

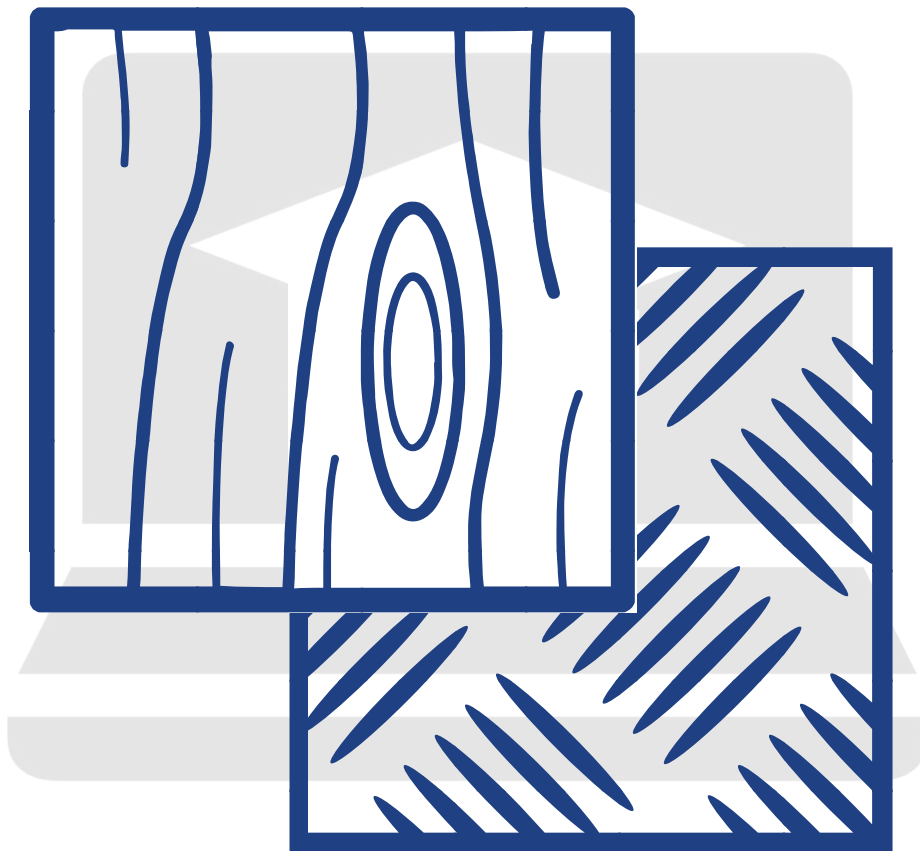


BCATS

BUILDING, CONSTRUCTION
AND ALLIED TRADE SKILLS

Timber and Materials

Teacher/Tutor resource



Unit Standard 24360 (v3), Level 2

Demonstrate knowledge of
timber and other construction
materials used in BCATS projects

5 CREDITS

BCITO
buildingpeople

**Building and Construction Industry Training Organisation
(BCITO)**

**Level 5, 234 Wakefield Street
PO Box 2615
Wellington 6140
0800 422 486
www.bcito.org.nz
© 2020 BCITO**

All rights reserved.

No part of this work may be reproduced, adapted, modified, copied or transmitted in any form or by any means, including by way of example only, written, graphic, electronic, mechanical, reprographic, photocopying, recording, taping or information retrieval systems, without the written permission of the publisher.

Table of contents

	Page
Teaching and assessment tips	4
Alignment with other unit standards	6
Assessment schedule	8

Teaching and assessment tips

Purpose

This unit standard credits learners who can demonstrate their knowledge of:

- different types of timber
- the parts and structure of trees
- the different strengths and qualities of sawn timber
- common timber defects and their causes
- processes for the conversion, treatment, handling, and storage of timber
- knowledge of at least three other construction materials, including:
 - their structural properties and uses and
 - their safe working, handling and storage requirements.

More information about the unit standard's requirements can be found in the Assessment Schedule at the end of this document.

Note that this unit standard builds on knowledge students gained when they did the Level 1 unit standard 24355, *Demonstrate knowledge of construction and manufacturing materials used in BCATS projects*. To reduce duplication, some materials have not been included in the student resource for this Level 2 unit standard. You may wish to refer to the Level 1 resources for some materials, such as plastics and surface finishes.

Assessment

The three non-timber construction materials will depend on the selected project(s) but are expected to be significant contributors to its completion. Providing at least one of the materials is timber, you may take a wide view of "materials" when approaching this unit. They could be manufactured board, metal, plastic, glass, concrete, mechanical fasteners, adhesives, finishing materials, upholstery fabric/leather or even, for example, paua shell and flax.

Students must complete the Knowledge Assessment Sheet.

For this unit we encourage you to use a practical project that your student will then go on to construct. However, this unit standard does not strictly require that it must be built or constructed in order for the unit standard to be awarded.

