

Unit 27: Construction and Maintenance of Timber Landscape Features

Unit code:	H/600/9948
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

This unit aims to provide learners with an understanding of how to construct and maintain timber landscape features and how these can be applied in practice. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or further education and training.

● Unit introduction

No modern gold medal winning garden at a flower show is complete without a timber structure. Timber structures can add height or interest as well as being highly practical in any garden. This unit will allow learners the opportunity to try building these structures as well as maintaining and carrying out repairs on them.

In garden design, a designer will start by putting in the key structures which often involves something architectural that defines the structure of a garden. It is often a large timber structure such as an arbour or obelisk. Without these structures a large scale garden can often look wrong. Adding these structures alongside large architectural plants can make a garden very successful and provide a backdrop for borders.

It is only quite recently though that amateur gardeners have included or attempted to build and place these structures in among their designs. This is mainly due to gardening becoming very popular recently as well as materials being far more readily available and equipment being financially far more accessible. This unit will allow learners to attempt to build these structures and possibly place them in amongst a suitable design.

● Learning outcomes

On completion of this unit a learner should:

- 1 Be able to construct timber features
- 2 Understand the construction of timber features
- 3 Understand the maintenance and preservation of timber features.

Unit content

1 Be able to construct timber features

Horizontal timbers: construction of timber structures; decking; steps; bridges; sleepers; timber protection techniques during construction; reduction of waste; structural damage; decay; health and safety considerations during construction; use of suitable timber.

Vertical timbers: construction of timber structures; pergolas; arbours; log palisades; timber protection techniques; reduction of waste; structural damage; decay; health and safety considerations during construction; use of suitable timber.

2 Understand the construction of timber features

Maintenance: repairs on timber structures; effects of weathering; moisture protection; UV protection; timber decay patterns; timber decay remedies; timber restoration eg polishing and repair; resurfacing decking; timber sealing; staining; recognising structural damage; requirements for specific timbers.

3 Understand the maintenance and preservation of timber features

Paints: solvent based; water based; effectiveness; alternative wood preservatives available; application techniques and frequency; costs for each structure; coverage required; frequency of application.

Health, safety and technical information: manufacturers' technical information leaflets; current legislation; codes of practice for construction of hard landscapes; building regulations; environmental considerations.

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 construct and repair horizontal timber features safely	M1 evaluate your structure and suggest improvements to it	D1 discuss the advantages and disadvantages of timber structures in different situations.
P2 construct and repair vertical timber features safely		
P3 maintain timber features safely		
P4 describe the security of the site and protection of the work until it is in a useable conditions		
P5 evaluate a range of timber features and their uses, including decking, steps, bridges, pergolas, arbours and palisades.		
P6 describe typical repair requirements of timber features: structural damage, decay patterns in horizontal and vertical timbers and repair techniques	M2 evaluate repairs on a structure and suggest improvements	
P7 evaluate a range of timbers suitable for outdoor use and appropriate timber treatments		
P8 explain potential problems that may occur and how to overcome them		
P9 evaluate the use and effectiveness of paints, water-based and solvent-based preservatives		

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P10 evaluate the technical information for specifying the maintenance of timber	M3 discuss the problems and benefits of maintaining timber structures.	
P11 summarise the environmental and health and safety legislation and codes of practice relating to the construction and maintenance of timber features.		

PLTS: This summary references where applicable in the pass criteria, in the square brackets, the elements of the personal, learning and thinking skills. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers CT – creative thinkers	RL – reflective learners TW – team workers	SM – self-managers EP – effective participators

Essential guidance for tutors

Delivery

Delivery of this unit will involve practical assessments, written assessment, visits to suitable sites and possibly developing links with industry for site visits and guest speakers to talk about specific locations where timber structures have been vital to creating architectural impact in a large garden or horticultural site. This may also be a good opportunity to set up work placements at gardens that have timber structures requiring maintenance or repair. Links to industrial experience placements would be a major advantage. If land is available to the provider then structures can be built on site, erected, maintained and repaired but if space is limited then the unit can be delivered by use of site visits, guest speakers and organised visits for practical work. Some of the material can however be delivered by a wide range of techniques including lectures, discussions, seminar presentations, supervised practicals and research using the internet and/or library resources. Delivery should stimulate, motivate, educate and enthuse learners.

