



# **LEVEL 3 CERTIFICATE IN WOOD TECHNOLOGY AND APPLICATION**

Qualification Number: 603/1326/2

## **Qualification Specification**

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## EXECUTIVE SUMMARY

This qualification is a nationally recognised qualification which provides learners with knowledge of the issues surrounding the legal trading and sustainability of wood supply together with a more in depth content of appropriate applications for particular hard/softwoods.

Those achieving the qualification will be able to apply this knowledge to choosing appropriate products, ensuring compliance of legal and sustainable wood and suggesting correct applications for particular functions.

The qualification is intended for those already employed or newcomers to the industry and is designed to provide trade specific knowledge appropriate for the day to day activities in an office, retail outlet or timber yard.

He/she should be familiar with timber as a material and be able to explain how and why timber and timber products are appropriate and fit for purpose for use as principal buildings components.

To achieve the qualification, learners need to successfully gain the 12 credits.

Learners need to successfully pass an examination based on learning outcomes and the assessment criteria.

Programmes leading to the qualification can be organised and delivered by providers who have gained centre and qualification approval from PIABC. To achieve this they need to complete the PIABC centre and qualification approval procedures available from PIABC's website ([www.piabc.org.uk](http://www.piabc.org.uk)). In completing the documentation and the approval visit, centres need to demonstrate their ability to deliver high quality education leading to the qualification. The actual style of delivery is up to the centre but could include taught sessions, tutor support, distance learning, work books, mentor support or any other method that the centre considers appropriate. In choosing their delivery method centres are expected to employ robust quality assurance processes. PIABC will appoint its own moderators to ensure the effective operation of these processes and the maintenance of standards of quality.

There is no necessity for any formal entry requirement to this course beyond the basic literacy and numeracy expected from anyone entering the business world. Learners will be better equipped if they have previously achieved the *PIABC Level 2 Award in Timber and Panel Products and their Uses*, which will give them exemption for the timber related mandatory unit.

Overall, it is expected that courses leading to the qualification will take a minimum of 8 taught (or guided learning hours). Learners will also be expected to carry out additional reading and other work to complete each unit and prepare for assessment, up to a total learning time of approximately 97 hours.

## AIM

This qualification is intended as a short course either for those wishing to pursue a career in the timber or related industries, or for those who are already in the industry and who wish to extend their knowledge and expertise.

The qualification is designed to provide trade specific knowledge appropriate for those advising, specifying or recommending timber. This may be in timber or builder's merchant's offices, retail settings or in architectural practices. By the end of the course, the learner should have a basic knowledge of the issues surrounding the legal trading and sustainability of wood supply together with a more in depth content of appropriate applications for particular hard/softwoods.

Those achieving the qualification will be able to apply this knowledge to choosing appropriate products, ensuring compliance of legal and sustainable wood and suggesting correct species for particular applications.

## OUTCOMES

In setting out a clearly-defined level of learner achievement, this qualification will:

1. Enhance the knowledge and job satisfaction of *learners* and provide them with a means of progression to higher level qualifications, as well as job movement throughout the timber sector and other related areas of the timber industry.
2. Provide *employers* with an open and transparent basis for judging the suitability of learners for employment and promotion.

Specific outcomes for the qualification are listed under the individual unit description.

## TARGET GROUP

This level 3 qualification is appropriate for those wanting to enhance their employment and progression opportunities in the timber and related industries.

There are three broad target groups:

1. People within the wood-related industry who want to extend their knowledge and gain a recognised qualification.
2. People within the wood-related industry who want to operate more professionally and effectively.
3. Finally, the qualification may appeal to people who are not currently employed in the industry, but who wish to gain a basic qualification as a step towards getting a job and progressing in the sector.

Due to the diverse nature of the timber and related industries, it is difficult to define the target groups in terms of precise job functions. Typically, learners are likely to be in positions were they are responsible for functions such as specifying/recommending purchasing and sales personnel.

