

TEST REPORT

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1 INTRODUCTION

Two widths of aluminium balustrade channels were supplied for testing under point load and uniformly distributed load in accordance with BS6180 Barriers in and about buildings, to allow the channels to be classified for use in accordance with BS6399 Part 1. Loading for buildings: Code of Practice for dead and imposed loads

2 TEST SAMPLES

Two width of aluminium channels were received from the client as follows:

- 1 $\frac{1}{2}$ " external width x 4 $\frac{1}{8}$ " high x 1" internal width of channel x 60" long designed to hold glass thickness of 0.450" to 0.515"
- 2 $\frac{3}{4}$ " external width x 4 $\frac{1}{8}$ " high x 1" internal width of channel x 60" long designed to hold glass thickness of 0.710" to 770"

The channels were supplied with 2 $\frac{1}{2}$ " wide x 2 $\frac{7}{8}$ " tall aluminium fixing clips designed to clamp the glass into the channel via an allen key connection to one face of the glass and a plastic isolator to the other.

The base of each channel had 14mm diameter holes designed to accommodate M12 bolts at 200mm centres along the centreline of the base.

The general dimensions of the above components are given in Figure 1.

3 TEST PROGRAMME

A horizontal line load and a uniformly distributed load were carried out on the aluminium channels with the following glass types installed:

- 12mm monolithic
- 15mm PVB laminated glass
- 17.5mm PVB laminated glass
- 19mm PVB laminated
- 19mm monolithic
- 15mm Dupont Sentryglas®
- 19mm Dupont Sentryglas®

4 TEST METHOD

4.1 Horizontal Imposed Loads

The channels were bolted down to the laboratory strong floor at nominally 200mm centres using M12 bolts. The first and last clip was positioned 100mm away from the end of the glass panel. The appropriate thickness glass panel was fitted into the

channel using the aluminium clips at nominally 200mm centres such that the plastic coated clip was to the outside face of the glass and the clip incorporating the tightening device was to the front face of the glass.

A horizontal imposed load was applied to the top edge of the glass to a maximum deflection of 25mm as measured at the top central point of the panel. The load was applied via a hydraulic ram and the deflection measured using a linear voltage displacement transducer.

A general view of the test arrangement is shown in Figure 2.

4.2 Horizontal Uniformly Distributed Load

The test sample was set-up as in 4.1 above. A uniformly distributed load was applied to the glass panel via an air-bag system. The load was applied in 0.1kN/m² increments to a maximum deflection of 25mm as measured at the top central point of the panel.

A general view of the test arrangement is shown in Figure 3.

5 RESULTS

The test was carried out in accordance with the guidance given in BS6180 Barriers in and about buildings. The standard states that a maximum allowable deflection that the free standing glass protective barrier panel can be subjected to is $L/65\text{mm}$ where L is equal to 1300mm; this gives a maximum allowable deflection criteria of 20mm.

This report is a reissued report and assesses the product against the requirements of BS6180:2011. Testing was carried out in 2010 in accordance with BS6180:1990. Subsequently the revised standard has kept the same method of test as the 1990 version but has revised the method of assessment increasing the maximum allowable deflection of the system to 25mm from the previous criteria of 20mm. This has had the effect of increasing the categorisation of the systems for areas of use in accordance with the new standard. The new categorisation classifications are given in Table 1 below;

Table 1

Categorisation of Panelgrip Dry Glaze System Incorporating Various Glass Types and Thickness, in Accordance with BS 6399: Part 1

Type of Occupancy for Part of the Building or Structure	Examples of Specific Use	12mm Monolithic	15mm PVB Laminated	17.5mm PVB Laminated	19mm PVB Laminated	19mm Monolithic	15mm Dupont Sentry	19mm Dupont Sentry
A - 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 (see C3 (ix))	✓	✓	✓	✓	✓	✓	✓
	(ii) Other residential (but also see C)	X	X	X	✓	✓	X	✓
B and E - Offices and work areas not included elsewhere including storage areas	(iii) Light access stairs and gangways not more than 600mm wide	✓	✓	✓	✓	✓	✓	✓
	(iv) Light pedestrian traffic routes in industrial and storage buildings except designated escape routes	✓	✓	✓	✓	✓	✓	✓
	(v) Areas not susceptible to overcrowding in office and institutional buildings also industrial and storage buildings except as given above	X	X	X	✓	✓	X	✓
C3 - Areas without obstacles for moving people and not susceptible to overcrowding	(viii) Stairs, landings, corridors, ramps	X	X	X	✓	✓	X	✓
	(ix) External balconies and edges of roofs. Footways and pavements within building cartilage adjacent to basement/sunken areas	X	X	X	✓	✓	X	✓

