LMATS Pty Ltd
ABN 41 107 100 925
3/52 Cocos Drive Bibra Lake Western Australia 6163
Tel 08 9418 6380 Fax 08 9434 1328

Test Report

To	Illuminated Balaustrade Australia Pty Ltd 42 Escarpment Drive Frankston SA 3199	**Report No.**	**MTS-34129 IBAPTY Rev 2**
		Reference No.	**LMTS20-0080 Rev 2**
Order No.	000001	**Issue Date**	25/02/2021
		Test Date	23/01/2020

Introduction

One (1) only Frameless Glass Balustrade was set up as a test assembly at LMATS Bibra Lake Work Shop for purpose of Balustrade testing to the requirements of AS 1170.1-2002 Clause 3.6 for occupancy C3 (Table 3.3).

Test Item(s) The assembly consisted of one (1) x 12mm(T)x 1200mm(W) x 970mm(H) Toughened Glass Panels, supported on two (2) x 52 x 162 Square Base Mounted G2205 Spigots; Four (4) x M10 Bolts and Four (4) Drop- In Anchors M10 were used for bolt down each Base Plate in concrete.

Examinations & Tests

The balustrade test assembly was subjected to the following tests:

1. Concentrated Load (Vertical & Horizontal) requirement from AS/NZS 1170.1 – 2002 CL 3.6 for occupancy C3.
2. Uniformly Distributed Load (Vertical & Horizontal) requirement from AS/NZS 1170.1 – 2002 CL 3.6 for occupancy C3.

1. Concentrated Load (Vertical) requirement from AS/NZS 1170.1 – 2002 CL 3.6 for occupancy C3.
Downward point load was applied at centerline between the two fixed points at the top edge of the glass panel. The test load was applied 600N(134Ibf); then progressively increased to 1113N (1.113KN)(250 lbf) without shock for a minimum of 30s at each interval. Deflection Under Load (DUL) was recorded at each interval. At the completion of the series of tests, the load was removed and Permanent Deformation after 120s was measured and recorded.

2. Concentrated Load (Horizontal) requirement from AS/NZS 1170.1 – 2002 CL 3.6 for occupancy C3 and client requirements.
Outward point load was applied at centerline between the two fixed points at the top edge of the glass panel. The test load was applied initially at 600N (0.6KN)(134 lbf); then progressively increased to 1000N (1KN)(224 lbf) and then 1200N (1.2 KN)(269 lbf), holding for a minimum of 30s at each interval. Deflection Under Load (DUL) was recorded at each interval. At the completion of the series of tests, the load was removed and Permanent Deformation after 120s was measured and recorded.

3. Uniformly Distributed Load (Horizontal) requirement from AS/NZS 1170.1 – 2002 CL 3.6 for occupancy C3.
A rigid test beam was placed across the top edge of glass panel to provide a uniformly distributed line load. The load was applied horizontally to the center of the beam. The test load was applied 900N(202 lbf) without shock for a minimum of 30s, deflection Under Load (DUL) was recorded. At the completion of the series of tests, the load was removed and Permanent Deformation after 120s was measured and recorded.

4. Uniformly Distributed Load (Vertical) requirement from AS/NZS 1170.1 – 2002 CL 3.6 for occupancy C3 and client requirements.
A rigid test beam was placed across the top edge of glass panel to provide a uniformly distributed line load. The load was applied vertical to the center of the beam. The test load was applied initially at 0.75 KN/m(51.4 lb/ft) (900N)(202 lbf); then progressively increased to 1.5KN/m(102.8 lb/ft) (1800N)(404 lbf), holding for a minimum of 30s at each interval, deflection Under Load (DUL) was recorded at each interval. At the completion of the series of tests, the load was removed and Permanent Deformation after 120s was measured and recorded.

Summary

The results of the tests reported herein COMPLIED with the requirements of AS/NZS 1170.1 – 2002 CL 3.6 for occupancy C3 and client requirements.

Revision 1: This report is a revision of MTS-34129, dated 23/01/2020, and has been revised to add additional test as Client' request.

