TEST REPORT

Lucideon Reference:	UK24124 (QT-73447/1/KNA)/Ref. 3
Project Title:	Load Testing of Pure Vista POSIglaze Glass Balustrade System on Offset Base Plate Tested 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):	Mr Matthew Amos
Report Date:	06 September, 2024
Purchase Order No.:	3527

Miss Lisa Cobden
Testing Team
Reviewer

Mr Matthew Amos
Testing Team
Project Manager

CONTENTS

1 INTRODUCTION

Pure Vista approached Lucideon Limited to test an offset fixing plate system with their POSIglaze Frameless Glass Balustrade System in general accordance with BS 6180:2011 Barriers in and about buildings – Code of practice.

The testing was carried out at Lucideon's Structures Laboratory at Queen's Road, Penkhull, Stoke-on-Trent, ST4 7LQ, and concluded on 29 August 2024.

2 TEST SAMPLES

The sample provided by Pure Vista for testing was a POSIglaze base mounted channel, which was tested with 17.5 mm and 21.5 mm PVB glass. The POSIglaze channel and fixing plate system was installed on a concrete substrate, which was fixed to the laboratory strong floor using 2 No. M32 bolts.

3 TEST EQUIPMENT

- 5 kN Load Cell Serial No. FOR044.
- Linear Transducer Serial No. TRD036.
- Hydraulic Ram + Hand Pump.
- Data Logger Serial No. DAQ029.

4 TEST PREPARATION

For the uniformly distributed line load test the POSIglaze channel and offset fixing plate system was installed to manufacturer's specifications. The fixing plate was installed on the steel substrate using 5 No. M12 concrete screws, and the POSIglaze channel was installed onto the fixing plate using M12 bolts.

Both the POSIglaze channel and the fixing plate used 5 fixings at 200 mm centres, starting 100 mm in from each edge.

Pictures of the sample installation can be seen in Plates 1-2.

A rigid steel frame was assembled and bolted to the laboratory strong floor adjacent to the substrate. They 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 transducer was affixed to it and connected to the data logger.

5 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 height of 1100 mm, measured from the base of the profile.

The linear transducer was connected to the surface of the glass balustrade system at the horizontal centre, at a range of heights specified by the client. The load was measured using the calibrated load cell and deflection was measured using the linear transducer. Data was recorded using the DasyLab data logger.

The height of the transducer for each test is specified in Table 1.

As per the Standard, the balustrade sample was tested until the desired design load was achieved or 25 mm of deflection was reached; after this the load was then increased to observe the load needed to cause 25 mm of deflection for each test, at the client's request.

The applied load for each test is displayed with the results.

6 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, for the required design load.

For these tests, the client had specified a target design load of 0.74 kN/m.

This would classify the balustrade system for use in domestic applications, and areas and walkways not susceptible to overcrowding.

7 RESULTS

Table 1 - Load and Deflection results for POSIglaze Glass Balustrade System on Offset Fixing Plate

Glass Type	Deflection Height (mm)	Required Load (kN/m)	Load Withstood	Deflection at Required Load (mm)	Load at 25 mm Deflection (kN/m)
17.5 mm PVB	1100	0.74	Y	12.79	1.07
	1200		Y	22.24	0.81
	1300		N	-	0.55
21.5 mm PVB	1100		Y	19.10	0.94
	1200		Y	21.40	0.85
	1300		Y	23.01	0.97