Any site visits should be checked for suitability and a risk assessment of activities carried out. Companies can often offer site visits with support and provide expert guidance on the specific location as well as sometimes being able to tailor make sessions and practical work. It would be beneficial if learners and supervisors of sites were made aware of the requirements of this unit prior to any activities so that evidence can be collected at the time. For example, learners may have the opportunity to work with or observe professional joiners who work with landscapers to produce large scale timber structures that would otherwise be too expensive for a college or school but that show what is possible in the professional environment. Learners should be encouraged to ask for observation records and/or witness statements to be provided as evidence of this. Guidance on the use of observation records and witness statements is provided on the Edexcel website.

Guest speakers would also be useful to provide background information to legal requirements and health and safety considerations when building, erecting, maintaining and repairing timber structures.

Some of the techniques can be carried out by setting up a scenario in a small open space if suitable equipment is available. Smaller scaled-down versions can be built and shown to describe methods of joining timbers and the methods of construction.

Whichever delivery methods are used, it is essential that tutors stress the importance of water conservation, sound environment management and the need to manage the resource using legal methods.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan gives **an indication of the volume of learning it would take the average learner** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value**.

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment
Introduction and overview of the unit.
Assignment 1: Building a Chelsea Quality Garden (P1, P2, P3, P4, M1, D1)
Introduction to assignment.
Construction projects for both horizontal and vertical structures.

Topic and suggested assignments/activities and/assessment

Assignment 2: Moving the Garden (P5, P6, P7, P8, P9, M2)

Introduction to assignment.

Repairing and maintaining timber structures.

Assignment 3: Work Floods In (P10, P11, M3)

Introduction to assignment.

Health and safety requirements, technical information required.

Unit review.

Assessment

For P1 and P2, learners must construct and repair horizontal and vertical timbers. Evidence for this will be student diary, photo evidence with supporting witness and observation records or as part of a work placement. The students must be conscious of health and safety throughout construction that requires power tools or hand tools. Guidance on the use of observation records and witness statements is provided on the Edexcel website.

P3 requires learners to maintain timber features safely. Evidence for this could be by annotated photographs, learner diary, presentation of techniques carried out, witness statements and observation records or as part of a work placement.

P4 requires learners to describe the security of the site and protection of the work until it is in a usable conditions. Evidence for this can take a similar form to P3.

P5 requires learners to evaluate a range of timber features and their uses, including decking, steps, bridges, pergolas, arbours and palisades. Evidence can be in the form of written notes based on a work diary, lecture, poster, leaflet, PowerPoint/slideshow.

For P6, learners must describe typical repairs needed to timber features, structural damage, decay patterns in horizontal and vertical timbers and repair techniques. Evidence for this could take the form of a web page which would appeal to new gardeners, a leaflet, a *Gardeners' World* TV clip, an interview or presentation or written evidence.

P7 requires learners to evaluate a range of timbers suitable for outdoor use and appropriate timber treatments. Evidence can take a similar form to P5.

P8 requires learners to explain potential problems that may occur and how to overcome them. Evidence can take a similar form to P6.

For P9, learners must evaluate the use and effectiveness of paints and water-based and solvent-based preservatives. Evidence could take the form of a practical trial of paints which can be written up as a report, a newspaper review of preservatives, or a 'how' to video guide designed for the internet.

P10 and P11 require learners to evaluate the technical information for specifying the maintenance of timber and to summarise the environmental and health and safety legislation and codes of practice relating to the construction and maintenance of timber features. Evidence for this could be a written report which could be passed on to a number of different people eg a garden designer. This should be either a written report, presentation or PowerPoint presentation. Evidence could also be in the form of a guide to landowners, a leaflet for new landscape gardeners, a mock trial of someone who has broken the law when building large structures, a news report on someone who has been arrested, or a newspaper story.

For M1 and M2, learners must evaluate your structure and suggest improvements to it and evaluate repairs on a structure and suggest improvements. Evidence for this can take a similar form to P5.

M3 requires learners to discuss the problems and benefits of maintaining timber structures. Learners could produce a presentation, leaflet, section of a website, section from a book or similar.

