

<b>Title</b>	<b>Calender in the paper making process</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	People credited with this unit standard are able to: demonstrate knowledge of calendering in the paper making process; operate a calender system; and monitor and control the performance of a calender system.
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<b>Classification</b>	Wood Fibre Manufacturing > Paper Making
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<b>Available grade</b>	Achieved
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### Guidance Information

#### 1 Legislation and references

Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the:

- Hazardous Substances and New Organisms Act 1996;
- Health and Safety at Work Act 2015;
- Resource Management Act 1991;
- Health and Safety at Work (Major Hazard Facilities) Regulations 2016.

#### 2 Definitions

*Operating parameters* refers to the boundary conditions in which the operations are carried out in the calendaring and paper making process.

*Operating procedures* refers to the process(es) that are worked through, e.g. standard operating procedure (SOP) in the calendaring and paper making process.

*Worksite documentation* refers to organisation policies and procedures that are documented in memo, electronic, or manual format and available in the workplace, and are consistent with manufacturer's requirements. 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, sustainability, on-site briefings, supervisor's instructions, and procedures to comply with legislative and local body requirements relevant to the paper making industry.

#### 3 Assessment information

Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, worksite documentation and legislative requirements. This includes the knowledge and use of suitable tools and equipment.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of calendaring in the paper making process.

#### Performance criteria

- 1.1 Purpose and function of calendaring in the paper making process are explained.
- 1.2 Principles of calendaring are explained.
- Range explanations may include but are not limited to – roll surface characteristics, draw control, calliper profile, bulk, roll temperature profiling, roll loading, crown controlled rolls.
- 1.3 Components and operation of the calender system are explained.
- Range components and operation may include but are not limited to – calender threading, calliper control, roll temperature profiling, roll loading and doctors, and thickness control.
- 1.4 Operating parameters and capability of the calender system are explained.
- 1.5 Hazards associated with calendaring are identified and actions to be taken to minimise, or eliminate the hazards are described.
- Range hazards may include but are not limited to – heat, nips, doctor blades, hot liquids, paper cuts, pressurised lines.
- 1.6 Consequences of non-compliance with worksite operating procedures are described.
- 1.7 Roles and responsibilities of the calender system operator are described.

### Outcome 2

Operate a calender system.

#### Performance criteria

- 2.1 Safe work practices associated with operating and maintaining a calender system are demonstrated.
- Range practices may include but are not limited to – isolation procedures, lock-outs or tag-outs, emergency stops, machine guarding, wearing appropriate safety equipment.

2.2 Calender system is set up, started up, operated, and shut down.

Range includes but is not limited to – load setting, roll temperature, draw, adjustment of nip load, threading of paper web through the calender, adjustment of web tension.

2.3 Operating parameters are set and adjusted to enable production requirements to be achieved.

2.4 Essential care and housekeeping requirements for the calender system are carried out.

### Outcome 3

Monitor and control the performance of a calender system.

#### Performance criteria

3.1 Calender systems are monitored, and parameters are controlled in accordance with operating parameters.

3.2 Operating and equipment faults and malfunctions are identified, and relevant corrective actions are taken.

Range operating faults and malfunctions may include but are not limited to – abnormal moisture and calender temperature variations, calender cuts, blackening, abnormal profile variations, abnormal load settings; equipment faults and malfunctions may include but are not limited to – electrical, mechanical, hydraulic, pneumatic, instrumentation, distributed control system.

3.3 Quality of output paper is monitored to meet specified requirements.

<b>Planned review date</b>	31 December 2028
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	22 February 1995	31 December 2024
Revision	2	27 January 1997	31 December 2024
Review	3	25 February 1999	31 December 2024
Review	4	18 December 2006	31 December 2024
Review	5	24 October 2014	31 December 2025
Review	6	30 November 2023	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0173
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

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### Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council [qualifications@hangaarorau.nz](mailto:qualifications@hangaarorau.nz) if you wish to suggest changes to the content of this unit standard.