<b>Job role</b>	<b>Type of company</b>
Specifier	Architectural
Sales personnel, yard/warehouse personnel	Timber products importer and merchant
Counter sale staff, sales floor operatives	Builders merchant, DIY retail business
Sales personnel; yard operatives	Wood processing; sawmill

## **ENTRY REQUIREMENTS**

There are no entry qualifications or age limits required for this qualification.

Assessment for this qualification is open to any learner who has the potential to reach the standards laid down for these qualifications. As a guide those with the following are likely to indicate the potential to succeed: Level 1 qualifications, a minimum of 5 GCSEs at Grade D-G (or equivalent), or experience that indicates ability to succeed. An initial assessment of past experience and current skills, knowledge and understanding should be carried out prior to commencement, to determine suitability for this qualification.

Aids or appliances, which are designed to alleviate disability, may be used during assessment, providing they do not compromise the standard required.

## **PROGRESSION**

Success in this qualification prepares learners for progression within the timber industry to a position where they can assume some level of responsibility.

## QUALIFICATION STRUCTURE

### Structure

Two mandatory units, plus 2 optional units (a minimum of 12 credits) are required: 6 credits from the mandatory group and 6 credits from the optional group. Note: more than one optional unit can be chosen - in which case a candidate would receive a qualification certificate plus additional individual unit certificates.

INDICATIVE LEARNING TIMES								
PIABC Unit Ref.	Ofqual Unit Ref.	Unit Title	Level	GLH* (e.g. direct tutor contact)	Self study/ practice/ reflection learning activities (Possible mentor)	Indicative hours for assessed activity (i.e. assessed project/ exam)	Total Unit Time (hrs)	Credit
<b>Mandatory Units</b>								
WT1	J/615/6201	Sustainability and legal trading of timber	3	2	7	1	10	1
WT2	L/615/6202	Understand how timber quality and grade is related to end use <sup>1</sup>	2	2	42	1	45	5
<b>Optional Units (6 Credits required)</b>								
WT3	R/615/6203	Understand how wood as a material is related to end use	3	2	24	1	27	3
WT4	Y/615/6204	Understand the main softwoods used in the UK and their end use	3	2	24	1	27	3
WT5	D/615/6205	Understand the main hardwoods used in the UK and their end use	3	2	24	1	27	3
Total Self Study Time					<b>97</b>			
Total Guided Learning Hours				<b>8</b>				
Total Qualification Time							<b>109</b>	
Total Credit								<b>12</b>
Qualification Level			<b>3</b>					

<sup>1</sup> The Level 2 Award in Timber and Panel Products and Their Uses can be recognised as prior learning for this unit. A Learner needs to declare and provide evidence of successful completion of the qualification to gain exemption.

## QUALIFICATION LEVEL

This is a Level 3 qualification.

Learners require the knowledge and show understanding in applying technical and commercial principles to a range of tasks.

Learners may have direct responsibility for others, or may have responsibilities within a team.

This qualification requires the learner to understand the materials, and how these combine in practical operations so that they may better assist the customer in selecting an appropriate product for end use. It will prepare the learner to operate as a competent team member and will greatly assist them in their career development.

The examination for this qualification is based on the learning outcomes and assessment criteria set in a way that demonstrates the features above.

When work for this qualification is assessed, it is important to realise that evidence will be sought which demonstrates these features.

### Level 3 Descriptor

#### Summary

The descriptors set out the generic knowledge and skills associated with the typical holder of a qualification at Level 3. The level descriptors are framed as outcomes and each category starts with a stem statement (“the holder can...”) which then links into the outcomes associated with each level of the framework.

#### Knowledge descriptor (the holder...)

- Has factual, procedural and theoretical knowledge and understanding of a subject or field of work to complete tasks and address problems that while well-defined, may be complex and non-routine.
- Can interpret and evaluate relevant information and ideas.
- Is aware of the nature of the area of study or work.
- Is aware of different perspectives or approaches within the area of study or work.

