



Australian Government

ACMGEN404 Design, construct and maintain aquascapes

Release: 1

ACMGEN404 Design, construct and maintain aquascapes

Modification History

Release	Comments
Release 1	This version released with ACM Animal Care and Management Training Package Version 4.0.

Application

This unit of competency describes the skills and knowledge required to design, construct and maintain aquascapes for a range of aquariums, including ponds, waterfalls and water features.

This unit applies to individuals working in animal industry sectors where aquascapes are designed, constructed and maintained to house aquatic animals, which may include fish, aquatic invertebrates (including crustaceans and corals), amphibians and turtles. They analyse information and exercise judgement to complete a range of skilled activities and demonstrate in-depth knowledge in a specific technical area. They develop and communicate solutions for a range of commonly encountered problems.

All work must be carried out to comply with workplace procedures according to Commonwealth and state/territory health and safety and animal welfare regulations, legislation and standards that apply to the workplace.

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

Pre-requisite Unit

Nil

Unit Sector

General Animal Care (GEN)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify requirements of aquascape	1.1 Discuss types of aquaria and proposed species to be housed with client or manager

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.2 Identify location and climatic conditions affecting design 1.3 Agree design concept with client or manager, and confirm special installation and maintenance requirements 1.4 Provide advice on suitability of species and location
2. Prepare aquascape design	2.1 Select appropriate heating, lighting and filtration according to design parameters 2.2 Select plants, features and substrate materials according to design parameters
3. Establish aquascape	3.1 Select and correctly use tools, equipment, materials and personal protective equipment appropriate for the job 3.2 Select or construct tank or pond and install substrate according to design specifications 3.3 Install and secure aquascape features and plants according to design specifications and workplace procedures 3.4 Conduct installation, testing and commissioning of lighting, heating and filtration systems according to manufacturer instructions 3.5 Introduce designated aquatic animals using low stress techniques 3.6 Collect, treat and dispose of or recycle waste from construction and installation according to workplace and environmental requirements 3.7 Clean worksite, tools and equipment, and return to operating order and store according to workplace requirements
4. Maintain aquascape	4.1 Discuss ongoing maintenance requirements and arrangements with client or carer 4.2 Conduct water sampling and testing according to species type and environmental requirements 4.3 Prove isolation of electrical equipment prior to maintenance using appropriate techniques, procedures and equipment 4.4 Carry out service and repairs according to manufacturer instructions and workplace procedures 4.5 Monitor and report on health of aquaria and plants 4.6 Identify complex faults and refer for specialist advice and remedial action according to workplace procedures 4.7 Maintain accurate records according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Interpret symbols and abbreviations found in aquascape construction plans and drawings
Numeracy	- Calculate distance, angles, volume, weight, area, percentage, ratio, time and application rates - Identify basic geometric shapes and numerical abbreviations on a construction drawing - Calculate quantities and costs of materials required to construct aquascapes

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ACMGEN404 Design, construct and maintain aquascapes	ACMCAS403 Design, construct and maintain aquascapes	Minor changes to performance criteria for clarity Assessment requirements updated	Equivalent

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b75f4b23-54c9-4cc9-a5db-d3502d154103>

Assessment Requirements for ACMGEN404 Design, construct and maintain aquascapes

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has:

- designed and constructed at least two aquascapes, including:
 - installed, secured and tested lighting, heating and filtration systems as required in design specifications
 - introduced live aquatic animals in the aquascape
 - used safe and environmentally responsible procedures for handling aquatic animals
- documented maintenance arrangements for each aquascape
- maintained records and documentation for each aquascape.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- types of aquatic animals, including:
 - fish
 - aquatic invertebrates (including crustaceans and corals)
 - amphibians
 - turtles
- common names for fish, reptile and/or amphibian species commonly held in facilities
- species compatibility
- environmental requirements for commonly held species
- aquatic animal biology related to the care and wellbeing of commonly held species
- normal and abnormal behaviour of aquatic species, including behaviours and conditions that could be indicative of possible aquatic animal health problems
- safe aquatic animal handling techniques and procedures
- aquaria and aquascapes design and building elements, including:

- heating, lighting and filtration systems
- plants, features and substrate materials
- maintenance of ideal water conditions and quality for a range of aquatic animals, including:
 - water characteristics, including pH, nitrate, nitrite, ammonia, salinity, calcium and/or hardness
 - water sampling, testing and analysis procedures and techniques
 - water quality adjustment procedures and chemicals used to correct water conditions of aquascapes
- principles of animal welfare and ethics relevant to aquatic animals and aquascapes/aquaria
- signs of common aquatic animal diseases and parasitic infestations and their transmission between aquatic animals
- safe work practices, including:
 - appropriate use of personal protective equipment (PPE)
 - infection/disease control and hygiene standards
 - handling chemicals and cleaning agents
- general maintenance and cleaning requirements of aquascapes, including:
 - waste management strategies
 - cleaning techniques, equipment and materials used in aquascapes/aquaria
 - workplace guidelines and approaches to environmental sustainability.

Assessment Conditions

Assessment of the skills in this unit of competency must take place under the following conditions:

- physical conditions:
 - an animal care facility or an environment that accurately represents workplace conditions
- resources, equipment and materials:
 - live aquatic animals specified in the performance evidence
 - materials, tools and products for designing, constructing and maintaining aquascapes, including lighting, heating and filtration systems
 - record-keeping system or resources
- specifications:
 - workplace policies, procedures and specifications or plans related to aquascape design, construction and maintenance
- relationships:
 - clients and/or carer.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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