

TEST REPORT

Lucideon Reference: N254792 (QT-80029/2/KNA)/Ref. 10

Project Title: Testing of Pure Vista Posi-Lite Balustrade System when Timber Mounted Using Timber Fixing Plates in Accordance with BS 6180:2011 Barriers In and About Buildings

Client: Pure Vista
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1 INTRODUCTION

Lucideon Limited were commissioned by the client Pure Vista to carry out line load uniformly distributed 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 on 28 November 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:

- Posi-Lite

The system had been designed and intended to be used as a base mounted system for free standing balustrades. The systems and glass were installed by Lucideon personnel.

3 TEST PROGRAMME

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

- Posi-Lite Timber Mounted using Timber Fixing Plates
 - 21.5 mm PVB Glass

A uniformly distributed load was applied to the system using the following glazed section:

- Posi-Lite Timber Mounted using Timber Fixing Plates:
 - 21.5 mm PVB Glass

A figure showing the system is included in Appendix A.

4 TEST EQUIPMENT

- 5 kN Load Cell Reference FOR023.
- Linear Displacement Voltage Transducer Reference TDR024.
- 15 tonne Capacity Hydraulic Ram.
- DasyLab Data Logger DAQ 0031.

5 TEST PREPARATION

For the loading tests, the Posi-Lite system was installed to manufacturer's specifications.

The Posi-Lite balustrade system was mounted to a 150 mm x 120 mm solid timber beam. This timber section was secured into a heavy-duty steel test rig consisting of two parallel steel C-sections acting as a vice. To ensure stability during testing, the timber was fixed in place using caver clamps at both ends. The entire C-section assembly was welded directly to the steel floor plates provide a rigid, non-deflecting base for the load testing.

The Posi-Lite channel was secured to the timber substrate using timber fixing plates. The plates were recessed into pre-routed square housings within the timber, spaced at a frequency of five plates per meter. Each plate was fixed using four 6 mm x 100 mm wood screws. The Posi-Lite channel was then mounted to these plates using M12 bolts.

The glass, having a width of 1 m, was installed and held in position using the glass clamp and fitting bar system with 3 clamps used per meter.

The sample for each test was assembled onto the substrate by Lucideon personnel.

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

6 TEST METHOD

6.1 Horizontal Line Load Testing (HLL)

A uniform horizontal line load was applied to the balustrade using a hydraulic ram and a timber spreader beam. The load was positioned at a height of 1100 mm from finished floor level. To monitor deflection, a Linear Voltage Displacement Transducer (LVDT) was attached to the centre of the glass panel at a height of 1100 mm.

Both the applied force (via a calibrated load cell) and the resulting deflection were captured in real-time using a DasyLab Data Logger.

Testing continued until either the sample failed or the deflection reached a maximum threshold of 25 mm. (See Plate 1 for the test configuration.)

6.2 Uniformly Distributed Load Testing (UDL)

A uniformly distributed load was applied to the balustrade specimen in accordance with the requirements of BS 6180 using an airbag loading system reacting against a rigid reaction board. The air bags were positioned directly against the full height and width of the infill panel, with the reaction board located behind the air bags to provide restraint and ensure uniform load transfer. Load was applied using a regulated air supply to minimise dynamic effects and ensure stable load control. The applied load was monitored continuously using calibrated manometer, while the corresponding horizontal deflection of the balustrade was measured using Linear Voltage Displacement Transducers (LVDT).

Both the applied force and the resulting deflection were captured in real-time using a DasyLab Data Logger.

Testing continued until either the sample failed or the deflection reached a maximum threshold of 25 mm.

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.

Tables 3 and 4 give 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 Posi-Lite system tested under horizontal imposed line load and uniformly distributed load are given in Tables 1 and 2. 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 Posi-Lite Balustrade System Base Mounted onto Timber Using Timber Fixing Plates

System	Substrate	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)
Posi-Lite	Timber	21.5 mm PVB	1100	0.84	0.74	20.17

Table 2 – Loads Achieved by Pure Vista Posi-Lite Balustrade System Base Mounted onto Timber Using Timber Fixing Plates

System	Substrate	Glass	Imposed UDL at 25 mm Deflection (kN/m ²)	Working UDL for System (kN/m ²)	Deflection at Working UDL for System (mm)
Posi-Lite	Timber	21.5 mm PVB	1.08	1	22.53

