

## FRAMELESS GLASS BALUSTRADE

**Test Report Number:** 163383 (QT41067/1/JPS)/Ref. 1

**Report Date:** 09 August 2016

**Work Location:** Lucideon Test Facility Stoke-On-Trent

Testing carried out by:

Lucideon  
Queens Road  
Penkhull  
Stoke-On-Trent  
T: 01782 764 428

### INTRODUCTION

Lucideon Limited were commissioned by the client, Pure Vista Ltd, to carry out line load testing in accordance with BS 6180:2011 Barriers in and about buildings, to allow their balustrade system to be classified for use in accordance with the Code of Practice included within the standard.

The testing was carried out at Lucideon's facilities at Queens Road, Penkhull, Stoke on Trent.

This report summarises the test results obtained during the test programme and does not provide interpretation of those results.

### TEST SAMPLES

The Test Sample below was to be tested:

- Spig-Lite Pro

The system had been designed and intended to be used as the base mount for a free standing balustrade. The system and glass were installed by Pure Vista Ltd personnel.

### TEST PROGRAM

A horizontal line load was applied to the system using the following glazed section:

- Spig-Lite Pro
  - 12mm Toughened Glass;
  - 15mm Toughened Glass;
  - 21.5mm Toughened Laminated Glass

### TEST PREPARATION

The Spig-Lite Pro adapters were bolted at 500mm centres (250mm in from the edge of a 1000mm wide glass panel) to the top of the concrete slab, which was fixed to the floor of the test facility. Two spigots were fixed per metre using a single 12mm bolt per spigot. A glass panel of appropriate width and thickness was fitted into the spigots using the glass slip clamping system.

The bolts used:

**Spit:** Guardia 12x105/20 Art no.051061

**Würth:** W-Haz 12/10 Art no. 0905 212 002

### TEST METHOD

A horizontally imposed line load was applied to the glass at a height of 1100 millimetres above the datum level of the floor and the deflection measured at the top central point of the panel 1100 millimetres above the datum level of the floor. The load was applied via a hydraulic ram and the deflection measured using a linear voltage displacement transducer.

### RESULTS

The tests were carried out in accordance with the guidance given in BS 6180 Barriers in and about buildings – code of practice. The standard states that the maximum allowable deflection for a free standing glass protective barrier panel is 25mm.

Table 2 of BS 6180 Barriers in and about buildings – code of practice categorises parapets, barriers and balustrades for areas of use, depending on the loads they have achieved under testing.

The loads achieved by the Pure Vista system (Spig-Lite Pro) tested under horizontally imposed line load to the maximum deflection of 25mm are given in Table 1. All figures quoted in the table contain no safety factors and are direct loads as achieved by the system under test conditions.

Table 2 summarises the suitability of the tested system in accordance with Table 2 of BS 6180:2011