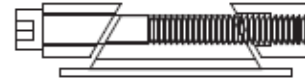
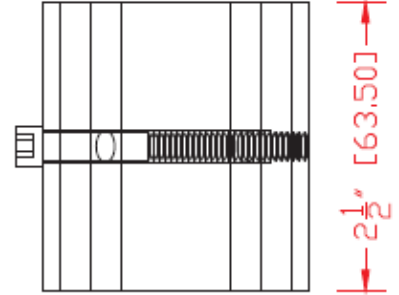
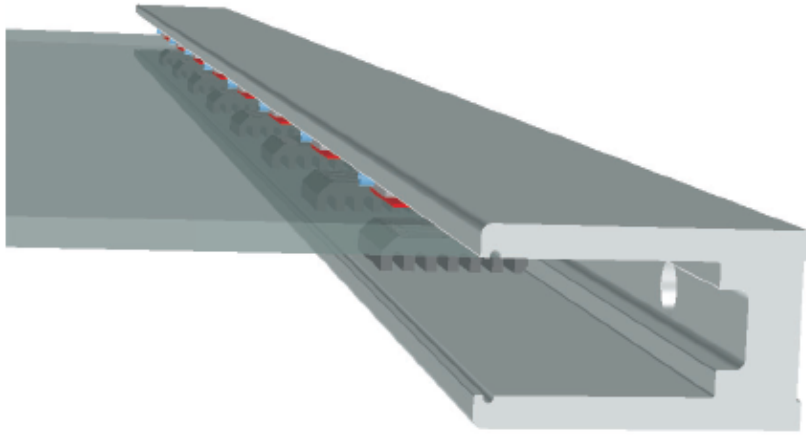
All figures quoted in Table 1 contain no safety factors and are direct loads as achieved by the system under test conditions.

**Plate 1**

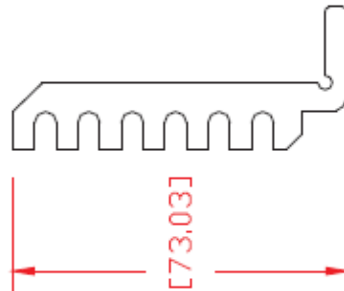
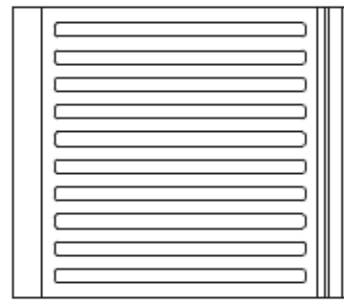
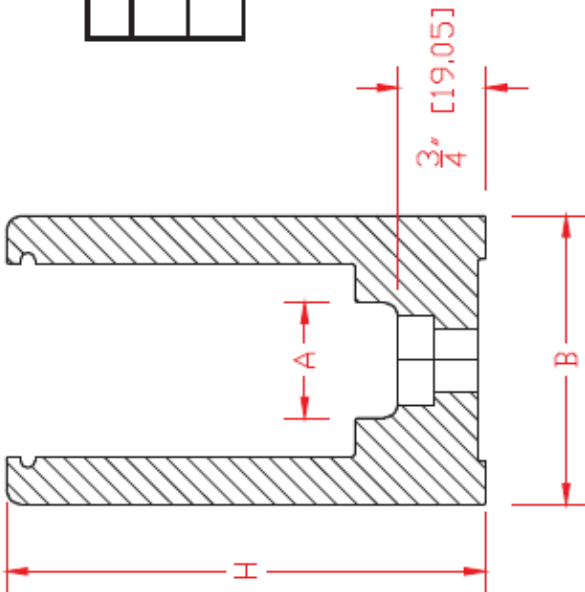
General View of Point Load Test Arrangement

**Plate 2**

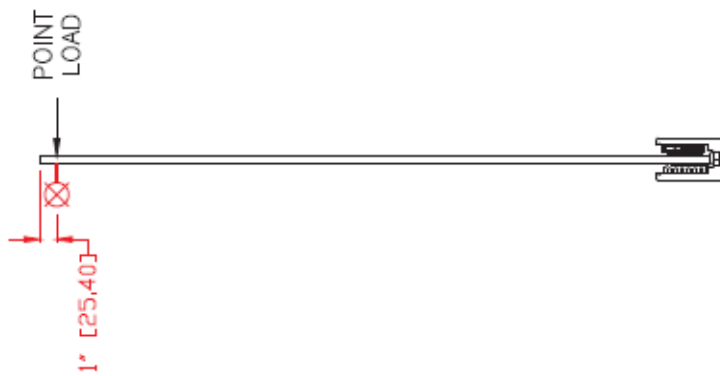
General View of Uniformly Distributed Load Test Arrangement