Table 3 – Summary of Suitability for Use of Pure Vista Posi-Lite Balustrade System Base Mounted onto Timber using Timber Fixing Plates 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)	Timber
			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	✓
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	✓
	(v) 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	(vi) areas having fixed seating within 530 mm of the barrier, balustrade or parapet	1.50	X
Areas with tables or fixed seating	(vii) restaurants and bars	1.50	X
Areas without obstacles for moving people and not susceptible to overcrowding	(viii) stairs, landings corridors ramps	0.74	✓
	(ix) external balconies, including Juliette balconies, edges of roofs, footways, pavements within building cartilage adjacent to basement/sunken areas	0.74	✓
Areas susceptible to overcrowding	(x) footways or pavements less than 3 m wide adjacent to sunken areas	1.50	X

Type of Occupancy for Part of the Building	Examples of Specific Use	Horizontal Uniformly Distributed Line Load (kN/m)	Timber
			21.5 mm PVB Glass @ 1100 mm
	(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
	(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
Vehicular	(xiv) pedestrian areas in car parks, including stairs, landings, ramps, edges of internal floors, footways, edges of roofs	1.50 (Note 2)	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”

Table 4 – Summary of Suitability of Pure Vista Posi-Lite Balustrade System Base Mounted onto Timber using Timber Fixing plates
in Accordance with Table 2 of BS 6180:2011

Type of Occupancy for Part of the Building	Examples of Specific Use	Uniformly Distributed Load Applied to the Infill (kN/m ²)	21.5 mm PVB Glass
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	0.5	✓
	(ii) other residential, i.e. houses of multiple occupancy and balconies, including Juliette balconies and edges of roofs in single-family dwellings	1.0	✓
Offices and work areas not included elsewhere, including storage areas	(iii) light access stairs and gangways not more than 600 mm wide	0.25	✓
	(iv) light pedestrian traffic routes in industrial and storage buildings except designated escape routes	0.5	✓
	(v) areas not susceptible to overcrowding in office and institutional buildings, also industrial and storage buildings except as given above	1.0	✓
Areas where people might congregate	(vi) areas having fixed seating within 530 mm of the barrier, balustrade or parapet	1.5	X
Areas with tables or fixed seating	(vii) restaurants and bars	1.5	X
Areas without obstacles for moving people and not susceptible to overcrowding	(viii) stairs, landings corridors ramps	1.0	✓
	(ix) external balconies including Juliette balconies and edges of roofs; footways and pavements within building cartilage adjacent to basement/sunken areas	1.0	✓
Areas susceptible to overcrowding	(x) footways or pavements less than 3 m wide adjacent to sunken areas	1.5	X
	(xi) theatres, cinemas, discotheques, bars, auditoria, shopping malls, assembly areas, studios; footways or pavements greater than 3 m wide adjacent to sunken areas	1.5	X
	(xii) grandstands and stadia	(Note 1)	-

Type of Occupancy for Part of the Building	Examples of Specific Use	Uniformly Distributed Load Applied to the Infill (kN/m ²)	21.5 mm PVB Glass
Retail areas	(xiii) all retail areas including public areas of banks/building societies or betting shops	1.5	X
Vehicular	(xiv) pedestrian areas in car parks, including stairs, landings, ramps, edges of internal floors, footways, edges of roofs	1.5	X
	(xv) horizontal loads imposed by vehicles	(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

