

TEST REPORT

Purevista Ltd
Pendewey
Stony Lane
Bodmin
Cornwall
PL31 2QX

Test Report Number:- 165162 (QT43376/1/JPS)/Ref. 1

Report Date:- 19 January 2017

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

Posi-Glaze
Side Drilled Report

Frameless Balustrade

Testing carried out by:-

The logo for Lucideon, with the word "LUCIDEON" in a blue, sans-serif font. The letter "I" is replaced by a stylized blue and white geometric shape.

Queens Road
Penkhull
Stoke-On-Trent

T:- 01782 764 428

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1. 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.

2. Test Samples

The Test Sample below was to be tested:-

- Posi-Glaze

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.

3. Test Programme

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

- Posi-Glaze into Concrete:
 - 21.52 mm Sentry Glass;
 - 21.5 mm Laminated PVB Glass
- Posi-Glaze into Steel
 - 21.52mm Sentry Glass
 - 21.5mm Laminated PVB Glass

4. Test Preparation

4.1 Posi-Glaze Concrete Fix

The Channel was bolted to the side of a concrete block, which was fixed to the floor of the test facility.

Where 21.52 mm sentry glass was used the 1mtr length of channel was bolted to the block at 200mm centres (100mm from the end and 200mm thereafter) with 5 clamps per metre spaced at 100mm from the edge with 200mm between the clamps.

Where 21.52 mm PVB glass was used the 1mtr length of channel was bolted to the block at 400mm centres (200mm from the end and 400mm thereafter) with 3 clamps per metre spaced at 200mm from the edge with 300mm between the clamps.

4.2 Posi-Glaze Steel Fix

The Channel was bolted to the side of a piece of reinforced steel C-Section measuring 150 mm x 90 mm x 5mm. The section was welded to a steel anvil which in turn was bolted to the floor of the test facility.

Where 21.52mm Sentry glass was used the 1mtr length of channel was bolted to the block at 200mm centres (100 mm from the end and 200 mm thereafter) with 5 clamps per metre spaced at 100mm from the edge with 200 mm between the clamps.

Where 21.52mm PVB glass was used the 1mtr length of channel was bolted to the block at 400 mm centres (200mm from the end and 400mm thereafter) with 3 clamps per metre spaced at 200mm from the edge with 300 mm between the clamps.

The bolts used:-

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

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

5. 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.

6. 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 (Posi-Glaze) 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 Posi-Glaze Balustrade System mounted into concrete 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	21.52mm Laminated PVB	1100	0.94	0.74	21.32
1000	21.52mm Laminated Sentry	1100	1.56	1.5	23.96

Table 2 – Summary of performance of Pure Vista Ltd Posi-Glaze Balustrade System mounted into steel 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	21.52mm Laminated PVB	1100	0.87	0.74	19.64
1000	21.52mm Laminated Sentry	1100	1.85	1.5	17.56

Table 3 – Summary of Suitability of Pure Vista Ltd Posi-glaze System mounted into concrete in accordance with Table 1 of BS 6180:2011

Type of Occupancy for Part of the Building	Examples of Specific Use	Horizontal Uniformly Distributed Line Load (Kn/M)	Posi-Glaze System	
			21.5mm PVB Glass	21.5mm Sentry Glass
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	✓	✓
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	✓	✓
Areas where people might congregate	Areas having fixed seating within 530mm of the barrier, balustrade or parapet.	1.50	✗	✓
Areas with Tables or Fixed Seating	Restaurants and Bars	1.50	✗	✓
Areas without obstacles for moving people and not susceptible to overcrowding	Stairs, landings, corridors, ramps	0.74	✓	✓
	External balconies including Juliette balconies and edges of roofs; footways and pavements within building cartilage adjacent to basement/sunken areas	0.74	✓	✓
Areas susceptible to overcrowding	Footways or pavements less than 3m wide adjacent to sunken areas	1.50	✗	✓
	Theatres, cinemas, discotheques, bars, auditoria, shopping malls, assembly areas, studio; footways or pavements greater than 3m wide adjacent to sunken areas	3.00	✗	✗
	Grandstands and Stadia	(Note 1)	-	-
Retail Areas	All retail areas including public areas of banks/building societies or betting shops	1.50	✗	✓
Vehicular	Pedestrian areas in car parks including stairs, landings, ramps, edges of internal floors, footways, edges of roofs	1.50 (Note 2)	✗	✓
	Horizontal loads imposed by vehicles	(Note 2)	-	-