#### Skills descriptor (the holder...)

- Identify, select and use appropriate cognitive and practical skills, methods and procedures to address problems that while well-defined, may be complex and non-routine.
- Use appropriate investigation to inform actions.
- Review how effective methods and actions have been.

*Source: Qualification and Component Levels - Requirements and Guidance for All Awarding Organisations and All Qualifications. Version: Ofqual/15/5774. Ofqual 2015.*

## **PROGRAMME ORGANISATION**

It is anticipated that the qualification will require 97 self study hours and 8 taught hours for satisfactory completion.

The organisation of the award is at the discretion of the centre and will take into account the aims, aspirations and experience of the learners.

Centres are encouraged to choose the most suitable curriculum model for their learners. Whilst the sequential delivery of parts of the unit is a possibility and may provide the most straightforward way of determining completion, it may be that some degree of integration of elements will occur, or that other methods of delivery are more appropriate to meet the needs of learners. It should be noted however that the whole unit and all the learning outcomes will be assessed.

Centres must ensure that adequate arrangements are in place for supporting learners. This could be either through separate tutorial sessions or through the use of time within structured study sessions. Centres using on-line or other forms of open learning must ensure that appropriate tutorial support is provided for learners.

In relevant circumstances, centres are recommended to provide information and guidance to their learners on the availability and type of employment the programme may lead to and on the progression routes available for further education and training in wood technology.

## **GUIDANCE ON LEARNING AND TEACHING STRATEGY, METHODS AND ASSESSMENT**

Timber technology is a practical subject, based on theoretical principles. As far as possible, it is important that the course is taught by relating the underlying theory to practical examples and applications. Two factors which will help in this regard are:

1. The use of staff with direct experience in the timber and related industries. This must, of course, be balanced against a sound understanding of the theoretical principles, as anecdotal experience alone is unlikely to meet the requirements of the course.
2. Practical and commercial examples that underpin a more theoretical understanding should be used to show the link between theory and practice. DVD illustrations of processes could also be used as part of the teaching regime. A further and invaluable source of information is the Internet and there are many web sites which demonstrate important aspects of timber processing and use. Learners should be encouraged to research this material.
3. Practical experience of workplace operations dealing with timber.

Those learners employed in the timber and related industries, will come to the course with varying levels of existing knowledge and/or practical experience of some parts of the syllabus. This should be utilised in preparing for the examination. The sharing of knowledge which has the potential to lead to a high level of understanding should be encouraged.

The relation of theory and practice is a theme that will be reflected in the assessments for the programme. Therefore in structured learning and individual work, learners should be aware of the requirement to develop a practical dimension to their understanding.

Those developing learning programmes should expect to achieve all the learning outcomes. It may be useful to have workbooks for use either at home or in the workplace. The addition of diagrams and photographs may enhance learning.

The following is an indication of the content to be covered for each learning outcome:-

## **QUALIFICATION DESCRIPTION**

The qualification follows the PIABC principles for designing units and qualifications and contains the features listed as follows;

- Unit reference number, title, guided learning hours, grading structure and assessment guidance.
- Each unit consist of:
  - Learning Outcomes that show what the learners will be able to understand, know or demonstrate.
  - Assessment Criteria that show what the learners can do or produce in order to show that they have met the learning outcome.
- To successfully complete, learners must meet all the learning outcomes and gained an overall pass mark of 50%.

