

<b>Title</b>	<b>Operate computer numerically controlled machinery to produce a range of standard and customised glass items</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>15</b>

<b>Purpose</b>	People credited with this unit standard are able to: set up, prepare, operate, and monitor computer numerically controlled (CNC) machinery to produce a range of standard and customised glass items; and undertake quality checks and post operations of CNC machined glass items.
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<b>Classification</b>	Glass and Glazing > Glass Processing and Manufacturing
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<b>Available grade</b>	Achieved
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## Guidance Information

- 1 Legislation and guidelines relevant to this unit standard include:  
[Health and Safety at Work Act 2015](#);  
[Building Act 2004](#);  
*Safe Use of Machinery: Best Practice Guidelines*; available at [www.worksafe.govt.nz](http://www.worksafe.govt.nz).

Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes.

- 2 Definitions  
*CNC (Computer Numerically Controlled)* is a process of using computer software to control the movement and operation of machines that can cut, carve, or engrave materials.  
*Customised glass items* refer to products, services, or processes that are tailored to meet the specific needs, preferences, or requirements of an individual customer or a specific situation.  
*Job specifications* refer to the scope of the work being undertaken. They include the objectives, quality requirements, deliverables, timeline, and budget.  
*PPE* refers to personal protective equipment.  
*Standard glass items* refer to products, services, or processes that are mass-produced, consistent, and uniform.  
*Workplace procedures* refer to documented procedures specific to a workplace that set out the standard and required practices of that workplace. These may include job specifications, procedures, practices, manufacturer recommendations, technical data sheets, and material safety data sheets.

### 3 Assessment

Evidence for this unit standard must reflect:

- industry standards, current health, safety, industry, and workplace procedures;
- job specifications and customer requirements;
- industry requirements for commercially acceptable timeframes.

### 4 Range

- Minimum evidence is four different standard glass items and two different customised glass items;
- Glass items may include – material type, edge finish type, coating, laminated, simple and complex shapes, and different finishes.

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## Outcomes and performance criteria

### Outcome 1

Set up and prepare CNC machinery to produce a range of standard and customised glass items.

#### Performance criteria

- 1.1 CNC machinery safety analysis is produced, outlining the required safety steps.
- Range includes associated hazards and risks, and their required controls, emergency shutdown, and required PPE.
- 1.2 Processing area is checked to ensure it is clear of debris and abrasive material before work commences.
- 1.3 CNC machine, wheels and tools are selected and prepared to enable the work to be completed to the job specifications and without damage to the glass or to the tools and equipment.
- Range preparation may include but is not limited to – checking and dressing tools and wheels, checking coolant and water tanks, checking coolant and lubricant flow, checking for machine wear, completing pre-start checks.
- 1.4 Required materials are selected and prepared for CNC machining, including checking for defects.
- 1.5 CNC machine head is set up and a test piece of glass is run to check the settings.
- Range set-up requirements may include but are not limited to – thickness of glass, speed, wheel pressure, edge finish, mitre angle, bevel width, residual edge, V cut size, machine is adjusted as required, water pressure, nozzle size, air pressure, air supply, tool condition.

- 1.6 Lifting gear for large glass is selected and operated to enable glass to be loaded onto the machine without damage to the glass or the machine or danger to people in the workplace.

## Outcome 2

Operate and monitor CNC machinery to produce a range of standard and customised glass items.

### Performance criteria

- 2.1 CNC is operated to produce glass items.

Range operation includes but is not limited to – identification of machine parts and controls, loading and securing of glass items to be processed, correct selection of CNC program to manufacture the required glass item, and confirmation of process start/stop.

- 2.2 CNC performance is monitored during processing functions to ensure compliance with job requirements and quality standards.

Range monitoring includes but is not limited to – glass security during processing, correct tool changes during processing, edgework quality during processing, and readiness of action if the process fails.

- 2.3 Procedures for monitoring and adjusting the machine's output are determined and explained to ensure process continuity for both standard and custom glass items.

- 2.4 Setting adjustments for machine tools and implements are determined and explained.

- 2.5 CNC processes are stopped at the end of the cycle, and the glass is safely removed, ready for the next job.

Range includes but is not limited to – machine isolation, release of glass items, unloading of glass, use of lifting equipment, reset of machine for next job.

## Outcome 3

Undertake quality checks of CNC machined glass items.

### Performance criteria

- 3.1 Finished glass items are checked to ensure they meet job specifications and are free from surface or edge damage.

- 3.2 Non-conformance of processed glass items is reported.

**Outcome 4**

Undertake post operations of CNC machined glass items.

**Performance criteria**

4.1 Glass is cleaned after use.

Range cleaning includes – hand wash and dry, machine wash and dry.

4.2 Finished glass items are labeled or marked and prepared for dispatch or further manufacturing.

4.3 Work area and equipment are left clean and free from debris.

4.4 Job documentation is completed.

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<b>Planned review date</b>	31 December 2029
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	24 October 2024	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0073
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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 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.