Mohsen Alvani
Materials Engineer

Accredited for compliance with ISO/IEC 17025 – Testing
Accreditation Number 15840

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Results

Glass Certificate

STANDARDSMARK LICENCE

SAI Global hereby grants:

Qingdao Globalstar Glass Co.,Ltd.

Qingdao Globalstar Glass Technology Co.,Ltd.

No. 799, Yuanhe Road, Hetao Street, Chengyang District, Qingdao, China

StandardsMark Licence

Manufactured to:

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

"the StandardsMark Licensee" the right to use the STANDARDSMARK as shown below only in respect of the goods described and detailed in the Schedule which are produced by the Licensee or on behalf of the Licensee* and which comply with the appropriate Standard referred to above as from time to time amended. The Licence is granted subject to the rules governing the use of the STANDARDSMARK and the Terms and Conditions for certification and licence. The Licensee covenants to comply with all the Rules and Terms and Conditions.

Licence No: SMK40377

Issued : 8 December 2014
Expires : 3 December 2019

Originally Certified : 4 December 2014
Current Certification : 8 December 2014

Paul Butcher
Global Head – Assurance Services

Samer Chaouk
Head of Policy, Risk and Certification

Certified Product Australian Standard

JAS-ANZ

* For details of manufacture, refer to the licensee
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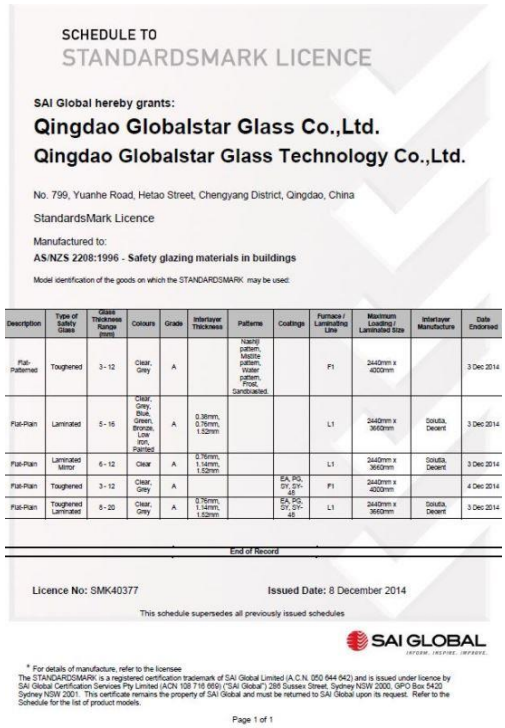
SAI GLOBAL

Glass Certificate



SCHEDULE TO
STANDARDSMARK LICENCE

SAI Global hereby grants:

Qingdao Globalstar Glass Co.,Ltd.

Qingdao Globalstar Glass Technology Co.,Ltd.

No. 799, Yuanhe Road, Hetao Street, Chengyang District, Qingdao, China

StandardsMark Licence

Manufactured to:

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Model identification of the goods on which the STANDARDSMARK may be used:

Description	Type of Safety Glass	Glass Thickness Range (mm)	Colours	Grade	Interlayer Thickness	Patterns	Coatings	Furnace / Laminating Line	Maximum Loading / Laminated Size	Interlayer Manufacture	Date Endorsed
Flat-Patterned	Toughened	3 - 12	Clear, Grey	A		Nashiji pattern, Mistine pattern, Water pattern, Frost, Sandblasted.		F1	2440mm x 4000mm		3 Dec 2014
Flat-Plain	Laminated	5 - 16	Clear, Grey, Blue, Green, Bronze, Low iron, Painted	A	0.38mm, 0.76mm, 1.52mm			L1	2440mm x 3660mm	Solutia, Decent	3 Dec 2014
Flat-Plain	Laminated Mirror	6 - 12	Clear	A	0.76mm, 1.14mm, 1.52mm			L1	2440mm x 3660mm	Solutia, Decent	3 Dec 2014
Flat-Plain	Toughened	3 - 12	Clear, Grey	A			EA, PQ, DY, DY-48	F1	2440mm x 4000mm		4 Dec 2014
Flat-Plain	Toughened Laminated	6 - 20	Clear, Grey	A	0.76mm, 1.14mm, 1.52mm		EA, PQ, DY, DY-48	L1	2440mm x 3660mm	Solutia, Decent	3 Dec 2014

