



Australian Government

CPCCR13016 Perform advanced tower crane erection

Release: 2

CPCCR13016 Perform advanced tower crane erection

Modification History

Release 2 Updated reference to general construction induction training program.

Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.

Supersedes and is equivalent to CPCCR13016A Perform advanced tower crane erection. Updated to meet the Standards for Training Packages 2012.

Application

This unit of competency specifies the skills and knowledge required to conduct advanced tower crane erection. It includes coordinating the slinging, stability, lifting, moving and placement of tower cranes and tower crane sections in conjunction with the crane operator, and selecting equipment and load distribution and calculation.

It applies to workers who erect tower cranes and coordinate all aspects of lifting, moving and placing sections, and who would be expected to take responsibility for organising and completing these tasks with a high degree of self direction.

Completion of the general construction induction training program, specified in the Safe Work Australia model *Code of Practice: Construction Work*, is required by anyone carrying out construction work. Achievement of *CPCWHS1001 Prepare to work safely in the construction industry* meets this requirement.

Licensing, legislative, regulatory or certification requirements apply to this unit of competency in some states and territories. For further information, check with the relevant regulatory authority.

Pre-requisite Unit

CPCWHS2001 Apply WHS requirements, policies and procedures in the construction industry

Unit Sector

Construction

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

- | | | |
|--|-----|---|
| 1 Plan and prepare to perform advanced tower crane erection. | 1.1 | Interpret work order and associated documentation and clarify requirements with relevant persons. |
| | 1.2 | Plan all work to comply with relevant legislation, regulations, standards, codes, work health and safety, environmental and workplace requirements. |
| | 1.3 | Plan and implement required risk controls. |
| | 1.4 | Review crane erection, rigging and dismantling plan to ensure conformity with manufacturer and engineering specifications. |
| | 1.5 | Check foundation that will support crane base is structurally suitable and conforms with engineering standards. |
| | 1.6 | Conduct required calculations to determine load mass and distribution. |
| 2 Select and check equipment. | 2.1 | Erect required safety signage and barricades and fit personal protective equipment (PPE). |
| | 2.2 | Select resources, materials, tools and equipment in accordance with load charts and inspect for compliance with work order. |
| | 2.3 | Inspect lifting equipment in accordance with manufacturer and workplace requirements. |
| | 2.4 | Label, reject and dispose of any lifting and load-shifting equipment identified as inconsistent with manufacturer requirements, to prevent its use in any circumstance. |
| | 2.5 | Select elevated work platforms and other means of mechanical access systems as specified. |
| | 2.6 | Install fall arrest equipment. |
| | 2.7 | Select personnel cartage systems. |
| | 2.8 | Calculate and confirm load mass and load distribution. |
| 3 Assemble and erect crane. | 3.1 | Locate base of crane and position in accordance with manufacturer and engineering specifications. |

- 3.2 Erect bottom tower and climbing frame/transition piece, and install, level and plumb in accordance with manufacturer and engineering specifications.
 - 3.3 Install and secure tower braces or guys to support tower crane.
 - 3.4 Assemble, erect and install mast, turntable, machine deck and power pack of crane in accordance with manufacturer requirements.
 - 3.5 Assemble and erect main jib and counter jib in accordance with manufacturer requirements.
 - 3.6 Lift counterweights into cradles and secure in accordance with manufacturer requirements.
 - 3.7 Install wire ropes, hook and block reeving in accordance with manufacturer requirements.
- 4 Climb (raise/lower) tower crane.
 - 4.1 Remove drop ladder, and place and secure monorail.
 - 4.2 Secure crane and place at balance point ready for climbing.
 - 4.3 Remove tower bolts to transition piece, fit drifts and check rollers.
 - 4.4 Move tower section into place in accordance with manufacturer requirements.
 - 4.5 Reconnect crane with bolts and conduct a visual check of all components and connectors.
- 5 Dismantle tower crane.
 - 5.1 Disconnect electrical and hydraulic lines safely.
 - 5.2 Dismantle power pack, counterweights, climbing frame and crane deck, and lower safely to the ground.
- 6 Clean up.
 - 6.1 Clear work area and dispose of, reuse or recycle materials in accordance with regulatory and workplace requirements.
 - 6.2 Clean, check, maintain and store tools and equipment in

accordance with manufacturer and workplace requirements.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPCCR13016A Perform advanced tower crane erection.

