Title	**Apply calculations for operating and maintaining wood forming machines**		
Level	**4**	**Credits**	**10**

Purpose	People credited with this unit standard are able to apply calculations to: obtain cutter balancing; determine and maintain the grinding wheel cutting speed; determine changes in pulley sizes required; determine pneumatic pressure required for wood forming machine components; and determine wood forming machine efficiency.

Classification	Solid Wood Manufacturing > Timber Machining

Available grade	Achieved

Guidance Information

1 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.
RPM refers to revolutions per minute.
SMPM refers to surface metres per minute and is applied to rim or cutting or surface speed.
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.

2 Assessment information
All activities and evidence must meet workplace procedures and accepted industry practice.

3 Recommended unit standard for entry: Unit 17960, *Perform basic calculations for the operation of wood forming machines and grinders*.

Outcomes and performance criteria

Outcome 1

Apply calculations to obtain cutter balancing.

Range calculations may include but are not limited to – centrifugal force, mass differences, radius of cutters and revolutions per minute.

Performance criteria

1.1 Cutter data are interpreted to identify the formulae needed to calculate required values to achieve cutter balancing.

1.2 Formulae are transposed in accordance with mathematical principles.

1.3 Calculations are completed accurately to achieve cutter balancing.

1.4 Accuracy of the calculated values is verified against industry standards.

Outcome 2

Apply calculations to determine and maintain the grinding wheel cutting speed.

Range calculations may include but are not limited to – SMPM, pulley ratios, pulley sizes, RPM, grinding wheel diameter.

Performance criteria

2.1 Grinding wheel data are interpreted to identify the formulae to calculate required values for grinding wheel cutting speed.

2.2 Formulae are transposed in accordance with mathematical principles.

2.3 Calculations are completed accurately to determine grinding wheel cutting speed.

2.4 Accuracy of the calculated values is verified against industry standards.

Outcome 3

Apply calculations to determine changes in pulley sizes required.

Range calculations may include but are not limited to – SMPM, pulley ratios, pulley sizes, RPM.

Performance criteria

3.1 Machine data are interpreted to identify the formulae to calculate required values to determine changes in pulley sizes.

3.2 Formulae are transposed in accordance with mathematical principles.

3.3 Calculations are completed accurately to determine changes in pulley sizes required.

3.4 Accuracy of the calculated values is verified against industry standards.

Outcome 4

Apply calculations to determine pneumatic pressure required for wood forming machine components.

Range components must include but are not limited to – rollers, jointers.

Performance criteria

4.1 Wood forming machine data are interpreted to identify the formulae to calculate required pressure values for planer components.

4.2 Formulae are transposed in accordance with mathematical principles.

4.3 Calculations are completed accurately to determine required pressure values for planer components.

4.4 Accuracy of the calculated values is verified against industry standards.

Outcome 5

Apply calculations to determine wood forming machine efficiency.

Range calculations may include – set-up time, downtime, operating time.

Performance criteria

5.1 Wood forming machine data are interpreted to identify the formulae to calculate efficiency values.

5.2 Formulae are transposed in accordance with mathematical principles.

5.3 Calculations are completed accurately to calculate efficiency values.

5.4 Accuracy of the calculated values is verified against industry standards.

Planned review date	31 December 2024

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 November 2000	31 December 2015
Review	2	18 December 2006	31 December 2015
Review	3	20 March 2014	N/A
Review	4	25 June 2020	N/A

Consent and Moderation Requirements (CMR) reference	0013

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.