End of Record

Licence No: SMK40377 **Issued Date:** 8 December 2014

This schedule supersedes all previously issued schedules

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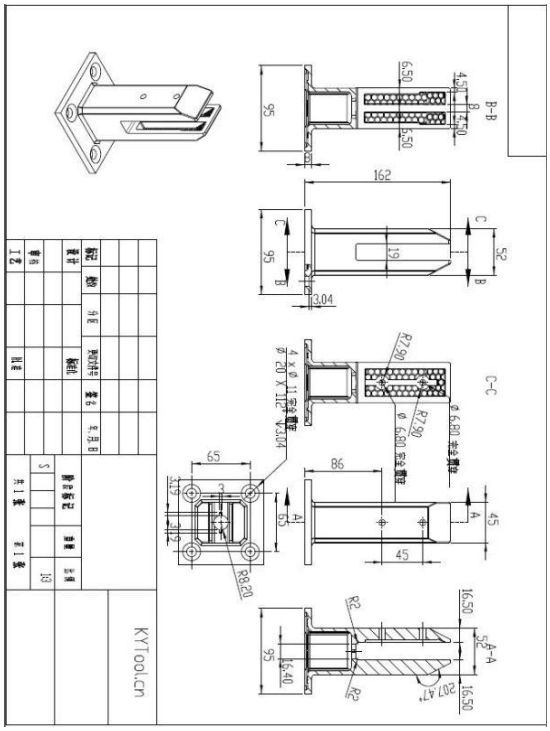
Results

Spigot Design



Spigot Design

Spigot installation

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Results

Concentrated Load (Downwards & Outwards) - AS/NZS 1170.1 - 2002

Test Specification AS/NZS 1170.1 - 2002, Clause 3.6 **Test Procedure** MTS-TP3.7 Load Tests of Protective Enclosures, Barriers and Fences

Specimen ID	Test Load (N)	Deflection Under Load (mm)	Permanent Distortion (mm)	Observations	Assessment
Horizontal	600	26.0	1.0	No signs Breakage, fracture or loosening of any part.	COMPLIES

Concentrated Load (Outwards)

Horizontal	1,000	46.0	1.0	No signs Breakage, fracture or loosening of any part.	COMPLIES

Concentrated Load (Outwards)

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Results

Specimen ID	Test Load (N)	Deflection Under Load (mm)	Permanent Distortion (mm)	Observations	Assessment
Horizontal	1,200	64.0	3.0	No signs Breakage, fracture or loosening of any part.	COMPLIES

Concentrated Load (Outwards)

Vertical	600	0.0	0.0	No signs Breakage, fracture or loosening of any part.	COMPLIES
Vertical	1,113	0.0	0.0	No signs Breakage, fracture or loosening of any part.	COMPLIES

Concentrated Load (Downwards)

Requirements No Breakage, fracture or loosening of any part.

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Results

Uniformly Distributed Load (Horizontal & Vertical) - AS/NZS 1170.1 - 2002

Test Specification AS/NZS 1170.1 - 2002, Clause 3.6

Test Procedure MTS-TP3.7 Load Tests of Protective Enclosures, Barriers and Fences

Specimen ID	Test Load (N)	Deflection Under Load (mm)	Permanent Distortion (mm)	Observations	Assessment
Horizontal	900	42.0	2.0	No signs Breakage, fracture or loosening of any part.	COMPLIES

Uniformly Distributed Load (Horizontal)

Vertical	900	0.0	0.0	No signs Breakage, fracture or loosening of any part.	COMPLIES

Uniformly Distributed Load (Vertical)

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Specimen ID	Test Load (N)	Deflection Under Load (mm)	Permanent Distortion (mm)	Observations	Assessment
Vertical	1,800	0.0	0.0	No signs Breakage, fracture or loosening of any part.	COMPLIES

Uniformly Distributed Load (Vertical)

Requirements No Breakage, fracture or loosening of any part.