

<b>UNIT CODE</b>	<b>NAT10913007</b>
<b>UNIT TITLE</b>	<b>Apply building biology principles to design a healthy home</b>
<b>APPLICATION</b>	<p>This unit applies to Building Biologists or individuals who, as part of their occupation or work role, 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 and vapour 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>
<b>PRE-REQUISITE UNIT</b>	NAT10913004 Apply building biology principles to assess and recommend building materials
<b>COMPETENCY FIELD</b>	050999 Environmental Studies, nec
<b>ELEMENTS</b>	<b>PERFORMANCE CRITERIA</b>
Elements describe the essential outcomes of the unit	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Research and gather data about the site	<p>1.1. Develop a project brief that includes the client's requirements and budget</p> <p>1.2. Seek input from a range of sources to gather information about the site such as zoning, BAL rating, and any council restrictions including heritage overlays</p> <p>1.3. Use the internet to determine the history of the land, and proximity of the site to ambient hazards such as nearby air pollutants, electromagnetic fields, wind turbines, flight paths etc</p> <p>1.4. Research prevailing winds, sun path, climate zone and microclimate unique to the site</p> <p>1.5. Identify features of the site that may impact drainage</p> <p>1.6. Identify features of the site that may impact shading</p> <p>1.7. Identify personnel to conduct testing to identify potential hazards unique to the site (soil testing, electromagnetic fields, mould)</p>



<p>2. Design a healthy home</p>	<p>2.1 Select suitable building materials that do not adversely impact indoor air quality, electroclimate or occupant's health.</p> <p>2.2 Document design characteristics that passively heat and cool the building</p> <p>2.3 Document design characteristics that promote passive ventilation</p> <p>2.4 Document drainage and vapour management to prevent moisture-related problems</p> <p>2.5 Provide advice on integrated forms of pest management</p> <p>2.6 Minimise exposure to electromagnetic fields from lighting, wiring and electrical appliances</p>
<p>3 Report the findings of the building site assessment</p>	<p>3.1 Describe the building biology principles that underpin healthy building design</p> <p>3.2 Formulate outcomes of the site assessment</p> <p>3.3 Document recommendations in a report</p> <p>3.4 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 proofread 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 promptly</p>

Self-management skills to:	Manage research, project timeframes, interactions with the client, industry professionals and key sources of information including various government authorities and utilities.
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>

UNIT MAPPING INFORMATION	Code and Title Current Version	Code and Title Previous Version	Comments
	NAT10913007 Apply building biology principles to design a healthy home	BLDBIO607 Apply building biology principles to design a healthy home	Equivalent unit

<b>TITLE</b>	<b>Assessment requirements for NAT10913007 Apply building biology principles to design a healthy home</b>
<b>PERFORMANCE EVIDENCE</b>	<p>The learner must show evidence of the ability to complete tasks outlined in the elements and performance criteria of this unit, and manage tasks and 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"> <li>Identified the client's resources and requirements of the site</li> <li>Identified the zoning, BAL rating (bushfire) and any restrictions (council), such as heritage overlays unique to the site</li> <li>Researched the previous history of the site</li> <li>Researched prevailing winds, sun path, climate zone and microclimate unique to the site</li> <li>Identified proximity of the site to air pollutants, electromagnetic fields, bodies of water, neighbouring buildings, vegetation and green zones</li> <li>Researched non-chemical forms of pest management</li> </ul>

	<ul style="list-style-type: none"> <li>• Outlined the design features that enhance passive ventilation</li> <li>• Documented the drainage and water management features to prevent moisture-related problems</li> <li>• Documented the design features to passively heat and cool the building</li> <li>• Illustrated the features of a healthy home on a site/building sketch</li> <li>• Identified key personnel and suppliers required to assist in building a healthy home</li> <li>• Used computer software to document findings and recommendations</li> </ul>
<p><b>KNOWLEDGE EVIDENCE</b></p>	<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"> <li>• Building terminology</li> <li>• Building biology principles that underpin healthy building design</li> <li>• Exposure zones, i.e. proximity of the site to potential health hazards</li> <li>• Building Biology Rating Tool</li> <li>• Analysing information from a range of authoritative sources including government, non-government, industry associations and YouTube videos relevant to the field of study.</li> <li>• Council requirements regarding zoning of land and previous land use</li> <li>• Sun path, prevailing winds, climate zone and microclimate</li> <li>• External sources of AC magnetic fields and RF-EMFs that may impact the site include mobile phone towers, high voltage transmission lines, power lines, substations, transformers...</li> <li>• Influence of neighbouring buildings and trees in close proximity to the site that impact shading and sun exposure</li> <li>• Proximity of green zones to the site as a means to reduce air pollutant exposure</li> <li>• Features that impact drainage issues such as land slope, trees, landscaping features, damp proof course, vapour barriers, sources of water.</li> <li>• Design principles to enhance passive ventilation such as location of windows and doors and air vents</li> <li>• 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</li> </ul>

	<ul style="list-style-type: none"> <li>• Integrated pest management that encompasses non-chemical forms of pest management</li> <li>• Drainage and water management features to prevent moisture and mould problems</li> <li>• Key personnel required to assist in building a healthy home such as a building biologist, architect, draftsman</li> <li>• Suppliers of suitable building materials that comply with Building Biology principles</li> </ul>
<p><b>ASSESSMENT CONDITIONS</b></p>	<p>Both practical skills and knowledge must be assessed. Skills must be demonstrated in a simulated environment or a real-life working environment, such as a block of land.</p> <p>Assessment methods must include:</p> <ul style="list-style-type: none"> <li>• report incorporating the project brief and applies building biology principles that underpin a healthy home</li> <li>• sketch of the site showing proposed building layout and essential services</li> <li>• photographic evidence of the site and surrounds</li> </ul> <p><b>Assessor Requirements</b></p> <p>Assessors must:</p> <ul style="list-style-type: none"> <li>• have a minimum of two years' experience working as a Building Biologist.</li> </ul>