PLATES

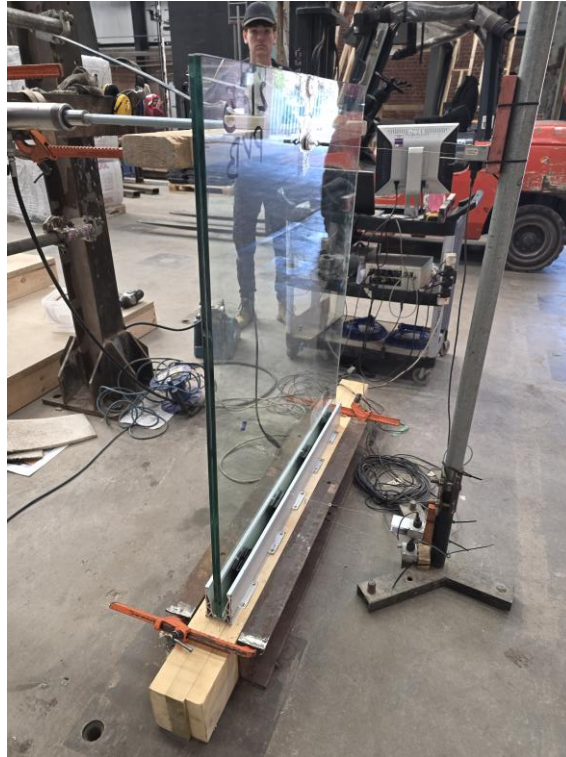


Plate 1 – Generic Test Configuration Horizontal Line Load



Plate 2 – Generic Test Configuration Uniformly Distributed Load



Plate 3 – Timber Fixing Plates

Chart 1 - Load Deflection Curve for Posi-Lite Base Balustrade System Base Mounted into Timber When Subjected to a Uniformly Distributed Line Load

