Australian Government

CPPSPS3002A Perform basic swimming pool and spa measurements and calculations

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

CPPSPS3002A Perform basic swimming pool and spa measurements and calculations

Modification History

Version	Comments
1	This version first released with CPP07 Property Services Training Package Version 13.

Unit Descriptor

This unit of competency specifies the outcomes required to obtain measurements and perform calculations relevant to swimming pool and spa servicing. It includes planning, performing and recording measurements; performing calculations of quantity, area, volume, perimeter, flow rate and time related to swimming pool and spa servicing; and interpreting graphical representations of mathematical information related to swimming pools and spas.

Application of the Unit

This unit of competency supports the work of swimming pool and spa technicians engaged in servicing domestic, commercial and public swimming pools and spas.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Nil

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 required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1	**Perform measurements related to swimming pool and spa servicing.**	1.1	***Measurement requirements*** are confirmed in line with enterprise procedures.
		1.2	***Preparations for measurement tasks*** are implemented in line with enterprise procedures.
		1.3	***Measurements*** are obtained and confirmed using ***measuring equipment***, in line with enterprise procedures and equipment manufacturer instructions.
		1.4	Measurements are ***recorded*** using correct measurement units in line with enterprise procedures.
		1.5	Measurement units are ***converted*** as required in line with enterprise procedures.
		1.6	Measuring equipment and materials are cleaned, checked for serviceability, calibrated, maintained and stored in line with organisational procedures.
		1.7	Established work practices and personal protective equipment are used when taking measurements to ensure safety and security of self, others and property.
		1.8	Environmental impact of measurement activities is minimised and waste is disposed of in line with enterprise procedures.
		1.9	Limitations of swimming pool and spa measurements and associated risks are identified in line with enterprise, Australian standard, legislative and manufacturer requirements.

2	**Perform calculations related to swimming pool and spa servicing.**	2.1	***Calculation requirements*** are confirmed in line with enterprise procedures.
		2.2	Appropriate ***calculations*** are identified and correct method is selected for achieving required result.
		2.3	Calculations are performed using online and electronic calculators as required, and results are confirmed in line with enterprise procedures.
		2.4	Results of calculations are recorded in line with enterprise requirements.
		2.5	Results of calculations are interpreted to solve problems related to swimming pool and spa servicing.
		2.6	Limitations of swimming pool and spa calculations and associated risks are identified in line with enterprise, Australian standard, legislative and manufacturer requirements.

3	**Interpret graphical representations of mathematical information.**	3.1	Information represented in symbols, diagrams and pictorial representations is recognised and interpreted to complete workplace tasks.

Required Skills and Knowledge

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

Required skills

- decision-making and problem-solving skills to identify and apply mathematical formula to solve problems related to swimming pool and spa servicing, such as water loss
- literacy skills to read and interpret text and graphical information required to perform calculations related to swimming pool and spa servicing, including area, volume and perimeter calculations
- numeracy skills to perform calculations of quantity, area, volume, perimeter, flow rate and time
- research skills to identify and locate online calculators for performing calculations related to swimming pool and spa servicing
- technology skills to use online calculators to perform calculations related to swimming pool and spa servicing

Required knowledge

- calculation methods:
  - flow rate
  - limitations
  - mass
  - perimeter
  - quantity
  - risks
  - surface area
  - time
  - volume
  - water loss and make-up water
  - weight
- conversion of measurement units:
  - metric system conversions

    - metric to imperial measurement unit conversion and vice versa
- graphical representations of mathematical information:
    - diagrams
    - graphs
    - symbols
- measurements:
    - hazards, risks and enterprise safety procedures associated with measurements undertaken on site
    - limitations
    - measurement-recording procedures
    - measurement units
    - need for accuracy of measurements
    - purpose of measurements
    - types and function of measuring equipment
- swimming pool and spa:
    - dimensions
    - pool floor configurations
    - shapes
- water loss in swimming pools and spas:
    - evaporation
    - planned dilution:
        - total dissolved solids (TDS) level
        - user load
    - plumbing and shell leaks
    - user splash-out and drag-out

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	This unit of competency could be assessed by performing measurements and calculations required to complete work tasks associated with servicing swimming pools and spas.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person should demonstrate the ability to:
	• take measurements of regular and irregular shaped swimming pools and spas
	• perform area, perimeter and volume calculations of regular and irregular shaped swimming pools and spas that have pool floors with varying slopes and configurations
	• perform calculations of water loss in swimming pools and spas
	• calculate quantities of pool chemicals required to improve water quality
	• calculate flow rates and time taken to fill and empty swimming pools and spas
	• convert metric units of measurement and convert metric to imperial units of measurement and vice versa
	• interpret graphical representations of mathematical information related to swimming pools and spas
	• demonstrate knowledge of:
	  • units of measurement
	  • volume, area and perimeter calculations
	  • weight and mass calculations
	  • measurement techniques.

Context of and specific resources for assessment	Assessment of essential underpinning knowledge may be conducted in an off-site context and is to comply with relevant regulatory and Australian Standards' requirements.
	Resource implications for assessment include:
	• relevant codes, standards and government regulations
	• a technical reference library with current publications on:
	  • measurement techniques
	  • swimming pool and spa calculations.

Method of assessment	Assessment methods must: • satisfy the endorsed Assessment Guidelines of the CPP07 Property 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. This unit could be assessed on its own or in combination with other units relevant to the job function.
Guidance information for assessment	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. 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.

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.

Measurement requirements may include:	• flow rates • swimming pool or spa chemical quantities • swimming pool or spa dimensions • temperatures.
Preparations for measurement tasks may include:	• arrange transport • identify site hazards and assess risk • liaise with relevant personnel to arrange site access • prepare measuring and safety equipment.
Measurements may include:	• linear measurements in metric scale • measurements for calculating areas, perimeters and volumes of regular and irregular shapes relevant to measuring swimming pools and spas, such as rectangles, squares, cubes, circles, semi-circles, triangles, trapeziums and cylinders • weights.
Measuring equipment may include:	• bucket • calculator • ruler, including laser ruler

	• measuring flask • scales • stopwatch • tape measure • trundle wheel.
Recorded may include:	• annotations • electronic data entry • sketches • written notes.

Conversions may include:	• distance units of measurements:
	  • metric conversions
	  • metric to imperial units of measurement and vice versa
	• surface area units of measurements:
	  • metric conversions
	  • metric to imperial units of measurement and vice versa
	• volume units of measurements:
	  • metric conversions
	  • metric to imperial units of measurement and vice versa
	• weight units of measurement:
	  • metric conversions
	  • metric to imperial units of measurement and vice versa.

Calculation requirements may include:	• chemical quantities required to improve water quality:
	  • dry
	  • liquid
	• flow rate
	• surface area of swimming pools and spas:
	  • irregular shapes
	  • regular shapes
	• swimming pool or spa water loss
	• time to fill or empty swimming pools or spas
	• volume of swimming pools or spas:
	  • constant slope
	  • flat bottom
	  • multi-depth
	  • multi-depth circular.

Calculations may include:	• flow rate • mass • perimeter • quantity • surface area

	• time • volume • water loss and make-up water • weight.

Unit Sector(s)

Competency field

Unit sector Swimming pools and spas

Custom Content Section

Not applicable.