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

END OF REPORT

PLATES

Plate 1 – General View of Installation on Steel Substrate

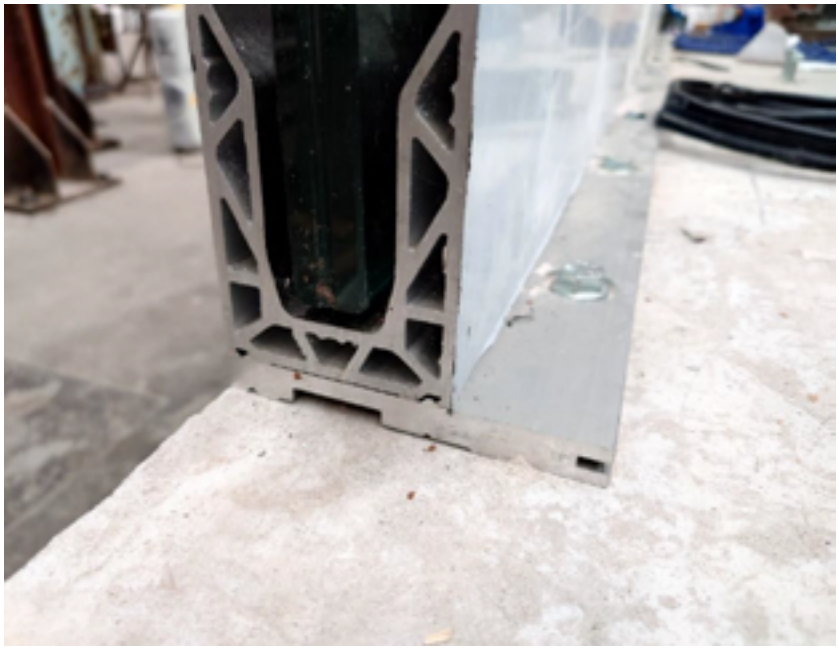

Plate 2 – Close-Up of Installation on Steel Substrate

Chart 1 - Load /Deflection Plots for Pure Vista POSIglaze Glass Balustrade System with 17.5 mm PVB Glass on Offset Base Plate

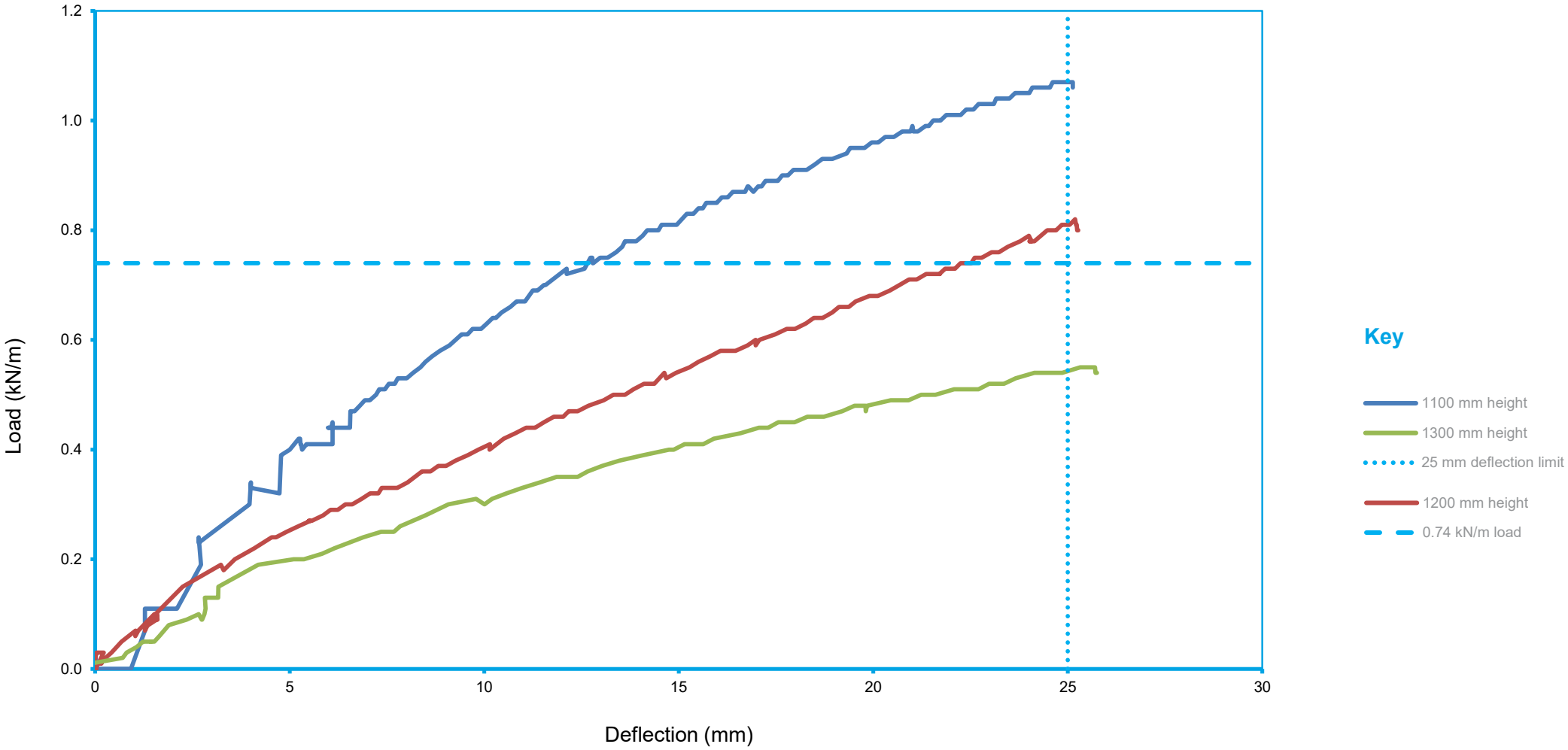

Chart 2 - Load /Deflection Plots for Pure Vista POSIglaze Glass Balustrade System with 21.5 mm PVB Glass on Offset Base Plate