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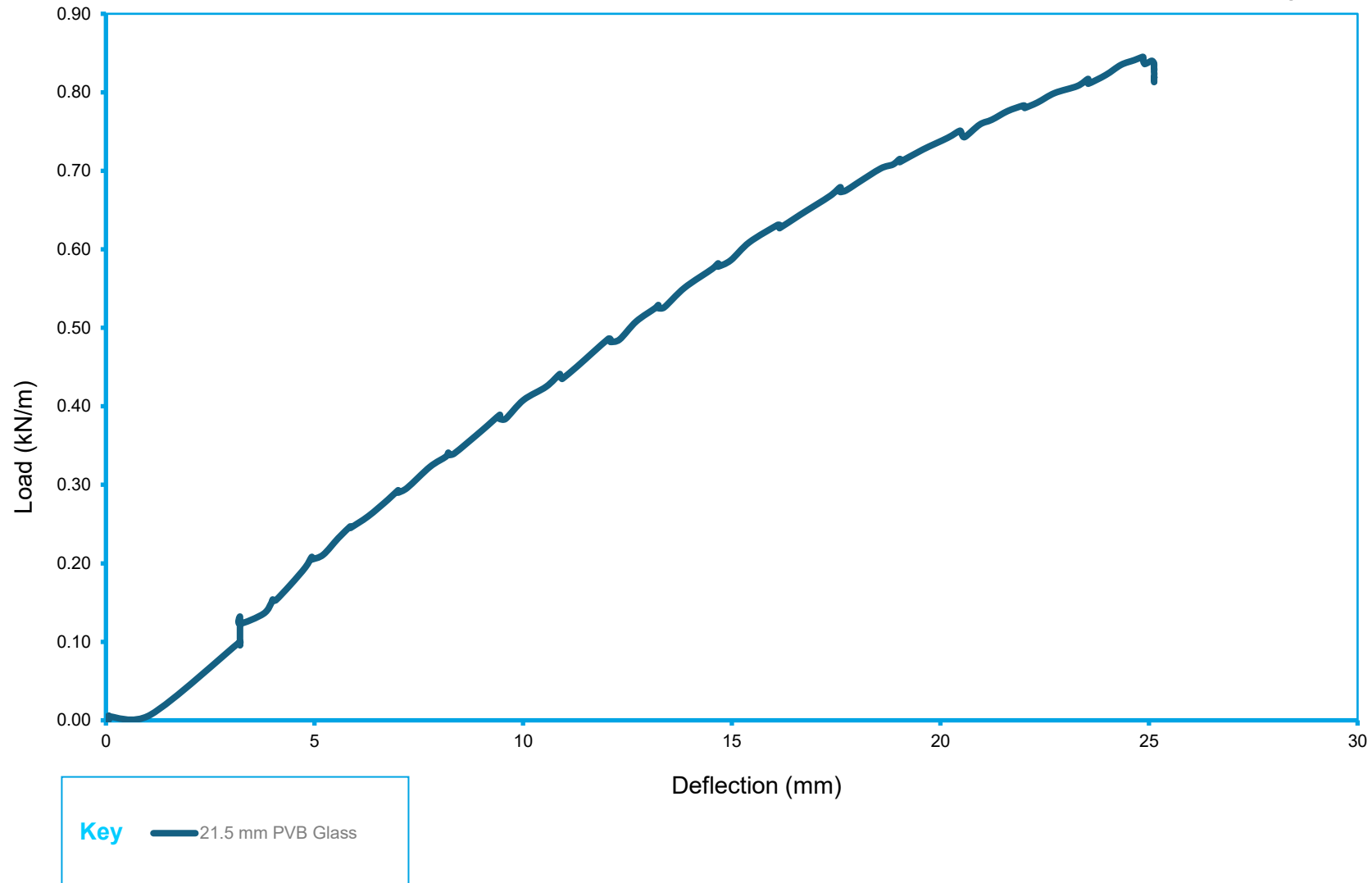
