicable).

## Unit Sector(s)

**Unit sector**                      Construction

## Co-requisite units

**Co-requisite units**              Nil

## **Functional area**

### **Functional area**