

Title	Demonstrate knowledge of veneer preparation for laminated veneer lumber and plywood manufacture		
Level	3	Credits	10

Purpose	<p>People credited with this unit standard are able to demonstrate knowledge of: log preparation and conditioning used in laminated veneer lumber (LVL) and plywood manufacture; the principles of heat used in LVL and plywood panel manufacture; and the processing of green veneer for LVL and plywood panel manufacture.</p> <p>They are also able to explain: production of veneer using a rotary lathe for LVL and plywood manufacture; veneer drying operations for LVL and plywood panel manufacture; and the principles of operation of veneer grading systems for LVL and plywood panel manufacture.</p>
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Classification	Solid Wood Manufacturing > Laminated Veneer Lumber and Plywood Manufacturing
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Available grade	Achieved
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Guidance Information

- 1 Legislation
Health and Safety at Work Act 2015.
Resource Management Act 1991.
- 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 be in accordance with workplace procedures and accepted industry practice.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of log preparation and conditioning used in LVL and plywood manufacture.

Performance criteria

- 1.1 The impact of anatomical features of logs on veneer quality is explained.
- 1.2 Log quality variables that impact on LVL and plywood panel manufacture are explained.
- Range evidence of ten variables is required.
- 1.3 The effects of grain and density on LVL and plywood panel quality are explained.
- Range evidence of two effects for each of grain and density is required.
- 1.4 The adverse effects of log storage and steps taken to minimise these effects are explained.
- 1.5 Log characteristics that impact on debarking are explained.
- 1.6 Billet properties that impact on lathe yield are identified.
- 1.7 Causes of high roughness, short veneer, and distortion in veneer that relate to billet properties are identified.
- 1.8 The log conditioning process, and the advantages and disadvantages of log conditioning are explained.
- 1.9 The steps taken to prevent the adverse effects of log conditioning for veneer manufacture are identified.

Outcome 2

Demonstrate knowledge of the principles of heat used in LVL and plywood panel manufacture.

Performance criteria

- 2.1 The terms heat and temperature are defined and the difference between them is described.
- 2.2 Changes that occur with the application of heat are explained in terms of latent heat, expansion, and changes of state.

- 2.3 Types of heat transfer, including conduction, convection, and radiation, are explained using LVL and plywood examples.
- 2.4 The effects of heat on properties of each state of matter are explained in terms of shape, volume, and compression by using veneer preparation examples.
- 2.5 The relationship between volume, temperature, and pressure is defined in terms of Charles' and Boyle's laws by using veneer preparation examples.

Outcome 3

Explain production of veneer using a rotary lathe for LVL and plywood manufacture.

Performance criteria

- 3.1 The impacts of nose bar set-up and adjustment on veneer quality are explained.
- 3.2 Thermal distortion of the knife and methods used to minimise or eliminate it are explained.
- 3.3 The impact of knife condition and set-up on veneer quality is explained.
- 3.4 Veneer peeling defects and their potential causes are explained.
- 3.5 Spin-out, barrelling, cotton reeling, and their potential causes are explained.
- 3.6 The effects of two wood properties on veneer quality are explained.
- 3.7 The impacts of mixing wet and dry veneer are explained.
- 3.8 Mis-tracking and methods for its correction are explained.

Outcome 4

Demonstrate knowledge of the processing of green veneer for LVL and plywood panel manufacture.

Performance criteria

- 4.1 Factors that impact on clipper speed are identified.
- 4.2 Factors that impact on clipped veneer quality are explained.
- 4.3 Causes of veneer stacker problems are explained.
Range evidence for five causes are required.
- 4.4 Veneer processing is explained.
Range processing may include – scarfing, composing, welding, jointing; evidence is required of two processes.

- 4.5 Defects caused in the scarfing process are identified and corrective actions are explained.
- 4.6 Composer quality problems are identified and methods for correction are described.

Outcome 5

Explain veneer drying operations for LVL and plywood panel manufacture.

Performance criteria

- 5.1 The objectives of veneer drying are explained.
- 5.2 The veneer strength properties that are enhanced by drying are explained.
- 5.3 Case hardening as it relates to veneer drying is explained.
- 5.4 Factors that impact on veneer dryer capacity are explained.
- 5.5 The stages of veneer drying are explained.
- 5.6 Moisture gradients are defined and their impacts on veneer quality are explained.
- 5.7 Defects resulting from veneer drying are identified and methods to reduce or eliminate these are explained.
- 5.8 Veneer dryer operational problems are identified and corrective actions to reduce or eliminate them are explained.

Outcome 6

Explain the principles of operation of veneer grading systems for LVL and plywood panel manufacture.

Range operation includes – the gathering and interpretation of data use, and interpretation of data for machine setup.

Performance criteria

- 6.1 The principles of operation of an automatic veneer strength grading system are explained.
- 6.2 The principles of operation of an automatic veneer moisture grading system are explained.
- 6.3 The principles of operation of an automatic veneer appearance grading system are explained.

Planned review date	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	29 March 2005	31 December 2012
Revision	2	15 August 2005	31 December 2012
Review	3	24 August 2006	31 December 2013
Review	4	19 April 2012	N/A
Review	5	22 October 2020	N/A

Consent and Moderation Requirements (CMR) reference	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 if you wish to suggest changes to the content of this unit standard.