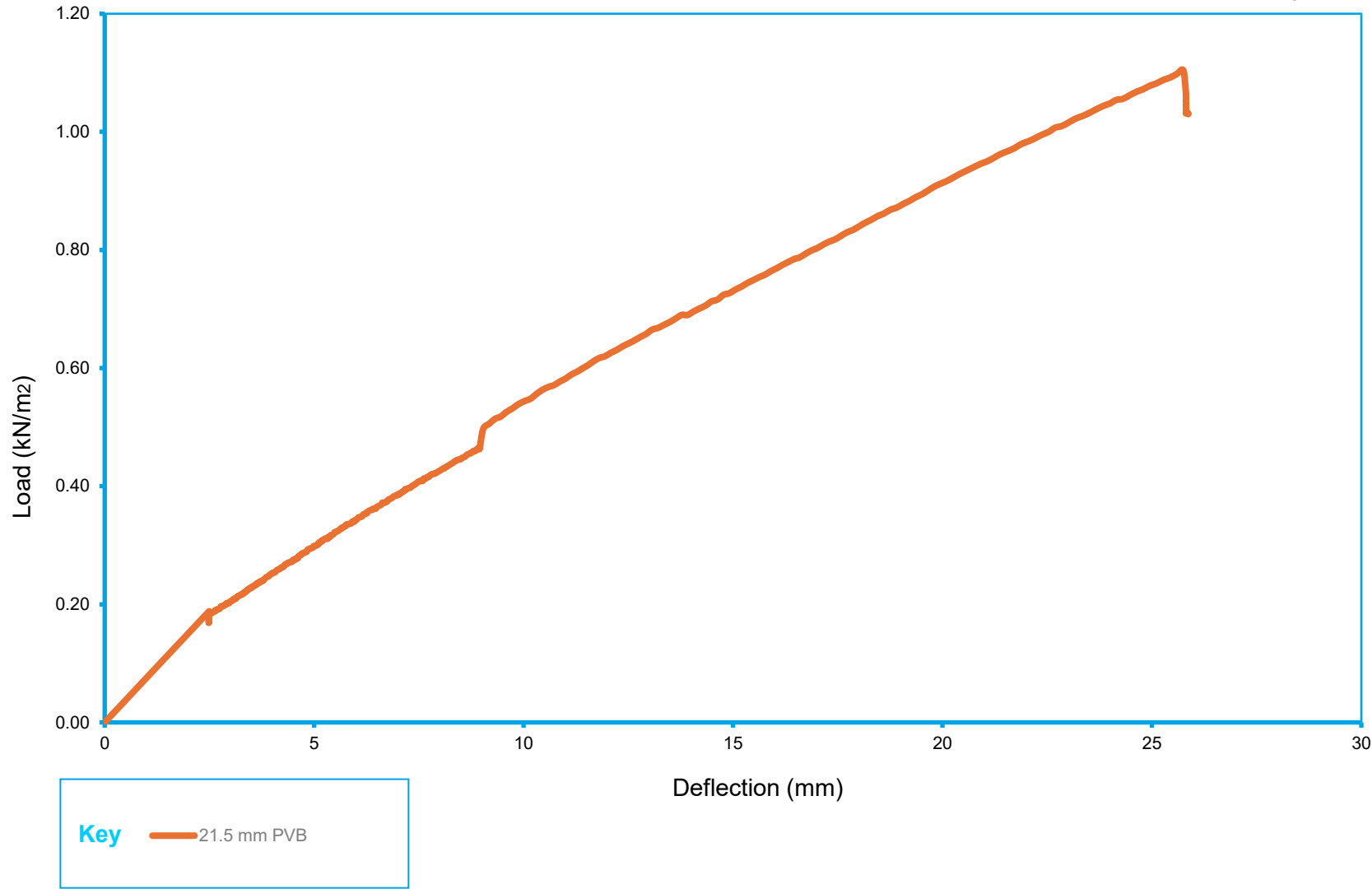
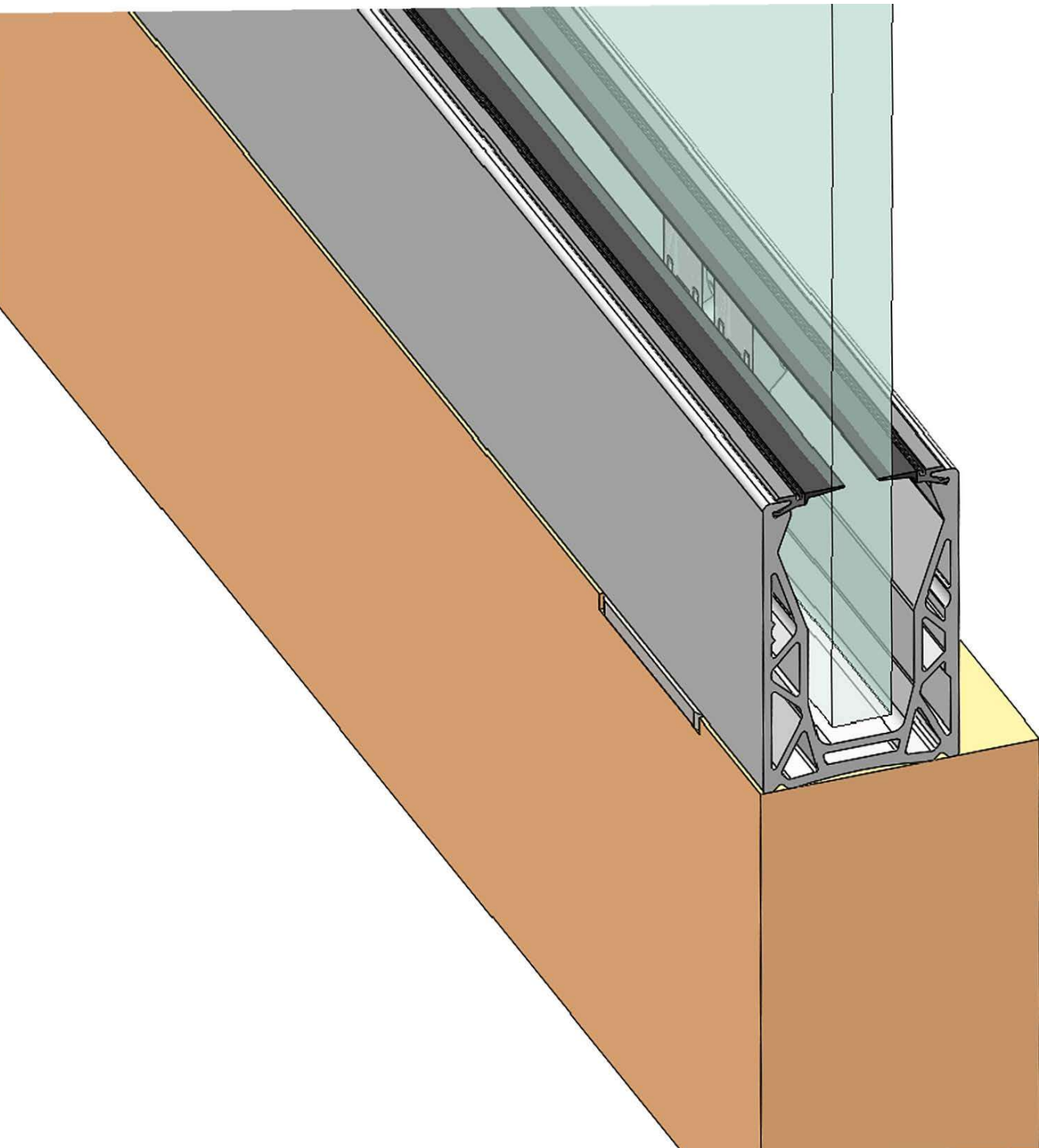