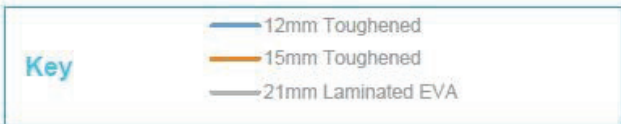
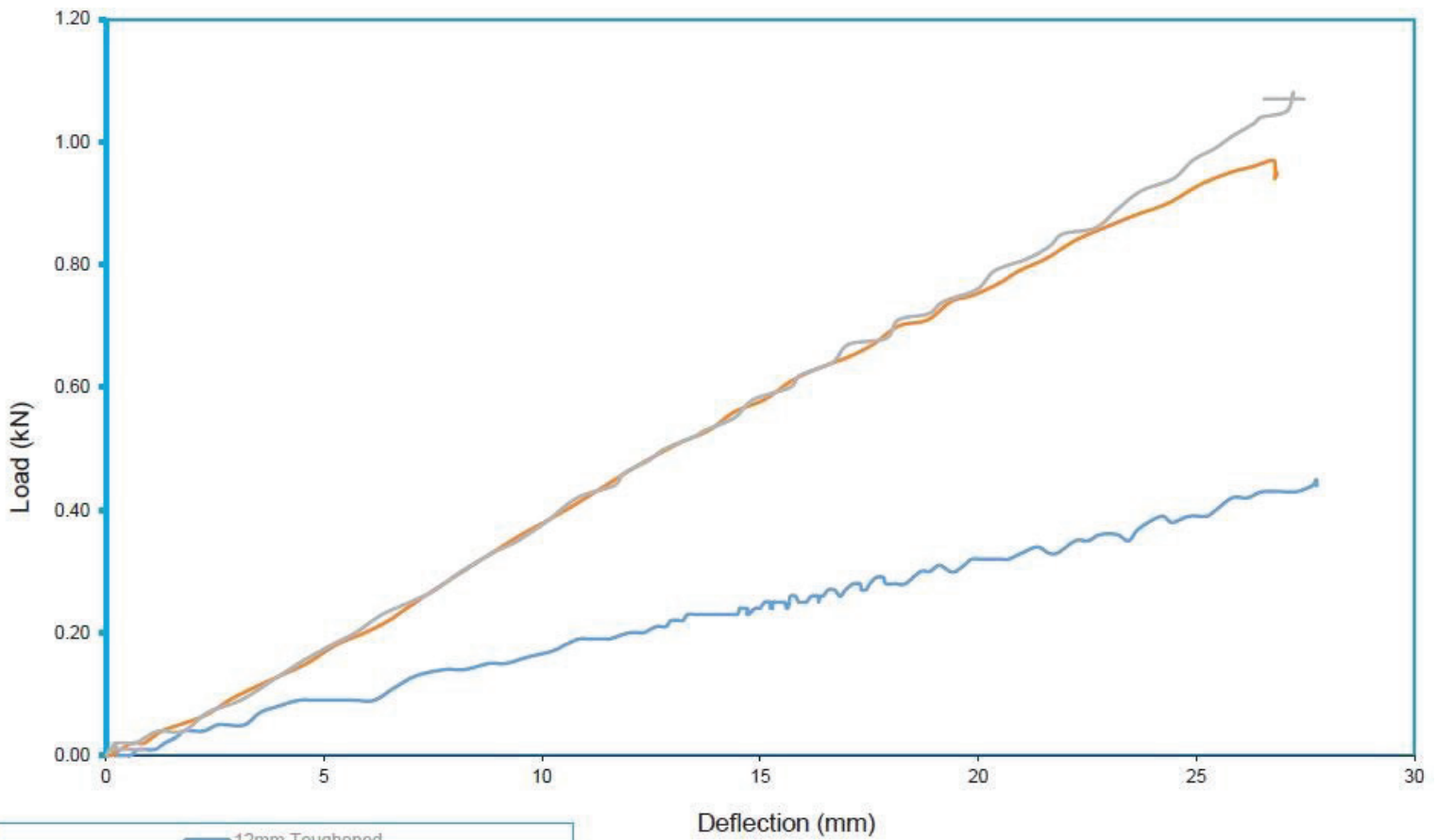
**Note: The results given in this report apply only to the samples that have been tested**

**Table 1** – Summary of performance of Pure Vista Ltd Spig-Lite Pro Balustrade System Tested under Horizontally imposed Line Load.

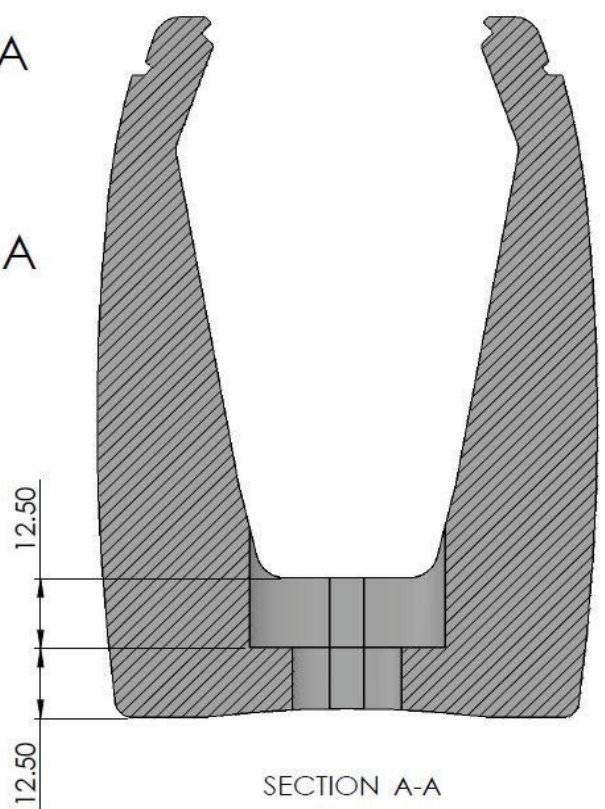
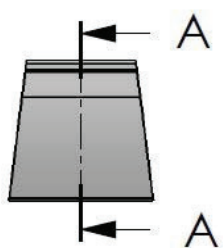
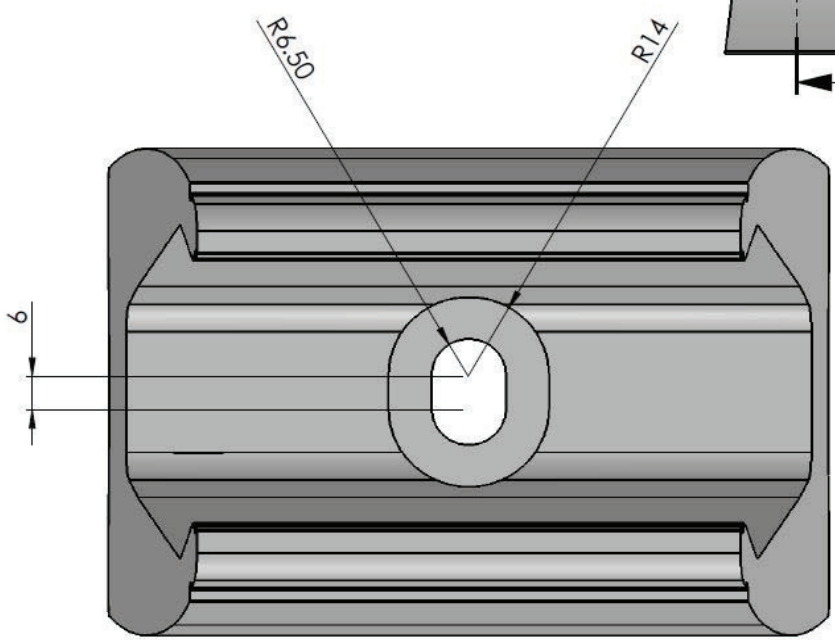
Glass Span mm	Glass Type	Test Height mm	Imposed Line Load Deflection at 25mm Deflection kN/M	Working Line Load for System kN/M	Deflection at Working Line Load for system mm
1000	12mm Toughened Monolithic	1100	0.39	0.36	22.8
1000	15mm Toughened Monolithic	1100	0.92	0.74	19.38
1000	12mm Toughened Laminated	1100	0.98	0.74	19.21