## UNIT CONTENT

### SUSTAINABILITY AND LEGAL TRADING OF TIMBER

PIABC Unit No: WT1

Unit Reference No: J/615/6201

Unit Level: 3

Guided Learning Hours: 2

Total Unit Time (Hours): 10

Unit Credits: 1

<b>Learning Outcomes</b> The Learner will:		<b>Assessment Criteria</b> The Learner can:	
1.	Understand why carbon is related to timber supply	1.1	Establish the relationship between carbon and timber supply
		1.2	Identify the elements of life cycle assessment
		1.3	Explain why forests are of environmental importance
		1.4	State the key policies, schemes and legislation influencing responsible sourcing of timber
		1.5	Identify the purpose and elements within a Chain of Custody
2.	Understand the key influencers of responsible and legal timber sourcing	2.1	Identify the main participants within a Chain of Custody
		2.2	Name the 2 principle timber certification schemes in use in the UK
		2.3	Compare two principle legal frameworks that control trading of timber
		2.4	Identify the elements within 'due diligence' requirements when trading timber
		2.5	Outline how trade in endangered species is controlled

## UNDERSTAND HOW TIMBER QUALITY AND GRADE IS RELATED TO END USE

PIABC Unit No: WT2

Unit Reference No: L/615/6202

Unit Level: 2

Guided Learning Hours: 2

Total Unit Time (Hours): 45

Unit Credits: 5

<b>Learning Outcomes</b> The Learner will:		<b>Assessment Criteria</b> The Learner can:	
1.	Understand the sorting grades of timber available from Europe and Russia	1.1	State the difference between appearance and strength grading
		1.2	State the principle sorting grades of timber available from Europe and Russia
		1.3	Clarify what is meant by the sorting grade 'unsorted'
2.	Understand the purpose of strength grading timber	2.1	Describe visual strength grading
		2.2	State how machines grade for strength
		2.3	Recognise the key differences between a strength grade and a strength class
3.	Understand timber end use and preservation treatments	3.1	Outline the 5 categories of Use Classes for the different end use situations under current British and European standards
		3.2	Outline the use of: Tar oils, Waterborne; Organic solvent, emulsions as preservative treatments
		3.3	Explain what is meant by wood modification
4.	Understand the use of engineered products	4.1	Outline the uses of the main engineered composite structural timber products
5.	Understand how to maintain the quality of timber, timber components and panel products	5.1	Name the factors responsible for a reduction to the original quality and strength of timber and timber products, post conversion

*Note: The Level 2 Award in Timber and Panel Products and Their Uses can be recognised as prior learning for this unit. A Learner needs to declare and provide evidence of successful completion of the qualification to gain exemption.*

## UNDERSTAND HOW WOOD AS A MATERIAL IS RELATED TO END USE

PIABC Unit No: WT3

Unit Reference No: R/615/6203

Unit Level: 3

Guided Learning Hours: 2

Total Unit Time (Hours): 27

Unit Credits: 3

<b>Learning Outcomes</b> The Learner will:		<b>Assessment Criteria</b> The Learner can:	
1.	Understand wood as a material to determine specification	1.1	State the importance of correct name specification
		1.2	Distinguish the surfaces exposed when timber is converted
		1.3	Explain the significance of sapwood, heartwood, early wood and late wood for the specification and use of timber
		1.4	Describe a piece of timber in terms of its gross physical features
		1.5	State the basic function of principle cells
2.	Understand the reasons for timber movement	2.1	State what is meant by density and how it relates to a particular timbers use
		2.2	Account for the behaviour of timber subjected to changes to moisture content
		2.3	Distinguish between shrinkage and movement of timber
3.	Understand the principle British and European norms when specifying timber for particular end uses	3.1	Identify the factors that give rise to variability of permeability
		3.2	Differentiate between the organisms that degrade timber, prevention and remedies
		3.3	State the headings for durability ratings, giving examples of hardwood and softwood timbers within each durability class under Standards
		3.4	Suggest an example application/end use situation for each of the Use Classes within current Standards
		3.5	Outline the principle woodworm/beetles responsible for timber degrade
4.	Understand the effect of loads on timber in use	4.1	Distinguish between the main strength properties of timber
		4.2	State the factors affecting the strength properties of timber
		4.3	Differentiate between the deflection stresses within a timber beam in use: Compression, tension, shear, bending

