

TEST REPORT

Lucideon Reference: N251398 (QT-77834/1/KNA)/Ref. 1

Project Title: Testing of Pure Vista Spig-Lite Balustrade System Base Mounted into Concrete in Accordance with BS 6180:2011 Barriers In and About Buildings

Client: Pure Vista
Pendewey
Stony Lane
Bodmin
Cornwall
PL31 2QX

For the Attention of: Mr Adam Oakes

Author(s): Miss Lisa Cobden

Report Date: 17 July, 2025

Purchase Order No.: 3868



Miss Joanne Booth
**Testing Team
Reviewer**



Miss Lisa Cobden
**Testing Team
Project Manager**



CONTENTS

	Page
1 INTRODUCTION	3
2 TEST SAMPLES	3
3 TEST PROGRAMME	3
4 TEST EQUIPMENT	3
5 TEST PREPARATION	3
6 TEST METHOD	4
7 TEST REQUIREMENTS	4
8 RESULTS	5
TABLES	6-7
PLATE	8
CHART	9

1 INTRODUCTION

Lucideon Limited were commissioned by the client, Pure Vista, 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 performed at the Lucideon Structures Laboratory at Queens Road, Penkhull, Stoke-on-Trent, Staffordshire, ST4 7LQ, UK on 20 May 2025.

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

2 TEST SAMPLES

A single system was tested designated as follows:

- Spig-Lite.

The system had been designed and intended to be used as a base mount system for free standing balustrades. The systems and glass were installed by Pure Vista Personnel.

3 TEST PROGRAMME

A horizontal line load was applied to the systems using the following glazed sections:

- Spig-Lite concrete mounted:
 - 12 mm Mono glass.
 - 15 mm Mono glass.
 - 17.5 mm PVB glass.
 - 21.5 mm PVB glass.

4 TEST EQUIPMENT

- 5 kN Load Cell Reference FOR023.
- Linear Displacement Voltage Transducer reference TDR026.
- 15 Tonne Capacity Hydraulic Ram.
- DaisyLab Data Logger DAQ 0029.

5 TEST PREPARATION

For the uniformly distributed line load test, the Spig-Lite System was installed to manufacturer's specifications.

The spigots were bolted to the top of a concrete block having specification C25/30. The concrete block in turn was fixed to the floor of the test facility using M32 Bolts.

The system consisted of two spigots, which were bolted to the block at 500 mm centres using M12 x 100 mm Wurth W-BS/S Zinc Plated Concrete Screws.

The glass, having a width of 1 m, was installed and held in position using a glass clamp and fitting bar.

The sample for each test was assembled onto the substrate by Pure Vista.

A rigid steel frame was assembled and bolted to the Laboratory Strong Floor, adjacent to the substrate. The hydraulic ram was secured horizontally onto this steel frame, at the height of the required line load and connected to a hydraulic pump. The load cell was fitted in-line with the ram and connected to the Data Logger. A rigid steel pole, mounted in a stand, was placed on the Strong Floor opposite to the loading equipment, and the Linear Voltage Displacement Transducer (LVDT) was affixed to it and connected to the Data Logger.

6 TEST METHOD

A uniformly distributed horizontal line load was applied along the length of the balustrade, using the hydraulic ram and timber load spreader beam. The load was applied at a range of heights as specified by the client, measured from the base of the profile. The height of each test is specified in Table 1.

The LVDT was connected to the surface of the glass balustrade system at the horizontal centre, at a range of height specified by the client. The load was measured using the calibrated load cell, and deflection was measured using the LVDT. Data was recorded using the DaisyLab Data Logger.

As per the Standard, the balustrade sample was tested until the desired design load was achieved, or 25 mm of deflection was reached. The applied load for each test is displayed with the results.

The general test arrangement can be seen in Plate 1.

The samples were tested until destruction occurred, or until 25 mm of deflection was recorded, at which point, the test was stopped.

A generic test configuration can be seen in Plate 1.

7 TEST REQUIREMENTS

The tests were carried out, in accordance with the guidance given in BS 6180:2011 Barriers In and About Buildings – Code of Practice. Section 6.4.1 of the Standard states that the maximum allowable deflection of barriers for the protection of people, should not exceed 25 mm at any point on the barrier, when tested at a height of 1100 mm, for the required design load.

Testing at a height above this, is seen as a more onerous test than one which is conducted at 1100 mm.

Table 2 gives the minimum required horizontal imposed loads, depending on type of building occupancy or structure, in accordance with BS 6180:2011.

8 RESULTS

The loads achieved by the Pure Vista Spig-Lite System, tested under horizontal imposed line load are given in Table 1. All figures quoted in the Tables contain no safety factors and are direct loads, as achieved by the system under test conditions.

TABLES

Table 1 – Loads Achieved by Pure Vista Spig-Lite Balustrade System Base Mounted into Concrete

System	Fix	Glass	Load Application (mm)	Imposed Line Load at 25 mm (kN/m)	Working Line Load for System (kN/m)	Deflection at Working Line Load (mm)
Spig-Lite	Concrete	12 mm Mono	1200	0.38	0.36	23.34
	Concrete	15 mm Mono	1100	0.90	0.74	17.70
	Concrete	17.5 mm PVB	1100	0.75	0.74	24.41
	Concrete	21.5 mm PVB	1100	1.09	0.74	14.66