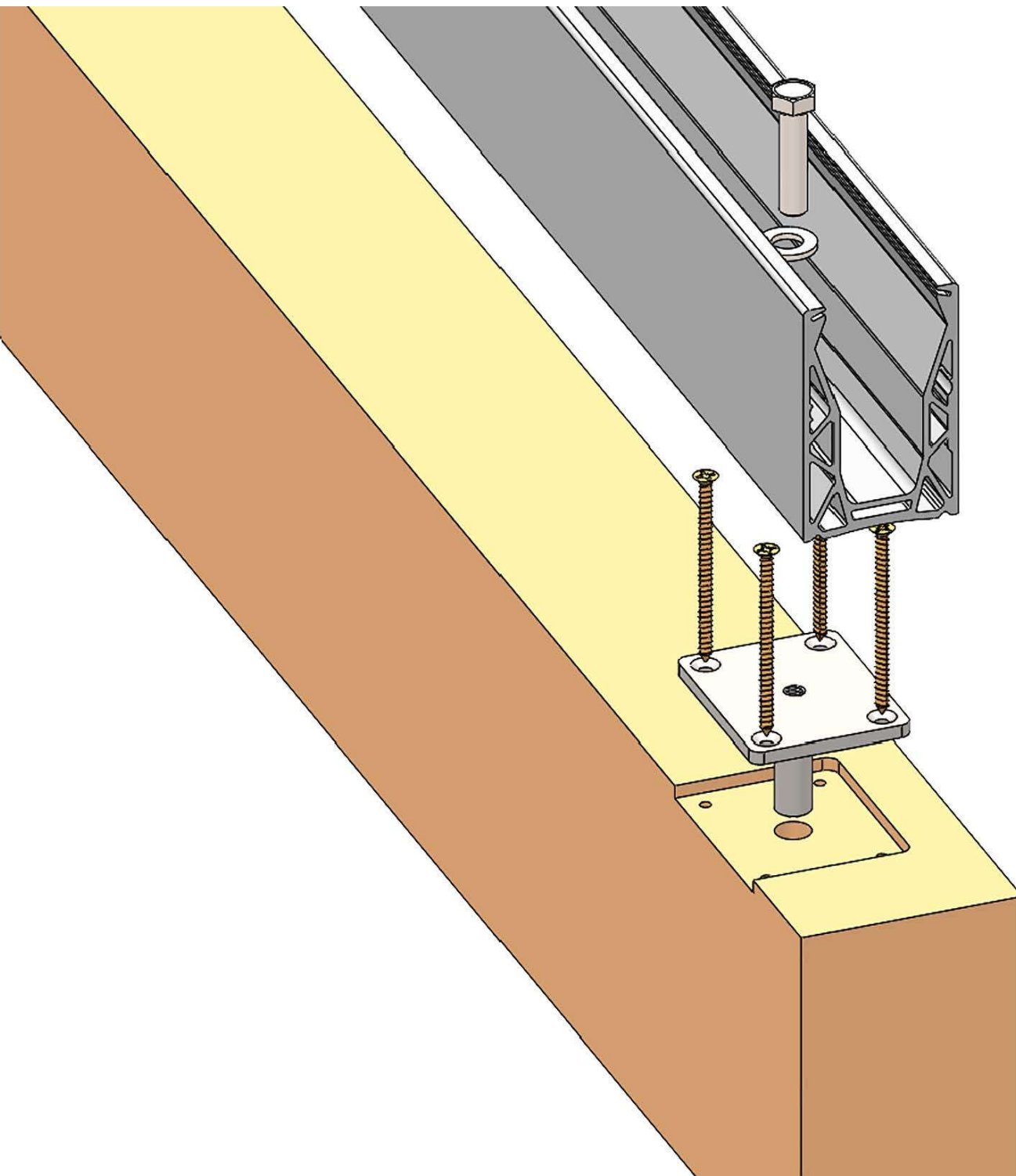
Chart 2 - Load Deflection Curve for Posi-Lite Base Balustrade System Base Mounted into Timber When Subjected to a Uniformly Distributed Load

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DO NOT SCALE DRAWING		REVISION
Purevista		
TITLE: Posiglaze Timber Mounting Plate		
DWG NO.		A4
SCALE:1:2		SHEET 1 OF 1



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Purevista	
TITLE: Posiglaze Timber Mounting Plate	
DWG NO.	A4
SCALE:1:2	SHEET 1 OF 1