



Australian Government

Department of Education, Employment and Workplace Relations

ICTTCR3062A Build a telecommunications radio structure

Release: 1

ICTTCR3062A Build a telecommunications radio structure

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to build the foundation, assemble and mount a telecommunications radio structure. A licensed rigger may be required for the installation of some structures. The National Standard for Licensing Persons Performing High Risk Work applies to persons performing dogging and rigging work. Completion of the following units is required for certification at either basic, intermediate or advanced levels. CPCCLDG3001A Licence to perform dogging CPCCLRG3001A Licence to perform rigging basic level CPCCLRG3002A Licence to perform rigging intermediate level CPCCLRG4001A Licence to perform rigging advanced level. If operation of an elevated work platform (EWP) is required, a licence may be required. Users should confirm requirements with the relevant federal, state or territory authority.
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Application of the Unit

Application of the unit	Technical staff who build telecommunications radio structures apply the skills and knowledge in this unit. They have a dual specialist classification as rigger installers and may install radio structures for worldwide interoperability for microwave access (WiMAX) wireless broadband Access Networks, antenna installation for radio
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	and TV broadcasting and cellular mobile communications.
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICTTCR2188A	Use rigging practices and systems on telecommunications network structures
	ICTTCR2189A	Use operational safety in a telecommunications rigging environment
	ICTTCR2190A	Use safe rigging practices to climb and perform rescues on telecommunications network structures

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare materials and secure site	1.1. Notify appropriate personnel and take necessary precautions to minimise, control or eliminate hazards that may exist during work activities 1.2. Determine nature and location of structure from construction design plans, relevant legislation, codes, regulations and standards 1.3. Determine materials, tools and equipment required from construction design plans 1.4. Check steel for assembly against construction design plans to ensure no parts are missing 1.5. Secure and clean site according to site security instructions for public safety
2. Construct foundations for radio structure	2.1. Locate other services according to industry practice, and arrange for relocation of services if required 2.2. Excavate foundation according to engineering specifications and construct foundations according to construction design plans 2.3. Install earthing according to construction design plans, enterprise occupational health and safety (OHS) guidelines and industry practice 2.4. Provide samples of concrete for analysis according to enterprise guidelines and manufacturer's specifications, relevant standards and regulations
3. Assemble and mount a telecommunications radio structure	3.1. Select an area free of interference and close to the construction site suitable for structure assembly 3.2. Assemble radio structure in sections on the ground according to engineering specifications and using personal protective equipment following safety guidelines 3.3. Mount and secure preassembled sections to tower construction according to plans, specifications and enterprise OHS guidelines 3.4. Maintain a vertical positioning of the structure and within twist tolerances during construction phase 3.5. Secure and tension guy wires according to construction design plans, enterprise OHS guidelines and industry practice
4. Complete administrative duties	4.1. Update the original design plan with approved amendments and return to design section

ELEMENT	PERFORMANCE CRITERIA
	4.2. Secure and clean up site to original condition in an environmentally safe manner 4.3. Notify customer and obtain sign off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to liaise with internal and external personnel on technical and operational matters
- literacy skills to:
 - interpret technical documentation, such as equipment manuals and specifications
 - read and interpret drawings related to layouts, design, construction and project management
- numeracy skills to take and analyse measurements
- planning and organisational skills to:
 - organise and maintain equipment
 - plan, prioritise and monitor own work and OHS responsibilities
- problem solving skills to solve equipment and logistics problems
- safety awareness skills to:
 - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
 - apply remote area first aid
 - prevent and treat hypothermia
 - select and use required personal protective equipment for rigging projects to suit different applications and for work at height conforming to industry and OHS standards
 - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- task management skills to work systematically with required attention to detail and adherence to all safety requirements
- technical skills to:
 - assist problem rectification
 - operate plant and machinery

REQUIRED SKILLS AND KNOWLEDGE

- use diagnostic equipment
- use hand and power tools
- use meteorology awareness and prediction