**Table 2** – Summary of Suitability of Pure Vista Ltd Spig-Lite Pro System in accordance with Table 2 of BS 6180:2011.

Type of Occupancy for Part of the Building	Examples of Specific Use	Horizontal Uniformly Distributed Line Load (Kn/M)	Spig-Lite Pro		
			12.0mm	15.0mm	21.5mm
Domestic and residential activities	All areas within or serving exclusively one single family dwelling including stairs, etc. but excluding balconies and edge of roofs	0.36	✓	✓	✓
	Other residential, i.e. houses of multiple occupancy and balconies, including Juliette balconies and edges of roofs in single family dwellings	0.74	x	✓	✓
Offices and work areas not included elsewhere, including storage areas	Light access stairs and gangways not more than 600mm wide	0.22	✓	✓	✓
	Light pedestrian traffic routes in industrial and storage buildings except designated escape routes	0.36	✓	✓	✓
	Areas not susceptible to overcrowding in office and institutional buildings, also industrial and storage buildings except as given above	0.74	x	✓	✓
Areas where people might congregate	Areas having fixed seating within 530mm of the barrier, balustrade or parapet	1.50	x	x	x
Areas with Tables or Fixed Seating	Restaurants and Bars	1.50	x	x	x
Areas without obstacles for moving people and not susceptible to overcrowding	Stairs, landings, corridors, ramps	0.74	x	✓	✓
	External balconies including Juliette balconies and edges of roofs; footways and pavements within building cartilage adjacent to basement/sunken areas	0.74	x	✓	✓
Areas susceptible to overcrowding	Footways or pavements less than 3m wide adjacent to sunken areas	1.50	x	x	x
	Theatres, cinemas, discotheques, bars, auditoria, shopping malls, assembly areas, studio; footways or pavements greater than 3m wide adjacent to sunken areas	3.00	x	x	x
	Grandstands and Stadia	(Note 1)	-	-	-
Retail Areas	All retail areas including public areas of banks/building societies or betting shops	1.50	x	x	x
Vehicular	Pedestrian areas in car parks including stairs, landings, ramps, edges of internal floors, footways, edges of roofs	1.50 (Note 2)	x	x	x
	Horizontal loads imposed by vehicles	(Note 2)	-	-	-



Deflection (mm)



Whilst every effort has been made to ensure the accuracy of the information supplied. F.H.Brundle cannot be held responsible for any errors or omissions. This product must only be employed for its original intended use. Any other use is wrong and potentially dangerous. Installation must be carried out in full compliance with current regulations. F.H.Brundle cannot be held liable for any damages resulting from wrongful, erroneous or negligent use.

<b>Southampton</b> Tel: 023 8070 3333 Fax: 023 8070 5555	<b>Rainham</b> Tel: 01708 25 35 45 Fax: 01708 25 35 50	<b>Ilkeston</b> Tel: 0115 930 2070 Fax: 0115 951 2455	<b>Birmingham</b> Tel: 0121 565 8282 Fax: 0121 565 8292	<b>Haydock</b> Tel: 01942 86 88 88 Fax: 01942 86 88 99	<b>Edinburgh</b> Tel: 0131 335 5999 Fax: 0131 335 5911	<b>Glasgow</b> Tel: 0141 332 3231 Fax: 0141 332 7325
--	--	---	---	--	--	--