Table 4 – Summary of Suitability of Pure Vista Ltd Posi-glaze System mounted into steel in accordance with Table 1 of BS 6180:2011

Type of Occupancy for Part of the Building	Examples of Specific Use	Horizontal Uniformly Distributed Line Load (Kn/M)	Posi-Glaze System	
			21.5mm PVB Glass	21.5mm Sentry Glass
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	✓	✓
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	✓	✓
Areas where people might congregate	Areas having fixed seating within 530mm of the barrier, balustrade or parapet.	1.50	✗	✓
Areas with Tables or Fixed Seating	Restaurants and Bars	1.50	✗	✓
Areas without obstacles for moving people and not susceptible to overcrowding	Stairs, landings, corridors, ramps	0.74	✓	✓
	External balconies including Juliette balconies and edges of roofs; footways and pavements within building cartilage adjacent to basement/sunken areas	0.74	✓	✓
Areas susceptible to overcrowding	Footways or pavements less than 3m wide adjacent to sunken areas	1.50	✗	✓
	Theatres, cinemas, discotheques, bars, auditoria, shopping malls, assembly areas, studio; footways or pavements greater than 3m wide adjacent to sunken areas	3.00	✗	✗
	Grandstands and Stadia	(Note 1)	-	-
Retail Areas	All retail areas including public areas of banks/building societies or betting shops	1.50	✗	✓
Vehicular	Pedestrian areas in car parks including stairs, landings, ramps, edges of internal floors, footways, edges of roofs	1.50 (Note 2)	✗	✓
	Horizontal loads imposed by vehicles	(Note 2)	-	-

Chart 1 - Load Deflection Curve for Pure Vista Posi- Grip Balustrade System Fixed into Concrete