Links

Companion volumes to this training package are available at the VETNet website -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCCR13016 Perform advanced tower crane erection

Modification History

Release 2 Updated reference to general construction induction training program.

Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.

Supersedes and is equivalent to CPCCR13016A Perform advanced tower crane erection. Updated to meet the Standards for Training Packages 2012.

Performance Evidence

To demonstrate competency in this unit, a candidate must meet the elements and performance criteria by performing advanced tower crane erection to:

- fully erect and rig one hammerhead tower crane, including a jib
- fully erect and rig one luffing boom tower crane, including a jib
- complete the raising of one hammerhead tower crane by installing at least two extra sections
- complete the raising of one luffing boom tower crane by installing at least two extra sections.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- workplace and regulatory requirements for performing advanced tower crane erection under applicable Commonwealth, state or territory work health and safety (WHS) legislation and codes of practice:
 - job safety and environmental analyses (JSEAs)
 - safe work method statements (SWMSs)
 - safety manuals and instructions for plant, tools and equipment
 - signage and barricades
 - personal protective equipment (PPE)
 - working at heights requirements
 - environmental and worksite safety plans
 - reporting problems
- scope of work for performing advanced tower crane erection:
 - calculations:
 - load charts

- fleet angles
- diverter sheaves
- lead loads
- head loads
- load angle factors
- multiple fall
- load share
- precast compliance charts
- safe working loads
- load slinging methods:
 - straight sling
 - adjustable sling
 - reeved sling
 - inclined sling
- cranes used for erecting tower cranes:
 - fixed cranes
 - tower cranes
 - hydraulic mobile cranes
 - lattice boom mobile cranes
 - slewing cranes
- tower cranes:
 - hammerhead tower cranes
 - luffing boom tower cranes
 - self-erecting tower cranes
- tower crane components:
 - crane bases
 - bottom towers
 - tower sections
 - climbing frame/transition pieces
 - tower braces
 - guys
 - masts
 - turntables
 - machine decks
 - power packs
 - main jibs
 - counter jibs
 - counterweights
 - wire ropes
 - hook and block reeving

- connecting bolts
- types, characteristics and limitations of tools, equipment and materials required for performing advanced tower crane erection:
 - chain slings
 - flexible steel wire rope (FSWR) slings
 - natural or synthetic fibre slings
 - air winches
 - chain blocks
 - chain winches
 - come-alongs
 - drifts
 - eye bolts
 - hammers
 - hand operated creeper winches
 - jacks
 - plumbing/levelling equipment
 - pneumatic wrenches
 - podgers
 - pulley blocks
 - shackles
 - shifting spanners
 - sledge hammers
 - spanners
 - spirit levels and automatic levels
 - tape measures
 - torque multipliers
 - trolleys
 - turn buckles
 - wedges
 - wrenches
- requirements for use of tools, equipment and materials for performing advanced tower crane erection:
 - safe operating procedures
 - operational, maintenance and basic diagnostic procedures
 - workplace and equipment safety requirements
- signalling methods and communications
- requirements for cleaning up work area, maintaining and storing plant, tools, equipment and materials, and for environmentally friendly waste management.

Assessment Conditions

Assessors must meet the requirements for assessors outlined in the Standards for Registered Training Organisations.

Assessment must be conducted in the workplace or a simulated workplace using realistic conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Candidates must have access to:

- industry-standard equipment required to perform the tasks specified in the Performance Evidence
- appropriate workplace information and records, including policies, procedures and legislative requirements.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>