## UNDERSTAND SOFTWOODS AND THEIR APPROPRIATE USE

PIABC Unit No: WT4

Unit Reference No: Y/615/6204

Unit Level: 3

Guided Learning Hours: 2

Total Unit Time (Hours): 27

Unit Credits: 3

<b>Learning Outcomes</b> The Learner will:		<b>Assessment Criteria</b> The Learner can:	
1.	Understand the principle sources of softwood supply	1.1	Identify the main geographical origins of softwood growth and supply
		1.2	Distinguish between natural and plantation supply
2.	Understand how machining affects the finished sizes of commercially available softwood	2.1	Detail standard sizes of sawn stock available from world sources noting how further machining affects the finished dimensions
		2.2	Clarify the abbreviations and terms commonly used to describe planed timber stock and explain the differences
3.	Understand the main grading systems and how the grade affects end use	3.1	Distinguish between commercial/appearance grading and strength grading systems
		3.2	State how the determined grade affects its end use
		3.3	Outline the main available grades in Europe, North America and South America
		3.4	Summarise the uses for commercial grades of European Softwood
4.	Understand the relationship between timber specification and end use applications	4.1	Compare the main commercial softwoods in terms of their physical properties and characteristics and how this relates to end use
		4.2	Explain why the softwoods origin, species, properties, characteristics, grade and price dictates suitability for various end use environments

## UNDERSTAND THE MAIN HARDWOODS USED IN THE UK AND THEIR END USE

PIABC Unit No: WT5

Guided Learning Hours: 2

Unit Reference No: D/615/6205

Total Unit Time (Hours): 27

Unit Level: 3

Unit Credits: 3

<b>Learning Outcomes</b> The Learner will:		<b>Assessment Criteria</b> The Learner can:	
1.	Understand the origin and supply of hardwoods to the UK	1.1	Identify the main types of hardwood forest in the world
		1.2	Identify the structure and character of each type of hardwood forest
		1.3	Name the major sources of supply of hardwoods to the UK market and the forms in which it is traded
2.	Understand the main aspects of hardwood specification	2.1	Describe the features relevant when specifying hardwoods, including dimensions, moisture content and grades
		2.2	Outline the methods available for the grading of hardwoods
3.	Understand the relationship between end use and timber species	3.1	Specify timbers for given purposes, ensuring the timber properties are suitable for the end use environment
		3.2	Compare the properties of five distinctive groups of hardwoods, based on their geographical origin, colour or density
		3.3	Comment on the properties of important hardwoods

### ASSESSMENT

This qualification is assessed by an examination which will consist of both short answer and multi-choice answer questions.

The examination paper is divided into two sections:

- Section 1 covers the two mandatory units (Unit WT1: Sustainability and legal trading of timber and Unit WT2: Understand how timber quality and grade is related to end use). A learner needs to answer both units.
- Section 2 covers the optional units (Unit WT3: Understand how wood as a material is related to end use, Unit WT4: Understand the main softwoods used in the UK and their end use and WT5: Understand the main hardwoods used in the UK and their end use). A learner needs to answer two units out of the three optional units.

To be successful in the examination, a learner must achieve a pass mark of 50% in each section of the examination paper and gain an overall pass mark of 50%.

If a student is unsuccessful in an examination, then the learner can re-sit a different examination paper at the next examination series.

## QUALIFICATION CERTIFICATION

The full qualification is available at *Pass*, *Merit* or *Distinction* to learners who successfully complete the examination of 2 mandatory and 2 optional units.

When all marks are aggregated, the following percentages will determine the overall qualification grade:

- Pass 50% - 59%
- Merit 60% - 69%
- Distinction 70%+

## GLOSSARY

Term	Definition
Learning Outcome	This describes what a learner needs to know, understand or do as a result of the process of learning.
Assessment Criteria	These are the requirements learners are expected to meet to demonstrate that a learning outcome has been achieved.
Centre	The organisation that is approved by PIABC for the purposes of preparing learners for assessment.