A	B	H	Glass
1"	2 1/2"	4 1/8"	1/2"
1 1/4"	2 3/4"	4 1/8"	3/4"

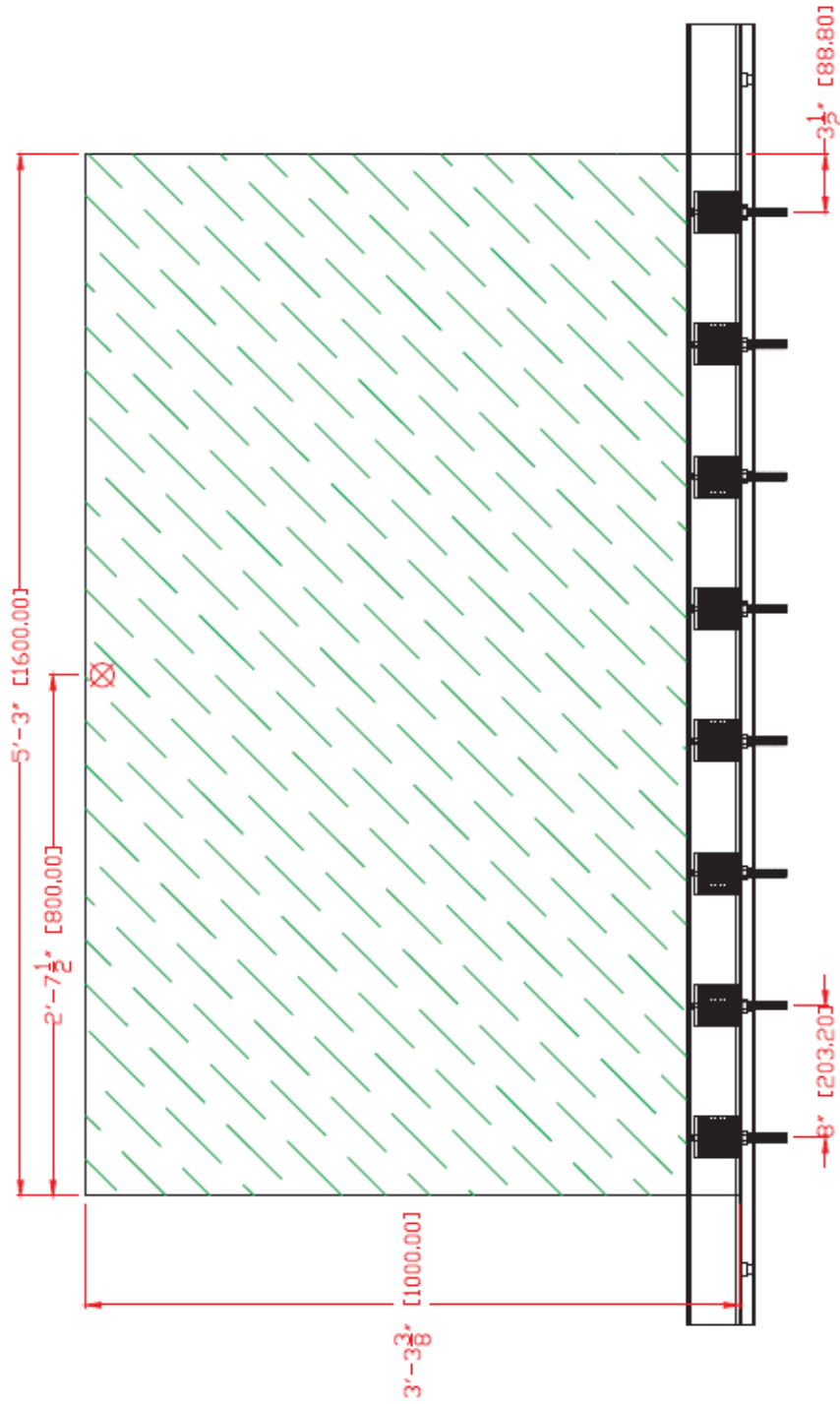


2 7/8" [73.03]



DWG. N°	SCALE:	DATE:	DRAWN BY:
Figure 2	NOT TO SCALE	05/03/2011	A. BELLAMY

Detail and dimensions for point-load tests



TRANSducers

DWG. N°: Figure 3
SCALE: NOT TO SCALE
DATE: 05/03/2011
DRAWN BY: A. BELLAMY

TITLE: Detail and dimensions for uniformly distributed load tests