If you are taking a design process (design brief) approach, the design and associated job specifications your student develops may form part of the assessment if it contains consideration of the use of four materials as per the Assessment Schedule. If you use this approach, attach the relevant sections to the Knowledge Assessment Sheet.

Assessment of this unit standard consists of:

→ **completion of the Knowledge Assessment Sheet.**

Alignment with other unit standards

Developing programmes that integrate teaching and learning helps to provide students with meaningful and manageable learning opportunities. The following unit standards are not an exhaustive list of which you could include in your programme and nor should one feel obligated to offer all as linked units. Other unit standards you include will depend on your overall programme of study and what will best meets your learners' needs.

Level 2

Examples of other standards that could be offered concurrently are:

- 12932:** *Construct timber garden furniture as BCATS projects*
- 12933:** *Complete minor concrete works as a BCATS project*
- 12935:** *Construct a spaced residential timber deck up to one metre high as a BCATS project*
- 12938:** *Lay paving blocks as a BCATS project*
- 12939:** *Construct a basic retaining wall as a BCATS project*
- 25921:** *Make a cupboard with a drawer as a BCATS project*
- 31812:** *Complete a BCATS project*

Depending on the specific project's requirements, the unit standards above could all be appropriate for students' to contextualise their knowledge of timber and three other construction materials.

- 22607:** *Read and interpret plans, working drawings and specifications for BCATS projects*

Students need to select appropriate materials for their projects. Knowledge of how to read and interpret plans, working drawings, and specifications can help them determine which ones are needed.

- 24354:** *Demonstrate knowledge of health and safety legislation and apply safe working practices in the construction of a BCATS project*

Using materials safely can contribute to this unit standard's requirements to apply safe working practices. In addition, none of the project-specific unit standards can be achieved without applying safe working practices.

12927: *Demonstrate knowledge of, select, maintain, and use hand tools for BCATS projects*

24350: *Identify, select, maintain and use power tools in the construction of BCATS projects*

24351: *Demonstrate knowledge of and use fixed machinery in the construction of BCATS projects*

Students' knowledge of materials can be applied when selecting and using appropriate hand and power tools and fixed machinery.

Assessment Schedule

US 24360 (v3) - Demonstrate knowledge of timber and other construction materials used in BCATS projects (Level 2, Credit 5)

Outcome 1	Demonstrate knowledge of types and structure of timber.	Assessment evidence and judgement
PC 1.1	Types of timbers are described.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing knowledge of indigenous, exotic, imported, hardwood, and softwood is correct.
PC 1.2	The parts and structure of a tree are identified.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing identification of bark, cambium layer, sapwood, heartwood, growth rings, and knots is correct.
PC 1.3	The strength and working qualities of sawn timber boards are described.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing description of the strength and working qualities of tangential and quarter sawn timber is correct.
Outcome 2	Demonstrate knowledge of common defects in timber.	Assessment evidence and judgement
PC 2.1	Common structural defects in timber are explained.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing explanation of structural defects (knots, splits, checks, warps) in timber is correct.
PC 2.2	Common forms of insect and fungal attack are identified and described in terms of the resulting deterioration of timber.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing description of insect and fungal attack, including common house borer, wet rot, on timber is correct.
PC 2.3	Common environmental causes of timber deterioration are identified and described in terms of the resulting deterioration of the timber.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing description of environmental causes on timber deterioration is correct.
Outcome 3	Demonstrate knowledge of the conversion, treatment, handling and storage of timber.	Assessment evidence and judgement
PC 3.1	The process of conversion is described.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing description of the process of conversion, including rough sawn and dressed, is correct.
PC 3.2	Methods of seasoning of timber are described.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing description of air and kiln drying timber is correct.
PC 3.3	Types of preservation treatment for building timbers are described and the applications of each are explained.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing knowledge of: Boron salts, Copper Chrome Arsenate, and Light Organic Solvent Preservatives are correct.
PC 3.4	Safe working and handling procedures when working with timber are explained.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing explanation of safe working and handling procedures is correct.
PC 3.5	Basic storage and care of timber is explained.	<ul style="list-style-type: none"> Evidence gathered from Knowledge Assessment Sheet showing explanation of basic storage and care of timber is correct.
Outcome 4	Demonstrate knowledge of other construction materials used in BCATS projects. Range: at least three other construction materials.	Assessment evidence and judgement
PC 4.1	The structural properties and basic uses of the materials are explained.	<p><i>These three construction materials do not include timber.</i></p> <p>Assessment evidence and judgement</p> <p>Evidence gathered from Knowledge Assessment Sheet showing:</p> <ul style="list-style-type: none"> explanation of the structural properties and uses of 3 construction materials is correct explanation of the safe working and handling procedures for 3 construction materials is correct. Explanation of the storage and care of 3 construction materials is correct.