

Title	Manufacture laminated safety glass		
Level	4	Credits	10

Purpose	<p>This unit standard is for experienced people in the glass processing industry working with laminated safety glass (LSG).</p> <p>People credited with this unit standard are able to: prepare to manufacture LSG; and manufacture LSG.</p>
----------------	--

Classification	Glass and Glazing > Glass Processing and Manufacturing
-----------------------	--

Available grade	Achieved
------------------------	----------

Guidance Information

- 1 Legislation and standards relevant to this unit standard include:
[Health and Safety at Work Act 2015](#);
[Resource Management Act 1991](#);
AS/NZS 2208:1996, *Safety glazing materials in buildings*;
NZS 4223.2:2016, *Glazing in buildings - Part 2: Insulating glass units*; available at
<http://www.standards.co.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
Job specifications refer to the scope of the work being undertaken. It includes the objectives, quality requirements, deliverables, timeline, budget etc.
Laminated Safety Glass (LSG) refers to a type of safety glass consisting of two or more layers of glass with one or more thin polymer interlayers, preventing the glass from breaking into large sharp pieces.
Workplace procedures refer to the documented procedures specific to a workplace that set out the standard and the required practices of that workplace. This may include job specifications, procedures, practices, manufacturer recommendations, technical data sheets and material safety data sheets.
- 3 Resource
Window and Glass Association NZ (WGANZ) – [Resource Directory \(wganz.org.nz\)](http://wganz.org.nz).
- 4 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.

5 Recommended skills and knowledge

Unit 28760, *Demonstrate knowledge of manufacturing laminated safety glass* or demonstrate equivalent knowledge and skills.

Outcomes and performance criteria

Outcome 1

Prepare to manufacture LSG.

Performance criteria

1.1 Material used in manufacturing laminated glass is checked.

Range checks may include but are not limited to – glass size, thickness and type match with requirements of works or customer order, interlayer type, colour and thickness match with requirements of work or customer order, glass quality (free from seeds, feather, chips or edge damage), glass free from grease or dirt.

1.2 Glass is prepared for manufacturing.

Range preparation may include but is not limited to – washing glass using a washing machine, checking glass quality to ensure no scratches or watermarks are left after washing, and laying up glass and interlayers, to meet work or order requirements.

1.3 Interlayer expiry dates are checked for validity.

Outcome 2

Manufacture LSG.

Performance criteria

2.1 Glass is prepared and paired.

Range preparation may include but is not limited to – lay up of panels, insertion of interlayer, correct quantity of interlayer applied, correct alignment of glass parts, correct trimming of excess material, correct application of edge tape or edge seal.

2.2 Prepared glass is loaded on vacuum bags and sealed.

Range loading may include but is not limited to – selection of vacuum bags, vacuum sealing procedures, vacuum bags yield utilization.

2.3 Glass is loaded in the curing oven, and operation of the curing oven is performed.

Range operation may include but is not limited to – loading of oven trays, selection of oven recipe, selection of cycle time, understanding of recipe parameters and effects in glass, and removal of oven trays after cycle is completed.

2.4 Glass is removed from oven trays and bags correctly, checked for defects, cleaned and prepared for further processing as per workplace or order requirements.

Range defects may include but are not limited to – bubbles, cracks, chipping on edges, interlayer not removed, haze on the glass surface;
preparation may include but is not limited to – cleaning of excess material from edges, edges are checked for imperfections, glass surface is cleaned and inspected for defects.

2.5 Sustainable practices are applied in recycling plastic waste and disposing of laminated glass.

2.6 Samples are produced and tested as per workplace or order requirements.

Range testing may include but is not limited to – compliance check on each batch and/or order, swing bag test, boil test, and Plunnel testing.

2.7 Laminated safety glasses are marked with a permanent mark in accordance with the requirements of NZS 2208:1996.

2.8 Work documentation is completed.

Planned review date	31 December 2029
----------------------------	------------------

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 April 2004	31 December 2013
Review	2	21 May 2010	31 December 2017
Review	3	18 June 2015	31 December 2026
Rollover and Revision	4	25 August 2022	31 December 2026
Review	5	24 October 2024	N/A

Consent and Moderation Requirements (CMR) reference	0073
--	------

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 at qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.