



Australian Government

AHCGRI501 Design roof gardens

Release: 1

AHCGR1501 Design roof gardens

Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 6.0.

Application

This unit of competency describes the skills and knowledge required to design roof gardens in consultation with system/component suppliers, building and landscape design professionals and other landscape and horticultural specialists. It includes the selection of roof garden components based on structural limitations and opportunities, and the application of knowledge of the benefits and risks associated with roof gardens into designs that meet client requirements and comply with applicable building and relevant authorities' regulations and guidelines.

The unit applies to individuals with existing horticultural, landscaping, landscape design and/or construction experience, who research information about roof garden principles and guidelines and consult with green infrastructure and/or building and landscape design specialists to design roof gardens for existing and/or new buildings.

This unit of competency is suitable for individuals dealing with predictable and unpredictable problems and deciding on solutions to a range of complex problems during the design process through research, analysis and consultation.

Roof garden design must meet all requirements of national, state, territory and local government authorities and building regulations, standards and codes.

Licensing, legislative or certification requirements may apply to the work undertaken in this unit in some jurisdictions. Users are advised to check with the relevant regulatory authorities.

Pre-requisite Unit

Nil

Unit Sector

Green Infrastructure (GRI)

Elements and Performance Criteria

Elements	Performance Criteria
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<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Research roof garden design information	1.1 Establish purpose, functions, benefits and risks associated with roof gardens 1.2 Access and interpret building regulations, standards and codes, and relevant national, state, territory and local authority policies, procedures and permits to determine applicable restrictions or limitations relating to roof gardens 1.3 Identify environmental and energy efficiency impacts of green infrastructure design 1.4 Identify factors that will impact roof garden designs
2. Scope project requirements	2.1 Consult with client to clarify type, purpose, features and requirements of roof garden to inform design parameters 2.2 Identify project location and complete site analysis 2.3 Confirm structural requirements relating to roof gardens with architect, engineer and/or other relevant specialists 2.4 Establish constraints and/or opportunities for meeting client expectations and requirements, and clarify design scope with client
3. Design roof gardens	3.1 Acquire engineering plans to determine drainage outlets and weight limits 3.2 Design roof garden to utilise spatial availability, enable access and egress, and comply with building regulations, standards and codes 3.3 Consult growing media and/or horticulture specialist on selection of media and plants based on the location conditions and maintenance requirements 3.4 Document specifications for waterproofing, irrigation and drainage systems and/or lighting, including recommended suppliers 3.5 Calculate total weight of materials, components and water in consultation with suppliers, green infrastructure specialists and/or building professionals to ensure the total weight complies with parameters set by an engineer 3.6 Design plant and component anchoring system appropriate to project location and weather conditions in consultation with engineers and other building and/or landscape professionals 3.7 Prepare a design concept of proposed roof garden, confirm with specialists and/or building professionals, and present to client 3.8 Prepare design plans, specifications, maintenance program and estimated costs for roof garden, in consultation with qualified specialist if required

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	Research and analyse researched information to select materials and components for roof gardens
Writing	Develop relevant documentation using digital technology
Oral communication	Determine stakeholder requirements through open-ended questioning, active listening and summarising
Numeracy	- Apply decimals and percentages to estimate and calculate project costs - Use measurements and formulas to calculate length, area, volume and weight - Interpret data and numerical data displayed in graphs, charts and/or tables

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCGR1501 Design roof gardens	Not applicable	The unit has been created to address an emerging skill or task required by industry	Newly created

Links

Companion Volumes, including Implementation Guides, are available at VETNet: - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCGR1501 Design roof gardens

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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 one compliant roof garden project with a minimum of 4 square metres and has:

- met design brief and project parameters
- consulted with green infrastructure specialists, building and/or landscape professionals
- complied with relevant regulatory authorities' policies and procedures, building regulations, standards and codes
- complied with the project design parameters set by an engineer or specialist
- used measurements and formulas to calculate material quantities, weights and estimated project costs
- incorporated provision of access and egress for construction and maintenance
- developed and documented a maintenance program to ensure sustainability of the green infrastructure.

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:

- professional practice requirements in roof garden design, including:
 - limitations and boundaries
 - roles and responsibilities of building professionals and authorities
- factors influencing roof garden design for existing and new buildings
- relevant legislation, standards and codes, including the National Construction Code (NCC)
- roof garden recirculating and non-recirculating/flood-drain systems
- site analysis, including:
 - climatic factors of wind, temperature, sunlight, rainfall and irrigation
 - drainage
- site access for construction and installation and ongoing maintenance

- reasons for creating roof gardens, including:
 - environmental
 - economic
 - social
- features, benefits and risks of roof gardens
- characteristics, properties and limitations of materials used for roof gardens, including:
 - water-proofing material
 - substrate
 - root barrier
 - drainage and irrigation systems
 - storing and recycling water systems
 - lighting systems
- characteristics, properties and limitations of plants used for roof gardens
- properties of types of green roofs, including:
 - extensive
 - intensive
- project cost estimating, including:
 - materials and labour
 - build costs, including transporting and storing materials and equipment, and provision of safety and equipment
 - ongoing maintenance.

Assessment Conditions

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

- physical conditions:
 - skills must be demonstrated in a design workplace or an environment that accurately represents workplace conditions
- specifications:
 - building regulations, standards and codes relevant to roof garden design
- relationships:
 - clients to discuss roof garden design requirements
 - building and/or landscape/horticultural professionals to consult with on building roof garden and regulatory requirements.

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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