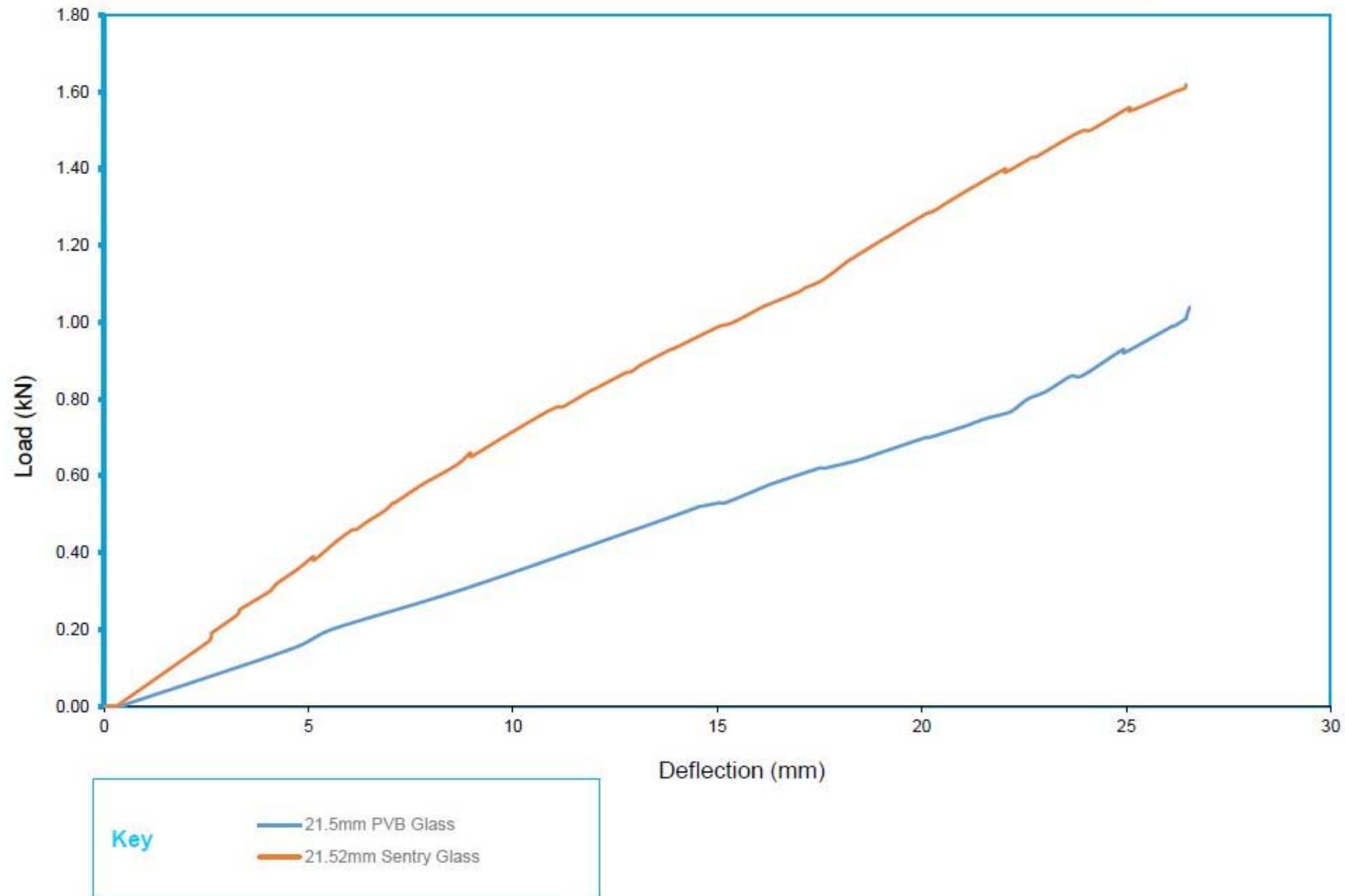
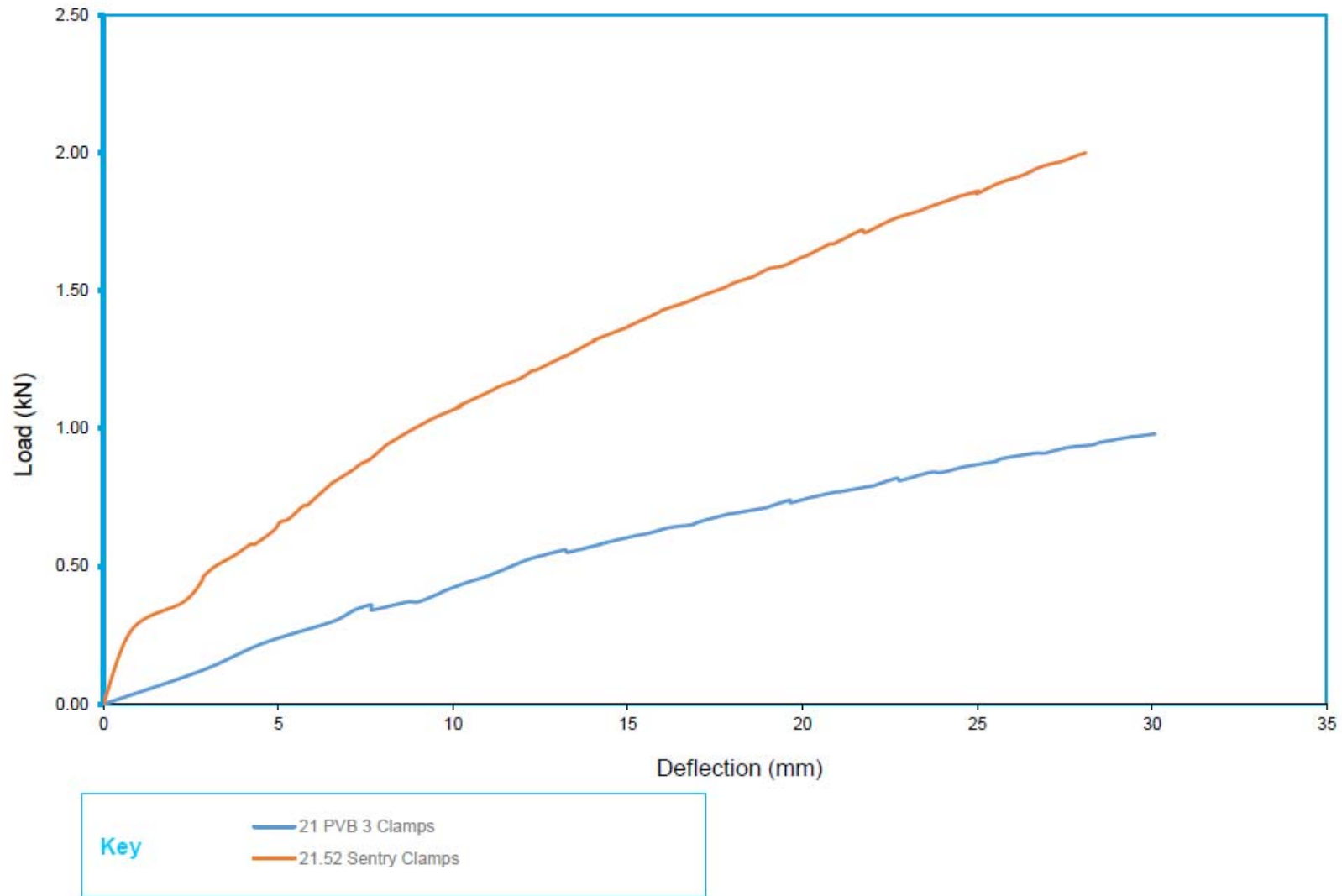
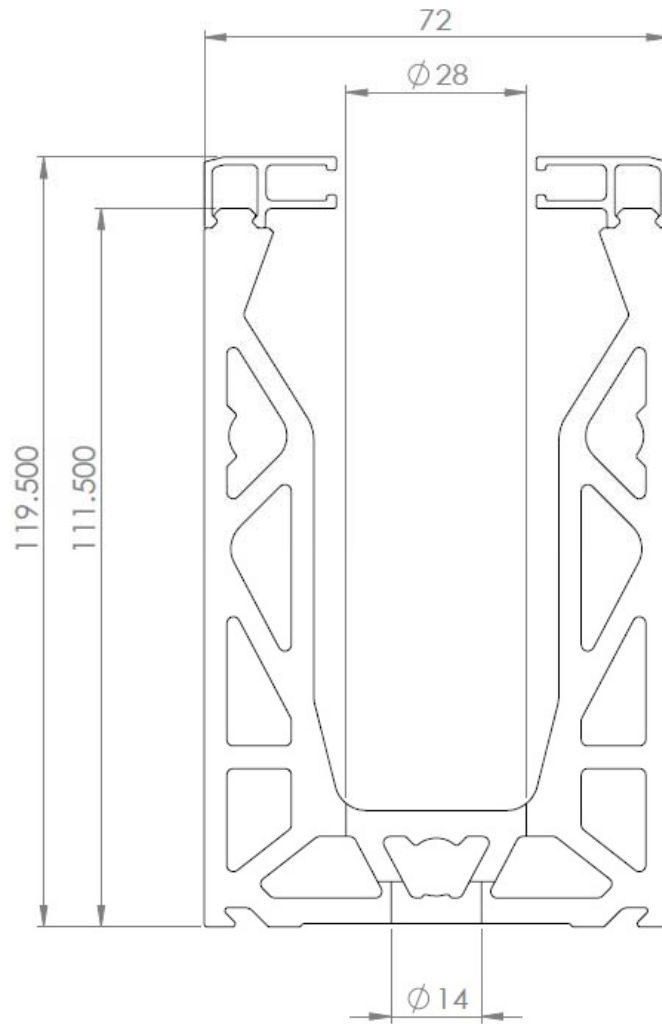


Chart 2 - Load Deflection Curve for Pure Vista Posi- Glaze Balustrade System Fixed into Steel





SECTION B-B
SCALE 1 : 1

Pure Vista Ltd	
Posi-Glaze Channel Profile With Dims	