For D1, learners must discuss the advantages and disadvantages of timber structures in different situations. Evidence for this can take a similar form to M3.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, P3, P4, M1, D1	Building a Chelsea Quality Garden	You own a successful landscape gardening company that has a number of RHS medals under its belt. You have been approached by a famous garden designer to carry out the build for this year's Chelsea garden show. The design has a number of structures including horizontal and vertical structures. You must build these, preserve them and make sure they remain in good condition throughout the show.	Annotated photographs. Diary. Witness statements.
P5, P6, P7, P8, P9, M2	Moving the Garden	The garden you worked on won a gold medal and was bought by a celebrity who fell in love with the garden at the show. Working with the garden designer, you are going to install the structures at the celebrity's house, carry out any repairs from transit, carry out required maintenance and explain to the new owner the annual maintenance required.	Annotated photographs. Diary. Witness statements. Presentation.
P10, P11, M3	Work Floods In	As news of your gold medal winning structures spreads, a local college asks if you would deliver a talk to their students. They ask you to concentrate on the health and safety side of your work as well as laws you must comply with. The students also ask you about preserving the timber structures and which methods you prefer.	Presentation. Lecture. Q and A session.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Land-based sector suite. This unit has particular links with:

Level 2	Level 3
Setting Out from a Plan	L24 Construct hard landscape components CU20 Maintain and repair structures and surfaces
	Undertaking Land-based Machinery Operations
	Undertake and Investigative Project in the Land-based Sector

Essential resources

There are many opportunities for practical and experimental work in this unit. Therefore there should be access to adequate field and workshop facilities for the construction and maintenance of timber structures. A suitable range of timbers and tools should be available for learners to use.

There should be access to joinery tools as well as general wood work tools and relevant safety equipment. Learners should have access to current health and safety regulations and equipment while constructing, repairing and maintaining structures. Links with carpenters, joiners, garden designers, landscapers etc will enable access to a range of structures, styles and designs.

Learners should be given access to computers for research and presentation of assignments.

Employer engagement and vocational contexts

Learners would benefit from having access to a working environment. Often this is achieved by creating links with local businesses or charitable organisations who may even benefit from taking on learners. Local authorities can be a useful source of information, as can business education alliances. Charitable organisations can often provide guest speakers to attend and give lectures as well as demonstrations.

Indicative reading for learners

Textbooks

Lush T – *Garden Buildings Manual: A Guide to Building Sheds, Greenhouses, Decking and Many More Garden Structures* (J H Haynes & Co Ltd, 1997) ISBN 978-1844253524

Marshall C – *Black & Decker Complete Guide to Your Deck* (Creative Publishing International, 2009) ISBN 978-1589234123

Walsh T – *Outdoor DIY* (Collins, 2007) ISBN 978-0007216543

Websites

www.gardenorganic.org.uk

Garden Organic

www.lantra.co.uk

Lantra Sector Skills Council

www.lbcnc.org.uk

Land Based Colleges National Consortium

www.rhs.org.uk

Royal Horticultural Society

www.rhs.org.uk/britaininbloom

Royal Horticultural Society Britain in Bloom

Delivery of personal, learning and thinking skills (PLTS)

The following table identifies the PLTS opportunities that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	carrying out internet and library research, questioning experts
Creative thinkers	suggesting improvements to practical work
Reflective learners	evaluating work completed
Team workers	analysing group tasks for
Self-managers	meeting deadlines
Effective participators	completing group tasks.

Although PLTS opportunities are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	carrying out research
Creative thinkers	applying techniques studied to the working environment
Reflective learners	suggesting improvements to techniques
Team workers	practising techniques
Self-managers	producing written work on time
Effective participators	participating in team activities.

● Functional Skills — Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	carrying out internet research writing presentations
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	carrying out internet research
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records. 	presenting written work and data.
Mathematics	
Identify the situation or problem and the mathematical methods needed to tackle it	carrying out calculations for building structures
Select and apply a range of skills to find solutions	carrying out calculations for building structures
Use appropriate checking procedures and evaluate their effectiveness at each stage	checking timber measurements during construction
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	giving presentations, video, blogs, and group presentations.
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	reading information as part of internet and library research
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	completing reports, diaries and other assessments.