Required knowledge

- basic knowledge of:
 - meteorology
 - remote area first aid
- features and operating requirements of:
 - construction equipment
 - rigging equipment
- hypothermia symptoms and methods of prevention and treatment
- information required to build a telecommunications radio structure
- rigging practices and systems to telecommunications radio structures
- legislation, codes of practice and other formal agreements that impact on the work activity
- licensing and regulatory issues applying to rigging practices and systems on telecommunications radio structures
- manufacturer's requirements for safe operation of equipment
- OHS:
 - Act and regulations
 - company procedures
 - requirements relating to the activity and site conditions
- specific knowledge of:
 - electromagnetic radiation (EMR) safety practices
 - personal protective equipment for rigging projects
 - working at heights safety practices
- test methods and performance requirements
- typical issues and challenges that occur on site

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

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the ability to:

- undertake pre construction checks to ensure safe working environment
- construct foundations according to engineering specifications
- select site for hoisting equipment ensuring location is safe for the operator and the construction
- preassemble structure at ground level ensuring completion of each assembled component
- assemble and mount a telecommunications radio structure, including temporary and permanent guy anchors
- install functional and protective earthing systems following security and safety procedures.

Context of and specific resources for assessment

Assessment must ensure:

- site where telecommunications radio structures may be constructed
- rigging and safety equipment currently used in industry
- relevant regulations, standards specifications and manuals.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- direct observation of the candidate assembling and mounting a telecommunications radio structure
- oral or written questioning of the candidate to assess OHS requirements and work practices associated with constructing a telecommunications radio structure.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

EVIDENCE GUIDE

	• ITCBL3020A Construct aerial cable supports. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.
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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.

Relevant legislation, codes, regulations and standards may include:

- appropriate licences that may be required:
 - crane
 - dogging
 - rigging

RANGE STATEMENT	
	• scaffolding • winch • Australian Communications Industry Forum (ACIF) standards and codes • Australian Communications and Media Authority (ACMA) technical standards • AS Communications Cabling Manual (CCM) Volume 1 • Australian building codes and regulations • Australian standards • enterprise standards • environmental protection • fire regulations • heritage legislation • industrial relations agreements including awards and enterprise • international standards • local government • manufacturer's enterprise operating policy and procedures • national codes • OHS Act • other services and utilities codes of practice and standards: • electricity • gas • water • power company requirements • Privacy Act • spectrum management regulations • statutory requirements • Trade Practices Act • traditional land owners.
<i>Tools and equipment</i> may include:	• cable locator • earth testers • fall arrest systems • hand tools • hoisting equipment: • crane • helicopters

RANGE STATEMENT	
	• jury and winch • power tools • safety equipment: • aerial safety belts and lines • equipment guards • flashing lights • guards • helmets • safety cages • traffic signs • trench guards • warning signs and tapes • witches hats • survey instruments.
<i>Steel for assembly</i> may include:	• guy wires and anchors • pre-cut and pre-drilled steel for construction • steel braces.
<i>Site security instructions</i> may relate to:	• cleaning site daily • ensuring that no hazards remain on tower during construction • security fence during construction • security fence and anti-climbing devices at the completion of the construction.
<i>Other services</i> may include:	• gas • other telecommunications • power • sewerage • water.
<i>Foundations</i> may include:	• constructions: • grillage • pad • pier-type • rock anchors.
<i>Personal protective equipment</i> may include:	• earmuffs • eye protection • gloves: • leather • plastic

RANGE STATEMENT	
	• rubber • gumboots • hard hats • overalls • personal reflecting jackets • riggers' gloves • safety boots • vests.
Safety guidelines may refer to:	• antenna principles for working safely on telecommunications radio structures • devices to support construction personnel at heights: • elevated personnel vehicles • non-metallic ladders • platforms • earth protection • external factors affecting works: • concentration of other services • terrain • weather conditions • fall arrest: • fixed • temporary • licences: • backhoe operator • borer • chainsaw operation • crane chaser • crane operator • dogman • driver's • forklift • heavy vehicle • machinery operation • rigger • winch operator • lifting methods • load calculation • personal protective equipment

RANGE STATEMENT

	• precautions for unsafe weather conditions to undertake works: • heavy rains • high winds • severe cold • severe heat • thunderstorms • radio frequency (RF) EMR: • sources and types of RF EMR • associated risks • methods of detecting • reporting EMR hazards • verifying and maintaining EMR hazard management plan • safety activities which may include traffic management • safety issues: • fall arrest • fall guarding • roof work • site hazard identification and control measures.
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Unit Sector(s)

Unit sector	Telecommunications
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Co-requisite units

Co-requisite units	

Competency field

Competency field	Telecommunications Rigging Installation
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