

Title	Demonstrate knowledge of processing toughened and heat strengthened glass		
Level	4	Credits	5

Purpose	<p>This theory-based unit standard is for experienced people in the glass processing industry working with specialist glass.</p> <p>People credited with this unit standard are able to describe compliance requirements applying to manufacturing toughened and heat strengthened glass; describe preparation to manufacture toughened and heat strengthened glass; and demonstrate knowledge of horizontal glass tempering machines used to manufacture toughened and heat strengthened glass.</p>
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Classification	Glass and Glazing > Glass Processing and Manufacturing
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Available grade	Achieved
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Guidance Information

1 Definitions

Compliance requirements – refer to those New Zealand Standards, Australia/New Zealand Standards, and tests which apply to the processing of toughened and heat strengthened glass.

Worksite requirements – refer to instructions to staff on policy and procedures which are documented in memo or manual format and are available in the workplace. These requirements include – company specifications and procedures, work instructions, manufacturer’s specifications, product quality specifications, legislative requirements.

2 Legislation and standards relevant to this unit standard include – Health and Safety at Work Act 2015, Resource Management Act 1991 and the following Australia/New Zealand Standards:

AS/NZS 2208:1996 *Safety glazing materials in buildings*

AS/NZS 2080:2006 *Safety glazing for land vehicles*, available at <http://www.standards.co.nz>.

3 Range

Types of glass which can be toughened or heat strengthened by the processes covered in this unit standard are limited to – float glass from 4 mm to 19 mm in thickness, obscure glass with shallow patterns.

Outcomes and performance criteria

Outcome 1

Describe compliance requirements applying to manufacturing toughened and heat strengthened glass.

Performance criteria

- 1.1 Purposes and compliance requirements for manufacturing toughened and heat strengthened glass are described.
- 1.2 Scope and focus of standards applying to manufacturing toughened and heat strengthened glass are described.
- Range standards include – AS/NZS 2208:1996, AS/NZS 2080:2006
- 1.3 Focus and purpose of tests applied in manufacturing toughened and heat strengthened glass are described in terms of worksite requirements.
- Range tests include – size test, thickness test, squareness test, uniformity test, heat shock test, load stamp test, fragmentation test, light transmission test, bow test, edge inspection, parallelism test, flatness test, impact test.

Outcome 2

Describe preparation to manufacture toughened and heat strengthened glass.

Performance criteria

- 2.1 Requirements for preparing the work area and personal safety precautions are described in terms of worksite requirements.
- Range preparation includes – selection and use of protective clothing and safety equipment, checks of emergency stops and battery drives on machine, identification of hazards, review of operational procedures, clearing work area.
- 2.2 Process for checking glass to be manufactured is described in terms of worksite requirements.
- Range checks include – glass and processing system to be used match with requirements of work and/or customer order; completion of relevant standards tests; glass size is within processing equipment limitations; glass manufacturer's size and processing limitations; printing face, shapes and patterns for printing table placement.

- 2.3 Process for preparing to manufacture toughened or heat strengthened glass is described in terms of worksite requirements.

Range process includes – marking of glass with standards identification in accordance with works instruction, selection and positioning of glass on loading table, inputting of machine settings for type of glass being toughened.

Outcome 3

Demonstrate knowledge of horizontal glass tempering machines used to manufacture toughened and heat strengthened glass.

Performance criteria

- 3.1 Process for pre-start, start and set-up procedures is described in terms of worksite requirements.
- 3.2 Procedures for forwarding glass into the furnace are identified and described in terms of worksite requirements.
- 3.3 Process for monitoring and adjusting the furnace operation is described in terms of worksite requirements.
- 3.4 Emergency procedures if glass breakage occurs in the furnace are described in terms of worksite requirements.

Planned review date	31 December 2022
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	21 May 2010	31 December 2017
Review	2	18 June 2015	N/A
Rollover and Revision	3	25 August 2022	N/A

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