Unit of Competency Template

UNIT CODE	**CPCPRE3000**
UNIT TITLE	**Lift and place prefabricated concrete elements**
APPLICATION	This unit of competency specifies the skills and knowledge required to lift and place prefabricated concrete elements. It requires using appropriate tools, equipment, materials and working in a team environment. A person who has achieved this unit of competency would be expected to be able to correctly interpret and execute erection design documentation including drawings, follow safety regulations and relevant specifications and lead a team. 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. Licensing, regulatory or registration requirements apply to this unit of competency in all jurisdictions. Relevant state and territory regulatory authorities should be consulted to confirm these requirements.
PREREQUISITE UNIT	
COMPETENCY FIELD	
UNIT SECTOR	**Prefabricated concrete**
ELEMENTS **Elements describe the essential outcomes.**	**PERFORMANCE CRITERIA** **Performance criteria describes the performance needed to demonstrate achievement of the element.**

DRAFT

1. Determine the requirements to lift, and place prefabricated concrete elements.	1.1 Determine the requirements of Australian Standard AS3850 with regard to lifting and placing prefabricated concrete elements and access the erection design documentation in order to comply with this standard. 1.2 Review and clarify prefabricated concrete installation task. 1.3 Access erection design documentation, task specifications, and check to make sure they are in accordance with legislation, AS3850 and relevant standards, regulations and codes of practice. 1.4 Review work health and safety (WHS) requirements for the task in accordance with safety plans and policies. 1.5 Identify safety signage and barricade requirements. 1.6 Review environmental requirements for the task in accordance with environmental plans and legislative requirements. 1.7 Determine plant, tools, rigging equipment and support requirements to carry out task. 1.8 Determine the location of prefabricated concrete element installation from set-out drawings.
2. Meet prefabricated concrete element erection requirements.	2.1 Erect identified safety signage and barricade requirements, and fit personal protective equipment (PPE). 2.2 Obtain plant, tools, equipment, check for serviceability and rectify or report any faults. 2.3 Check all lifting equipment components to ensure that they are compatible and meet all of the requirements of AS3850, and are correctly marked with workload limit (WLL). 2.4 Check lifting and rigging equipment to ensure that they match the specifications set out in the erection documentation and manufacturer specifications. 2.5 Check lifting and rigging equipment to ensure they are serviceable and if not, quarantine, report faulty items and replace with new equipment. 2.6 Ensure that the erection documentation and erection drawings or concrete element shop drawings, provide rigging configurations and all required information as set out in AS3850. 2.7 Ensure that erection documentation is on-site, available to the erectors and the requirements are fully understood 2.8 Check that the brace fixings installer(s) have been trained and are experienced in the installation of the specified fixing in accordance with the requirements of AS3850.

DRAFT

3. Prepare to lift and place support prefabricated concrete elements.	3.1 Review erection plan and determine job sequencing and team roles. 3.2 Confirm load mass and load distribution. 3.3 Assemble the rigging and confirm that the rigging configuration is in accordance with the rigging diagrams set out in the erection design documentation. 3.4 Check that the position of the temporary supports; (braces and/or props) are in accordance with the erection design documentation. 3.5 Position levelling shims/packers to the nominated reduced level (RL) in accordance with the erection design documentation. 3.6 Ensure that any temporary supports attached to the elements have been secured in accordance with the erection design documentation and safety standards. 3.7 Attach the compatible lifting devices (e.g. lifting clutches) to the lifting inserts embedded in the prefabricated concrete element, in accordance with the manufacturer specifications. 3.8 Ensure that the included angle of the rigging is inspected and is in accordance with the acceptable limits as set-out in AS3850. 3.9 Ensure all personnel are clear of the drop zone.
4. Conduct lifting and placing of prefabricated concrete elements.	4.1 Lift and shift the load with the crane in accordance with job safety and environmental analysis (JSEA) and safe work method statement (SWMS). 4.2 Maintain stability of load during, lifting, transportation and positioning. 4.3 Direct load to landing position in accordance with the erection design documentation and specifications. 4.4 Check to ensure that the temporary supports are placed and fixed in accordance with the erection design documentation and safety standards. 4.5 Check that the installed component is both level and plumb and in accordance with the set-out drawings and erection design documentation. 4.6 When the load has been fully secured and supported by the temporary supports, release the load from the crane, safely access lifting points and disconnect the lifting devices attached to the prefabricated concrete elements.
5. Clean up.	5.1 Clear work area and dispose of, reuse or recycle materials in accordance with regulatory and workplace requirements. 5.2 Clean, check, maintain and store tools and equipment in accordance with manufacturer and workplace requirements.

