

<b>Title</b>	<b>Demonstrate knowledge of the principles of wood drying</b>		
<b>Level</b>	<b>2</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	People credited with this unit standard are able to demonstrate knowledge of: reasons for drying wood and uses of wood that does not require drying; permeability and density in wood; moisture content (MC) and the movement of moisture in wood; and methods of drying wood.
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<b>Classification</b>	Wood Manufacturing - Generic Skills > Wood Manufacturing Foundation Skills
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<b>Available grade</b>	Achieved
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<b>Prerequisites</b>	Unit 736, <i>Demonstrate knowledge of physical characteristics of wood</i> ; or demonstrate equivalent knowledge and skills.
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### Guidance Information

- 1 Reference  
AS/NZS 4787:2001 *Timber – Assessment of drying quality*.
- 2 Definitions  
*Accepted industry practice* refers to approved codes of practice and standardised procedures accepted by the wider wood manufacturing industry as examples of best practice.  
*Workplace procedures* refer to documented policies and procedures set by the organisation carrying out the work, and to documented or other directions provided to staff, and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, site specific procedures, site safety procedures, equipment operating procedures, quality assurance procedures, product quality specifications, references, approved codes of practice, housekeeping standards, environmental considerations, on-site briefings, supervisor’s instructions, and procedures to comply with legislative and local body requirements relevant to the wood manufacturing sector.
- 3 Assessment information  
All activities and evidence must meet workplace procedures and accepted industry practice.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of reasons for drying wood and uses of wood that does not require drying.

#### Performance criteria

- 1.1 The main reasons for wood drying are listed.  
Range evidence of two is required.
- 1.2 Uses of wood that do not require drying are identified.  
Range evidence of two is required.

### Outcome 2

Demonstrate knowledge of permeability and density in wood.

#### Performance criteria

- 2.1 Permeability is defined in relation to wood.
- 2.2 Effects of permeability on wood drying and treatment processes are explained.
- 2.3 The effect of earlywood and/or latewood on permeability and density is explained for radiata pine.

### Outcome 3

Demonstrate knowledge of moisture content (MC) and the movement of moisture in wood.

#### Performance criteria

- 3.1 The locations of water in wood are identified.
- 3.2 The MC of commercial species of wood is identified for heartwood and sapwood in the green condition.  
Range radiata pine, douglas fir, rimu, eucalyptus.
- 3.3 Shrinkage variation from Fibre Saturation Point (FSP) (30%) to 12% MC is defined for radiata pine.  
Range rates – radial, longitudinal, tangential, longitudinal compression wood, longitudinal core wood.
- 3.4 Distortion defects are identified.  
Range bow, crook or spring, cup, twist.

- 3.5 The relationships between shrinkage, FSP, Shrinkage Intersection Point (SIP), and Equilibrium Moisture Content (EMC) are explained.
- 3.6 Shrinkage rates in radiata pine are identified, compared, and used to calculate shrinkage for different wood types.
- Range rates – radial, longitudinal, tangential, longitudinal compression wood, longitudinal core wood.
- 3.7 Factors affecting variation of EMC are explained.
- Range season, climate, location of product use, species, surface coating.
- 3.8 Suitable wood MC for different end uses for domestic and major export markets are identified.
- Range evidence of two domestic end uses and one export market end use is required.
- 3.9 Timber packing for stability and product quality is explained.
- Range number of boards per packet, fillet and bearer placement, long and short lengths, flush ends, transport mode.
- 3.10 Problems associated with incorrect packet build are described.
- Range problems – stability, fillet positioning, dimensions, effect on further processes, final product quality.

#### **Outcome 4**

Demonstrate knowledge of methods of drying wood.

#### **Performance criteria**

- 4.1 Components of the drying atmosphere are identified, and the theory of air movement is described.
- 4.2 Drying methods in current use in New Zealand are listed.
- Range evidence of five methods is required.
- 4.3 Typical drying times of radiata pine of a specified thickness, in the drying methods in performance criterion 4.2, are listed.
- 4.4 The concept of drying variability is explained in terms of standard deviation, range, target MC.

<b>Planned review date</b>	31 December 2024
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	5 July 1993	31 December 2012
Review	2	24 October 1996	31 December 2012
Review	3	10 February 1999	31 December 2012
Revision	4	12 December 2000	31 December 2012
Review	5	18 December 2006	31 December 2012
Rollover and Revision	6	15 April 2011	31 December 2015
Review	7	20 March 2014	N/A
Review	8	28 May 2020	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0013
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

#### Comments on this unit standard

Please contact Competenz [qualifications@competenz.org.nz](mailto:qualifications@competenz.org.nz) if you wish to suggest changes to the content of this unit standard.