

Modification history

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

AHCGRI502	Design vertical gardens and green facades
Application	<p>This unit of competency describes the skills and knowledge required to design vertical gardens and green facades, in consultation with system/component suppliers, building and green infrastructure design professionals and other horticultural specialists. It includes incorporating the principles, benefits and risks associated with vertical gardens and green facades into designs that meet client requirements and comply with applicable building and relevant authorities' regulations and guidelines.</p> <p>The unit applies to individuals with existing horticultural, landscaping, landscape design and/or construction experience, who consult with green infrastructure and/or building and design specialists to apply knowledge and researched information to designing vertical gardens and green facades for existing and/or new buildings.</p> <p>This unit of competency is suitable for individuals using their own judgment to deal with predictable and unpredictable problems and to decide on solutions to a range of complex problems during the design process.</p> <p>Vertical garden and green facade design must meet all requirements of national, state, territory and local government authorities and construction regulations, standards and codes.</p> <p>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.</p>
Prerequisite Unit	Nil
Unit Sector	Green Infrastructure (GRI)

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. Research green infrastructure design information	1.1 Establish purpose, functions, benefits and risks associated with vertical gardens and green facades 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 vertical gardens and green facades 1.3 Identify environmental and energy efficiency impacts of green infrastructure design 1.4 Identify factors that will impact vertical garden and green facade designs
2. Scope project requirements	2.1 Consult with client to clarify type, purpose and preference of vertical garden and/or green facade design features and requirements 2.2 Identify project location and complete site analysis 2.3 Confirm structural principles relating to vertical garden and green facade with architect, engineer and/or other relevant specialists

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
3. Design vertical garden	4.1 Acquire construction plans to identify type of vertical garden best suited for building type and required outcomes 4.2 Determine location, aspect and dimensions of vertical garden 4.3 Consult growing media and/or horticulture specialist to determine media characteristics and functionality, and select plants based on location conditions and maintenance requirements 4.4 Document specifications for waterproofing, irrigation and drainage systems and/or lighting, including recommended suppliers 4.5 Calculate total weight of vertical garden materials and fixing fastening system in consultation with suppliers, green infrastructure and/or building professionals to ensure total weight complies with parameters set by engineer 4.6 Prepare design concept of proposed vertical garden, confirm with specialists and/or building professionals, and present to client 4.7 Prepare design plans, specifications, maintenance plan and estimated costs for vertical garden for documenting by qualified specialist, if required
4. Design green facade	5.1 Identify and select suitable types of plants, and determine dimensions of growing media for installed container or garden bed planting 5.2 Confirm integrity and suitability of support structure with engineer 5.3 Specify fixing requirements that comply with building codes and standards 5.4 Design facade, considering wind and climate conditions, irrigation and drainage requirements and factors relating to ongoing maintenance 5.5 Prepare design concept of proposed green facade, confirm with specialists and/or building professionals, and present to client 5.6 Prepare design plans, specifications, maintenance program and estimated costs for green facade for documenting by a qualified specialist, if required

Foundation Skills	
<i>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.</i>	
Skill	Description
Reading	<ul style="list-style-type: none"> Research and analyse researched information to select materials and components for green infrastructure
Writing	<ul style="list-style-type: none"> Develop relevant documentation using digital technology
Oral communication	<ul style="list-style-type: none"> Determine stakeholder requirements through open-ended questioning, active listening and summarising
Numeracy	<ul style="list-style-type: none"> 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
AHCGRI502 Design vertical gardens and green facades	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
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TITLE	Assessment requirements for AHCGRI502 Design vertical gardens and green facades
Performance Evidence	
<p>An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.</p> <p>There must be evidence that the individual has designed one vertical garden with a minimum of 4 square metres, and one green facade with a minimum of 4 square metres, and has:</p> <ul style="list-style-type: none"> • met client requirements • 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 • 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	
<p>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:</p> <ul style="list-style-type: none"> • professional practice requirements in green infrastructure design, including: <ul style="list-style-type: none"> • limitations and boundaries • roles and responsibilities of building professionals and authorities • factors influencing vertical gardens and green facade design for existing and new buildings • relevant legislation, standards and codes, including the National Construction Code (NCC) • recirculating and non-recirculating/flood-drain vertical garden systems • site analysis, including: <ul style="list-style-type: none"> • climatic factors of wind, temperature, solar radiation, rainfall and irrigation • drainage • installation and ongoing maintenance access • receiving, location and storage of necessary construction equipment and materials • reasons for creating vertical gardens and green facades, including: <ul style="list-style-type: none"> • environmental • economic • social • features, benefits and risks of vertical gardens and green facades • characteristics, properties and limitations of materials used for vertical gardens and green facades, including: <ul style="list-style-type: none"> • water-proofing material • substrate • root barrier • drainage and irrigation systems • storing and recycling water systems • lighting systems • sensor equipment and integration with Building Information Management (BIM) systems • characteristics, properties and limitations of plants used for green infrastructure • types and properties of vertical garden and green façade construction, including: <ul style="list-style-type: none"> • panel system • modular system • properties of vertical gardens and green facades • project cost estimating, including: <ul style="list-style-type: none"> • materials and labour • build costs, including transporting and storing materials and equipment, and provision of safety equipment • ongoing maintenance. 	

Assessment Conditions
<p>Assessment of the skills in this unit of competency must take place under the following conditions:</p> <ul style="list-style-type: none">• physical conditions:<ul style="list-style-type: none">• skills must be demonstrated in a design workplace or an environment that accurately represents workplace conditions• specifications:<ul style="list-style-type: none">• manufacturer's fixing and fastening specifications for vertical garden and green facade systems• building regulations, standards and codes relevant to green infrastructure design• relationships:<ul style="list-style-type: none">• clients to discuss vertical garden and green facade design requirements• building professional (engineer) to consult with on building/installation of vertical garden and green facade and regulatory requirements. <p>Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.</p>

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