Table 2 – Summary of Suitability for Use of Pure Vista Spig-Lite Balustrade System Base Mounted into Concrete 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)	Concrete			
			12 mm Mono Glass @1200 mm	15 mm Mono Glass @1100 mm	17.5 mm PVB Glass @1100 mm	21.5 mm PVB Glass @1100 mm
Domestic and residential activities	(i) all areas within or serving exclusively one single family dwelling, including stairs, landings, etc. but excluding external balconies and edges of roofs	0.36	✓	✓	✓	✓
	(ii) 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	(iii) light access stairs and gangways not more than 600 mm wide	0.22	✓	✓	✓	✓
	(iv) light pedestrian traffic routes in industrial and storage buildings, except designated escape routes	0.36	✓	✓	✓	✓

Type of Occupancy for Part of the Building	Examples of Specific Use	Horizontal Uniformly Distributed Line Load (kN/m)	Concrete			
			12 mm Mono Glass @1200 mm	15 mm Mono Glass @1100 mm	17.5 mm PVB Glass @1100 mm	21.5 mm PVB Glass @1100 mm
	(v) 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	(vi) areas having fixed seating within 530 mm of the barrier, balustrade or parapet	1.50	X	X	X	X
Areas with tables or fixed seating	(vii) restaurants and bars	1.50	X	X	X	X
Areas without obstacles for moving people and not susceptible to overcrowding	(viii) stairs, landings corridors ramps	0.74	X	✓	✓	✓
	(ix) external balconies, including Juliette balconies, edges of roofs, footways, pavements within building cartilage adjacent to basement/sunken areas	0.74	X	✓	✓	✓
Areas susceptible to overcrowding	(x) footways or pavements less than 3 m wide adjacent to sunken areas	1.50	X	X	X	X
	(xi) theatres, cinemas, discotheques, bars, auditoria, shopping malls, assembly areas, studios; footways or pavements greater than 3 m wide adjacent to sunken areas	3.00	X	X	X	X
	(xii) grandstands and stadia	(Note 1)	-	-	-	-
Retail areas	(xiii) all retail areas, including public areas of banks/building societies or betting shops	1.50	X	X	X	X
Vehicular	(xiv) pedestrian areas in car parks, including stairs, landings, ramps, edges of internal floors, footways, edges of roofs	1.50 (Note 2)	X	X	X	X
	(xv) horizontal loads imposed by vehicles	3.0 (Note 2)	-	-	-	-

Note 1 – See requirements of the appropriate certifying authority

Note 2 – Clause 8.1.1 of BS 6180:2011 states that “glass should not be used for vehicle protection barriers”

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

END OF REPORT

PLATE

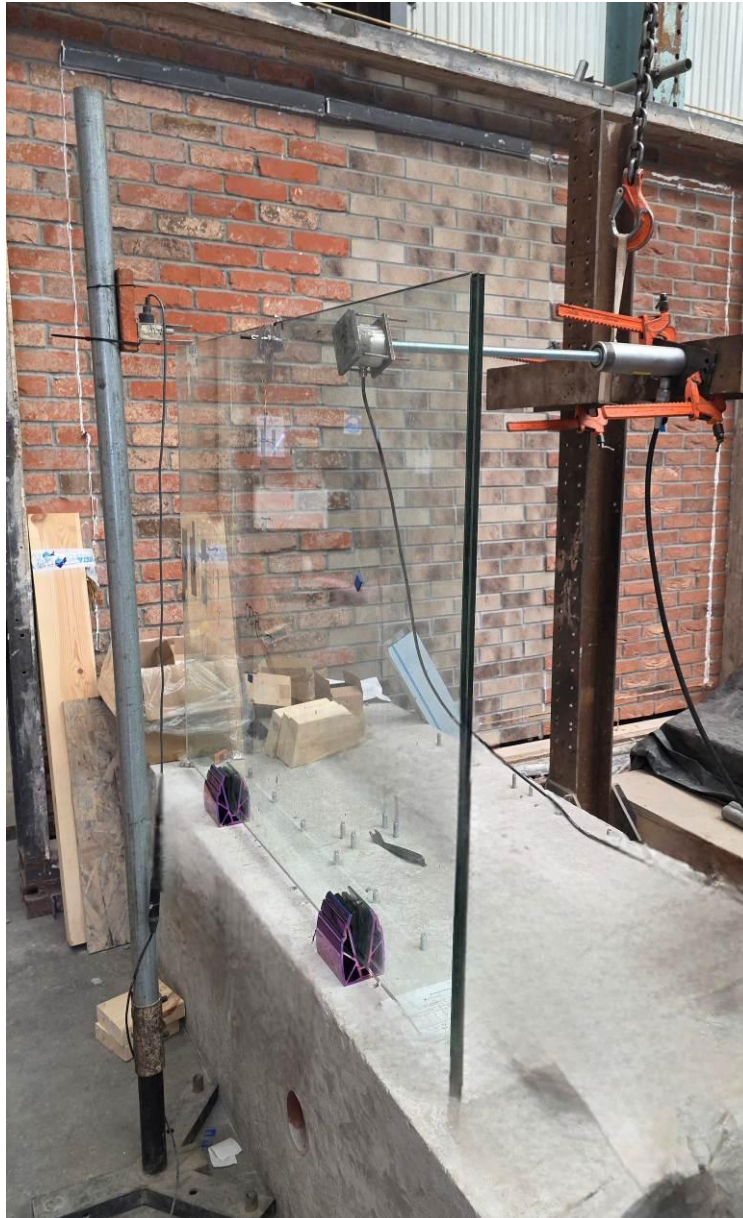


Plate 1 – Generic Test Configuration

Chart 1 - Load Deflection Curve for Spig-Lite Balustrade System Base Mounted into Concrete

Test Report: N251398/Ref. 1

