

UNIT CODE	BLDBIO607
UNIT TITLE	Apply building biology principles to design a healthy home
APPLICATION	<p>The unit applies to Building Biologists or individuals who, as part of their occupation or work role, are required to provide advice on healthy building design.</p> <p>It requires application of building biology principles to design healthy homes with a focus on site selection, passive solar design, passive ventilation, integrated pest management, site water flow management, suitable building material selection, and energy efficiency.</p> <p>No occupational licensing, certification or specific legislative requirements apply to this unit at the time of publication.</p>
PRE-REQUISITE UNIT	BLDBIO604 Apply building biology principles to assess and recommend building materials
ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes of the unit	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Plan for a site assessment	<p>1.1. Develop a project brief of a site taking into consideration the client's requirements and resources</p> <p>1.2. Seek input from a range of sources to gather information about the site</p> <p>1.3. Identify the zoning applicable to the site</p> <p>1.4. Research prevailing winds, sun path, climate zone and microclimate unique to the site</p> <p>1.5. Identify personnel to conduct onsite testing of AC magnetic fields and radiofrequency electromagnetic fields</p> <p>1.6. Research the history of the site</p>
2. Conduct a site assessment	<p>2.1. Identify proximity of the site to air pollutants</p> <p>2.2. Identify proximity of the site to sources of electromagnetic fields</p> <p>2.3. Identify proximity of the site to bodies of water</p> <p>2.4. Identify proximity of the site to green zones</p> <p>2.5. Document proximity of the site to neighboring buildings and vegetation</p> <p>2.6. Identify features of the site that may create drainage issues</p>

<p>3. Design a healthy home</p>	<p>3.1 Select suitable building materials that do not adversely impact indoor air quality, electroclimate or occupant's health.</p> <p>3.2 Document design characteristics that passively heat and cool the building</p> <p>3.3 Document design characteristics that promote passive ventilation</p> <p>3.4 Document drainage and water management ideas to prevent moisture related problems</p> <p>3.5 Document integrated forms of pest management</p> <p>3.6 Draw a sketch plan illustrating the features of a healthy home</p>
<p>4 Report the findings of the building site assessment</p>	<p>4.1 Describe the building biology principles relating to healthy building design</p> <p>4.2 Formulate outcomes of the site assessment</p> <p>4.3 Document recommendations in a report for the client</p> <p>4.4 Identify key personnel and suppliers required to assist in building a healthy home</p>

FOUNDATION SKILLS

Foundation skills essential to performance in this unit, but not explicit in the performance criteria are listed here, along with a brief context statement.

Skill	Description
<p>Reading skills to:</p>	<p>Evaluate healthy building designs using authoritative sources</p> <p>Understand and apply specialist building terminology</p> <p>Read text which includes specialized vocabulary to gather information and create questions to be answered.</p>
<p>Writing skills to:</p>	<p>Produce, edit and proof read documents to ensure clarity of meaning, accuracy and consistency of information</p> <p>Address the context, purpose and audience when generating text</p> <p>Integrate information and ideas from a range of sources, e.g. course materials, photographs, charts, maps</p> <p>Relay/report researched information using clear and direct language appropriate to the reader/audience</p> <p>Validate findings where appropriate</p>

Oral communication skills to:	<p>Listen strategically to gather verbal information</p> <p>Communicate with a range of people including builders, designers, and architects using appropriate building/construction industry terminology.</p> <p>Actively participate in meetings and discussions to gather information</p>
Numeracy skills to:	<p>Extract, interpret and create mathematical information including temperature, rainfall, and humidity.</p> <p>Understand and measure height, angles, volumes and other mathematical proportions related to ergonomic and proportional building designs, e.g. percentages, ratio, rates, positive and negative numbers, numbers expressed as powers, routine formulae and algebraic representations, 2D and 3D shapes, maps, plans and statistical data in graphs and tables.</p> <p>Use estimation and other assessment skills to check the outcomes and decide on the appropriate accuracy for the outcome.</p> <p>Interpret trends and compare and evaluate costs.</p>
Learning skills to:	<p>Use a variety of reference sources to collect facts and examples.</p>
Problem-solving skills to:	<p>Draw comparisons – e.g. healthy versus sick building construction design and development.</p> <p>Identify environmental issues, alternative treatments/solutions matched with or based on evidence (e.g. alternative pest treatments), alternative materials, and apply these to recommendations.</p>
Initiative and enterprise skills to:	<p>Seek information and resources outside of those provided in the main learning text.</p>
Teamwork skills to:	<p>Work with industry professionals to gather information and resources</p>
Planning and organising skills to:	<p>Gather and record data relevant to the project in a timely manner</p>
Self-management skills to:	<p>Manage research, project timeframes, interactions with the client, industry professionals and key sources of information including various government authorities and utilities.</p>
Technology skills to:	<p>Read and accurately interpret a compass.</p> <p>Use hand-held devices, computers or other processes to enter mathematical data and calculate.</p> <p>Select and use technology and internet searches for research and producing documents, tables, charts, plans.</p>

