Australian Government

Department of Education, Employment and Workplace Relations

RIICRC316 Place and compact concrete

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the conduct of concrete placing and compacting operations in the civil construction industry. It includes planning, preparing, defining the work area, placing, compacting, screeding, levelling and clean up during concreting operations. Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories and industry sectors. Relevant information must be sourced prior to application of the unit.

Application of the Unit

This unit is appropriate for those working in an operational role at worksites within:
Civil construction

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

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

1. Plan and prepare for operations	1.1 Access, interpret and apply ***compliance documentation*** relevant to the work activity 1.2 Obtain and confirm ***safety requirements*** from the ***site*** safety plan and organisational policies and procedures, and apply to the allotted ***task*** 1.3 Identify, obtain and implement signage requirements from the project ***traffic*** management plan 1.4 Select ***plant, tools and equipment*** to carry out tasks consistent with the requirements of the job, check for serviceability and rectify or report any faults 1.5 Identify ***environmental protection requirements*** from the project environmental management plan, and confirm and apply to the allotted task
2. Define and prepare work area	2.1 Check location of concrete placement is determined from plans and specifications and location for placement is free of debris and waste 2.2 Maintain safe working area around pour location using barriers and signage consistent with OHS regulations 2.3 Locate plant, tools and equipment to suit planned placement 2.4 Undertake pre-pour inspections before concrete arrives on site
3. Place concrete and compact	3.1 Place ***concrete*** in horizontal layers into location to levels indicated by markers, level pegs or lines 3.2 Minimise height of vertical drop of concrete to ***avoid***

	segregation of concrete materials 3.3 Consolidate poured concrete during process using approved ***compaction or vibration method*** 3.4 Check ***finished*** levels against datum using levelling device
4. Screed/level concrete	4.1 ***Screed*** concrete to correct levels and grades using straight edged tool/formwork mounted screed
5. Clean up	5.1 Clear work area and dispose, reuse or recycle materials in accordance with legislation, regulations, codes of practice and job specification 5.2 Clean, check, maintain and store plant, tools and equipment in accordance with manufacturer recommendations and standard work practices

Required Skills and Knowledge

Required skills
Specific skill is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following, as required to conduct placement and compaction of concrete including: • using a vibrator • co-ordinating with other team members • following instructions • reading drawings and specifications • reporting faults and hazards • knowing responsibilities and team members' responsibilities
Required knowledge
Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following, as required to conduct placement and compacting concrete including: • cold joints • compaction • concrete materials • concrete reinforcement techniques • concreting techniques • general construction terminology • job safety analysis (JSA) and safe work method statements • levelling techniques • material safety data sheets (MSDS) • materials storage and environmentally friendly waste management • mix specifications • plans, drawings and specifications • processes for the calculation of material requirements • quality requirements • segregation • slump testing • types, characteristics, uses and limitations of plant, tools and equipment • workplace and equipment safety requirements. • MSDS / SWMS • testing procedures • spec • environmental hazards/constraints

- how to read a delivery docket
- different methods of placing concrete ie kibble, pump agitator tipper
- hazards involved in the placement of concrete ie enviro, plant movements, chemicals
- knowing what type of concrete is to be used and what specification
- the importance of doing pre-pour checks before concrete arrives onsite (formwork, steel etc)
- the effects the weather has on concrete ie cold, hot, rain
- the importance of planning your vehicle movements in and around your concrete pour

- different styles and methods of vibrating concrete
- the difference between harmonious concrete and non-harmonious concrete
- how concrete compaction effects the strength and life span of concrete
- what to look for when vibrating concrete

- knowing the environmental and waste management procedures
- inspection of tools and equipment at the end of the shift, why it is important to clean tools
- different products and ways of cleaning tools
- storage and maintenance of concrete tools and gear

Evidence Guide

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following: • knowledge of the requirements, procedures and instructions for the placement and compaction of concrete • implementation of requirements, procedures and techniques for the safe, effective and efficient placement and compaction of concrete • working with others to undertake the placement and compaction of concrete that meets all of the required outcomes • consistent timely placement and compaction of concrete that safely, effectively and efficiently meets the required outcomes • conduct placement and compaction of concrete materials

Context of and specific resources for assessment	• This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills. • Assessment of this competency requires typical resources normally used in Civil Construction. Selection and use of resources for particular worksites may differ due to the site circumstances. • The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job. • Customisation of assessment and delivery environment to sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. • Where applicable, physical resources should include equipment modified for people with disabilities. Access must be provided to appropriate learning and/or assessment support when required
Method of assessment	This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods: • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: • implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistent achievement of required outcomes • first hand testimonial evidence of the candidate's: • working with others to undertake and complete the placing and compacting of concrete
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity

	issues.

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 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 • manufacturer specifications and instructions, where specified • MSDS • memos • regulatory and legislative requirements pertaining to placing concrete • relevant Australian standards • safe work procedures relating to placing concrete • signage • verbal, written and graphical instructions • work bulletins • work schedules, plans and specifications
Planning and preparation include:	• assessment of conditions and hazards • determination of work requirements and safety plans and policies • equipment defect identification • work site inspection
Safety (OHS) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:	• 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 • trip hazards • work site visitors and the public • working at heights • working in confined spaces • working in proximity to others • use of fire fighting equipment • use of tools and equipment • work place environmental requirements and safety
Tools and equipment :	• include: • chutes • measuring tapes and rules • screed boards • shovels • trowels • may include: • brooms • compressors • concrete placing booms • kibbles • line pumps • mechanised dumpers • rakes • stipple devices • trowelling machines • vibrators • wheelbarrows
Quality requirements include:	• internal company quality policy and standards • manufacturer specifications where specified • relevant regulations, including Australian standards • workplace operations and procedures

Materials include:	• concrete.
Environmental requirements include:	• clean-up management • dust and noise • stormwater management • vibration • waste management
Concrete delivery includes:	• crane and kibble • pre-mix truck • wheelbarrow
Placing of concrete includes:	• kibble • pumping equipment • shovelling • tremmies • truck placed • vibrating • wheelbarrows
Methods to ***avoid segregation of concrete*** include:	• using a tremmie, through minimising the height of a vertical drop (no greater than 2 metres high for 20MPA at 80 slump) • using pumps with a flexible hose.
Compaction or vibration methods include:	• mechanical vibrators
Finishing techniques include:	• broom finished • brushed • mechanical trowelling machine • steel trowel • wood float
Screed :	• includes a hand screed • may include: • a mechanical vibrating screed • magic screeds

Unit Sector(s)

Road and Pavements Construction and Maintenance (General)

Custom Content Section

Not applicable.