DRAFT

FOUNDATION SKILLS Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.	
UNIT MAPPING INFORMATION	No equivalent unit.
LINKS	Link to Companion Volume Implementation Guide.

DRAFT

TITLE	**CPCPRE3000** Lift and place prefabricated concrete elements
PERFORMANCE EVIDENCE	To demonstrate competency, a candidate must meet the elements and performance criteria of this unit by • Determining requirements and preparing for lifting and placing four prefabricated concrete elements • Lifting and placing two prefabricated concrete panel elements by face-lifting, edge-lifting and mid-air rotation of an element that is not less than 7 metres long x 3metres wide.

DRAFT

KNOWLEDGE EVIDENCE	To be competent in this unit, a candidate must demonstrate knowledge of:
	• compliance requirements of legislation, regulations, codes of practice and Australian Standards relevant to the erection of prefabricated concrete elements, including:
	  ○ AS3850.1, 2 & 3 re the types of rigging
	  ○ environmental protection and waste disposal
	  ○ OHS/WHS regulations, including Safe Work Australia 'Guide to managing risk in construction: prefabricated concrete' 2019
	• relevant OHS/WHS regulations, policies and codes of practice, including:
	  ○ use of personal protective equipment (PPE)
	  ○ fall protection
	  ○ drop zones
	  ○ hazardous substances
	  ○ safe manual handling techniques
	• principles of effective team leadership
	• erection design documentation
	• the strength of concrete at the time of lifting and handling from the manufacturers' "birth certificate" contained in the erection documentation
	• faulty manufacturing and concrete defects which could compromise the strength of the prefabricated elements and pose a potential safety issue for lifting and handling
	• serviceability of temporary erection supports, including:
	  ○ braces
	  ○ props
	  ○ workload limits (WLL)
	• erection documentation, including:
	  ○ manufacturer specification
	  ○ element drawings
	  ○ rigging configurations and drawings
	  ○ layout drawings
	  ○ specifications required for the lifting and placing of prefabricated concrete elements
	• types of prefabricated concrete elements, including:
	  ○ panels
	  ○ columns
	  ○ beams
	  ○ planks
	  ○ stairs
	  ○ barriers
	  ○ poles
	  ○ pipes
	  ○ box culverts
	  ○ pits
	  ○ wall elements
	• relevant types and procedures for the temporary support of prefabricated concrete elements, including:

DRAFT

	○ erection sequence ○ orientation of prefabricated concrete components ○ bracing details including type and angle ○ requirement for temporary brace and prop footings ○ placement and positioning of propping systems ○ levelling • crane operations, including: ○ crane standing ○ suspended slab operations ○ hoist reeving for single an multi-winch operations ○ requirements for single and multi-crane mid-air rotations • types, characteristics and limitations of tools, equipment and materials required for rigging, lifting and placing prefabricated concrete elements, including: ○ chain slings ○ flexible steel wire rope (FSWR) slings ○ concrete lifting clutches and compatible lifting inserts ○ post-installed lifting plates ○ hooks, shackles, chain links, swivels, lifting rings ○ sheaves, pulley blocks ○ lifting beams ○ equalizing beams ○ spanners ○ spirit levels and automatic levels ○ tape measures ○ wrenches • load slinging methods: ○ straight sling ○ adjustable sling ○ reeved sling ○ inclined sling ○ multi-point lift ○ balanced load and CoG • load equalisation and methods • advanced lifting techniques: ○ standard lift from a truck ○ load balancing when lifting from vehicles ○ flat lifting from supports or on ground ○ edge lifting and tilting by rotation about one edge ○ face lifting and tilting by rotation about one edge ○ single crane and multi-crane mid-air rotation ○ multi-crane lifts • workplace requirements when working with prefabricated concrete components: ○ cleaning up the work area ○ maintaining and storing plant, labelling, tools and equipment ○ material reuse ○ reporting problems ○ quality

DRAFT

	• workplace procedures related to communication protocols • principles of sustainability relevant to material reuse • work planning and logical task sequencing.
ASSESSMENT CONDITIONS	Assessors must meet the requirements for assessors contained 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 erection design documentation, materials, manufacturer specifications, plant, tools and equipment required to achieve the performance evidence.
LINKS Mandatory field	Link to Companion Volume Implementation Guide.

DRAFT