TITLE	Assessment Requirements for BLDBIO607 Apply building biology principles to design a healthy home
PERFORMANCE EVIDENCE	<p>The learner must show evidence of the ability to complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the job role. There must be demonstrated evidence that the learner has completed the following tasks:</p> <ul style="list-style-type: none"> • Identified the client's resources and requirements of the site • Identified the zoning unique to the site • Researched the previous history of the site • Researched prevailing winds, sun path, climate zone and microclimate unique to the site • Identified proximity of the site to air pollutants, electromagnetic fields, bodies of water, neighbouring buildings, vegetation and green zones • Described the building biology principles pertaining to healthy building design • Researched non-chemical forms of pest management • Outlined the design features that enhance passive ventilation • Documented the drainage and water management features to prevent moisture related problems • Documented the design features to passively heat and cool the building • Illustrated the features of a healthy home on a site / building sketch • Identified key personnel and suppliers required to assist in building a healthy home • Used computer software to document findings and recommendations
KNOWLEDGE EVIDENCE	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:</p> <ul style="list-style-type: none"> • Building terminology • Building biology principles of healthy building design

	<ul style="list-style-type: none"> • Building biology design principles for site location • Building biology principles for building material selection • Building biology rating tool • Range of sources about a site may include the local council, google earth, Bureau of Meterology, EPA (proximity to waste sites, air pollutants)... • Council requirements regarding zoning of land and previous land use • Sun path, prevailing winds, climate zone and microclimate • Air pollutants that impact the site • External sources of AC magnetic fields and radiofrequency electromagnetic fields that impact the site may include mobile phone towers, high voltage transmission lines, power lines, substations, transformers... • Bodies of water contaminated with biotoxins (blue-green algae outbreaks) in close proximity to the site including lakes, rivers, tributaries • Influence of neighboring buildings in close proximity to the site that affect shading and sun exposure • Proximity of green zones to the site as a means to reduce air pollutant exposure • Features that affect drainage issues such as land slope, trees, landscaping features, damp proof course, vapour barriers, sources of water... • Design principles to enhance passive ventilation such as location of windows and doors and air vents • Design principles to passively heat and cool the building such as consideration of the facing direction of the building relative to the sunpath and microclimate, use of suitable building materials to capture winter sun and shade from summer sun • Integrated pest management that encompasses non-chemical forms of pest management • Drainage and water management features to prevent moisture and mould problems • Key personnel required to assist in building a healthy home such as a building biologist, architect, draftsperson • Suppliers of suitable building materials that comply with Building Biology principles • Computer software to document findings
<p>ASSESSMENT CONDITIONS</p>	<p>As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.</p> <p>Knowledge and skills must be demonstrated of an actual site for a fictitious or an actual client.</p> <p>Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work of a professional Building Biologist.</p> <p>Assessment must include:</p> <ul style="list-style-type: none"> • A report which incorporates a project brief • A building design which meets building biology principles for a healthy

	<p>home</p> <ul style="list-style-type: none">• A sketch of the site showing proposed building layout and essential services• Photographic evidence of the site and surrounds <p>Assessor Requirements:</p> <ul style="list-style-type: none">• Assessors must hold the Training and Assessment Qualifications specified in the <i>Standards for Registered Training Organisations (RTOs) 2015</i>, and• Be able to demonstrate vocational competence at least equivalent to that being delivered, and• Have at least two years' experience working as a Building Biologist Consultant.
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