



**Australian Government**

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

# **CPCCCM2006A Apply basic levelling procedures**

**Release: 1**

## CPCCCM2006A Apply basic levelling procedures

### Modification History

Not Applicable

### Unit Descriptor

#### Unit descriptor

This unit of competency specifies the outcomes required to carry out levelling in a single plane for the purpose of establishing correct and accurate set out of buildings components. It includes the set up, testing and use of levelling devices, and establishing and transferring heights using a range of levelling equipment.

### Application of the Unit

#### Application of the unit

This unit of competency supports achievement of skills to undertake levelling work using a variety of methods and equipment commonly used in the construction industry, which includes working with others and as a member of a team.

### Licensing/Regulatory Information

Not Applicable

### Pre-Requisites

#### Prerequisite units

CPCCOHS2001A

Apply OHS requirements, policies and procedures in the construction industry

## 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 and prepare.	<p>1.1. Work instructions, including plans, specifications, quality requirements and operational details, are obtained, confirmed and applied from relevant <b>information</b> to prepare for <b>basic levelling activities</b>.</p> <p>1.2. <b>Safety (OHS)</b> requirements are followed in accordance with safety plans and policies.</p> <p>1.3. Signage and barricade requirements are identified and implemented.</p> <p>1.4. <b>Tools and equipment</b> selected to carry out tasks are consistent with job requirements, checked for serviceability, and any faults are rectified or reported prior to commencement.</p> <p>1.5. <b>Environmental requirements</b> are identified for the project in accordance with environmental plans and <b>statutory and regulatory authority</b> obligations, and are applied.</p>
2. Set up and use levelling device.	<p>2.1. <b>Heights or levels</b> to be transferred/established are identified from project plans or instructions for <b>levelling procedures</b>.</p> <p>2.2. <b>Levelling devices</b> are set up and tested in accordance with manufacturer instructions, including <b>levelling device tolerance checks</b>.</p> <p>2.3. Levelling staffs are accurately applied.</p> <p>2.4. Levels are shot and heights transferred to required location and marked and/or recorded to job requirements.</p> <p>2.5. Results of levelling procedure are documented to organisational requirements.</p>
3. Clean up.	<p>3.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification.</p> <p>3.2. Tools and equipment are cleaned, checked, maintained, including <b>levelling device operator maintenance</b>, and stored in accordance with manufacturer recommendations and standard work practices.</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:

- communication skills to:
  - determine requirements
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - follow instructions
  - read and interpret:
    - documentation from a variety of sources
    - drawings and specifications
  - report faults
  - use language and concepts appropriate to cultural differences
  - use and interpret non-verbal communication, such as hand signals
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- numeracy skills to apply measurements and make calculations
- organisational skills, including the ability to plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
  - use a range of mobile technology, such as two-way radio and mobile phones
  - voice and hand signals to access and understand site-specific instructions.

### **Required knowledge**

Required knowledge for this unit is:

- application and requirements for line, level and plumb in construction projects
- basic construction processes
- basic mathematical techniques associated with levelling
- construction terminology
- job safety analysis (JSA) and safe work method statements
- levelling device types, characteristics, technical capabilities and limitations
- levelling techniques related to essential tasks
- processes for interpreting engineering drawings and sketches
- processes for setting out
- project quality requirements
- site and equipment safety (OHS) requirements

## **REQUIRED SKILLS AND KNOWLEDGE**

- site isolation and traffic control responsibilities and authorities
- symbols and construction terminology of construction plans.

# 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

This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures.

### 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:

- locate, interpret and apply relevant information, standards and specifications
- comply with site safety plan, OHS regulations and state and territory legislation applicable to workplace operations
- comply with organisational policies and procedures, including quality requirements
- safely and effectively use tools and equipment
- communicate and work effectively and safely with others
- transfer levels and record differences in height on one project to job specifications using:
  - a spirit level and straight edge
  - levelling with water technique
  - laser levelling devices
  - optical levelling devices
- confirm accuracy of the readings taken for all above, including set-up and movement of device in two locations
- conduct a two peg test with an automatic level to confirm that instrument meets manufacturers' tolerances
- accurately record the results of each levelling procedure to organisational requirements.

### Context of and specific resources for assessment

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

## EVIDENCE GUIDE

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Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the mandatory task requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry related systems information.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

### Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role



## EVIDENCE GUIDE

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and the practical requirements of the workplace

- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge
- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

## 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. **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
- maps
- material safety data sheets (MSDS)

## RANGE STATEMENT

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- memos
- organisation work specifications and requirements.
- plans and specifications
- relevant Australian standards
- safe work procedures related to performing levelling
- signage
- verbal or written and graphical instructions
- work bulletins
- work schedules.

**Basic levelling activities** include:

- setting up of devices
- recording of heights or level and the transfer of data points
- transferring levels/heights for formwork
- shooting levels for concrete slabs
- recording ground levels at respective critical set out points
- recording slab or pad levels for placement of steel columns or masonry piers
- recording or checking levels in drainage
- positioning offsets and recovery pegs for construction projects.

**Safety (OHS)** is to be in accordance with legislation, regulations, codes of practice, organisational safety policies and procedures, and project safety plan and may include:

- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling of materials
- hazard control
- hazardous materials and substances
- 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

## RANGE STATEMENT

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- working at heights
  - working in confined spaces
  - working in proximity to others
  - working with dangerous materials
  - organisational first aid
  - personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
  - use of firefighting equipment
  - use of tools and equipment
  - workplace environment and safety.
- Tools and equipment*** include:
- chalk lines
  - hammers
  - marking equipment
  - measuring tapes and rules, spirit levels and straight edges
  - plumb bobs
  - saws, bolt cutters and saw stools
  - signage for laser levelling
  - string lines and laser targets
  - water levels, laser levels, optical levels and automatic levels
  - wooden and steel pegs.
- Environmental requirements*** include:
- clean-up management
  - waste management.
- Statutory and regulatory authorities*** include:
- federal, state and local authorities administering applicable Acts, regulations and codes of practice.
- Heights or levels*** may be indicated by:
- chalk or nail mark and marks on vertical surface
  - datum and survey peg
  - drawing or sketch
  - verbal or written instructions.
- Levelling procedures:***
- include open or closed traverse using height of instrument or rise and fall methods of reduction
  - may be completed in a team arrangement.
- Levelling devices:***
- include:
    - spirit level, levelling using water, laser level, optical level, string line, tape

## RANGE STATEMENT

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measure, automatic level, survey pegs, levelling staff and plumb bob

- may include:
  - boning rods, inclinometers and batter pegs/boards.
- reverse readings for spirit level
- two peg test for automatic level.
- includes:
  - authorised servicing
  - cleaning
  - monitoring, recording and reporting of faults
- may include conduct of authorised minor replacements.

*Levelling device tolerance checks* include:

*Levelling device operator maintenance:*

## Unit Sector(s)

Unit sector                      Construction

## Co-requisite units

Co-requisite units              Nil

## Functional area

Functional area