



10 July 2014

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Doc. No 4944-3918/1

PRODUCT VERIFICATION AND ASSESSMENT REPORT

Client: RAPID EPS
Address: 18 EDOLS ST GEELONG 3220
Subject: EVALUATION OF FIXED EDGE PROTECTION SYSTEM
Client Reference: MR MARK FINEGAN
Client's Order No: TBA
Specification: AS/NZS 4994.1 "Temporary Edge Protection Part1: General Requirements"
Correlation/Report No.: 4944-3918/1
Test Officer: CHRIS VINES
Test Date: 20/05/2013

1.0 INTRODUCTION.

It was requested that a temporary edge protection system for slab edges and roofing be tested in accordance with AS/NZS 4494.2 – 2009. The system was designed specifically for use where the vertical poles could be installed on a flat concrete surface using the appropriate nominated fixtures. Each vertical pole consisted of a vertical square hollow tube (2050mm long, 50mm x 50mm square hollow 3mm thick) with a T shaped base (250mm lateral between fixing points and 200mm to rearwards fixing point and 3mm thick NA007-modified). Each post fixed to the concrete slab using 3 x 16mm dyna-bolts with an embedded depth of 100mm. The guard panels used were as per Rapid EPS item no NA003-modified. Testing of the panels was performed with a single panel in place then repeated with two panels stacked vertically. The test assembly consisted of two vertical poles and one or two panels as needed.

Testing was to include the impact test requirements as the unit could be installed in situations where the base angle could be greater than 15° (suitable for roof installations).

Chris Vines
Senior Metallurgical Engineer
Victoria, AUSTRALIA

ADDRESS: 450 Dynon Rd, West Melbourne VIC 3003 Australia | PHONE +61 3 8398 5900 | FAX +61 3 9687 6990
ALS Industrial Pty Ltd ABN 21 006 353 046 Part of the ALS Laboratory Group



2.0 INWARDS HORIZONTAL STATIC TESTS

2.1 Post Static Load Testing

The subject test post was installed as per the fabricators instructions. The following test parameters were used to generate the test results as listed below;

Test sample:	Post NA007 (modified with bolt extensions)
Test configuration:	Horizontal inwards
Rails/panels:	Not present
Load application point:	In line with top of pole (2260mm tall test point at 2m)
Pre load:	100 N (10kg) for sixty seconds
Proof Test load:	600 N (61 kg)
Load Cell:	0-2000kg tension/compression A1770
Application time:	305 seconds
Measured deflection under load:	55mm
Measured deflection after load:	0mm
Test configuration:	Horizontal outwards
Load application point:	In line with top rail position
Proof Test load:	600 N (61 kg)
Load Cell:	0-2000kg tension/compression A1770
Application time:	305 seconds
Measured deflection under load:	90mm
Measured deflection after load:	40mm
Test configuration:	Horizontal outwards
Ultimate load:	1200 N (122 kg)
Load Cell:	0-2000kg tension/compression A1770
Application time:	305 seconds
Result:	No structural failure observed and deflections at proof load were less than 101mm - Complies



2.2 Panel Static Load Testing

Test sample:	Top of panel between posts (lowest panel only)	
Rail configuration:	2 x posts connected with 1 x panel on 2700mm centres	
Panels:	Steel NA003-modified	
Load configuration:	Vertical down	
Load application point:	In line with top of panel	
Pre load:	100 N (10kg) for sixty seconds	
Load Cell:	0-2000kg tension/compression A1770	
Test load:	600 N (61 kg)	
Load Cell:	0-2000kg tension/compression A1770	
Application time:	305 seconds	
Measured deflection under load:	4mm	
Measured deflection after load:	0mm	
Load configuration:	Horizontal inwards	
Load application point:	In line with top of panel (single and double)	
Pre load:	100 N (10kg) for sixty seconds	
Load Cell:	0-2000kg tension/compression A1770	
Test load:	600 N (61 kg)	
Load Cell:	0-2000kg tension/compression A1770	
Application time:	305 seconds	
Measured deflection under load:	33mm (single bottom)	95mm (double top)
Measured deflection after load:	0mm (single bottom)	15mm (double top)
Load configuration:	Horizontal outwards	
Load application point:	In line with top rail	
Pre load:	100 N (10kg) for sixty seconds	
Load Cell:	0-2000kg tension/compression A1770	
Test load:	600 N (61 kg)	
Load Cell:	0-2000kg tension/compression A1770	
Application time:	305 seconds	
Measured deflection under load:	22mm (single bottom)	80mm (double top)
Measured deflection after load:	0mm (single bottom)	4mm (double top)

Result: No structural failure observed and deflections at proof load were less than 101mm - Complies
Top rail only was tested as it was the same as the mid rail.



Test sample:	Mid panel (mid-section)	
Rail configuration:	2 x posts connected with 1 and 2 panels	
Panels:	Steel NA003-modified	
Load configuration:	Horizontal Out	
Load application point:	Mid panel on 200mm disk	
Pre load:	100 N (10kg) for sixty seconds	
Load Cell:	0-2000kg tension/compression A1770	
Test load:	600 N (61 kg)	
Load Cell:	0-2000kg tension/compression A1770	
Application time:	305 seconds	
Measured deflection under load:	51mm (single bottom)	72mm (double top)
Measured deflection after load:	3mm (single bottom)	0mm (double top)

Result: No structural failure observed and deflections at proof load were less than 101mm - Complies

3.0 DYNAMIC TESTING

The subject test posts were installed as per the fabricators instructions and as per the previous samples.

The following test parameters were used to generate the test results as listed below;

3.1 Post tests

Test sample:	Test posts
Test configuration:	No panel installed
Panels:	Steel NA003-modified
Load application point:	In line with top of panel (single and double)
Impact mass:	60 kg
Impactor size:	300mm x 300mm face with 18mm rubber
Swing height:	1m
Dynamic deformation:	<401mm
Remarks:	No detachments or structural failures observed.
Result:	Complies



Test sample:	Test posts and panel
Test configuration:	2 x posts connected with 2 x panels
Panels:	Steel NA003-modified
Load application point:	Mid-point of top and bottom panel
Impact mass:	60 kg
Impactor size:	300mm x 300mm face with 18mm rubber
Swing height:	1m
Dynamic deformation:	<401mm
Remarks:	No detachments or structural failures observed.
Result:	Complies

Test sample:	Test posts and panel
Test configuration:	2 x posts connected with 1 x panel
Panels:	Steel NA003-modified
Load application point:	In line with bottom kick board section of panel
Impact mass:	60 kg
Impactor size:	300mm x 300mm face with 18mm rubber
Swing height:	1m
Dynamic deformation:	<401mm
Remarks:	No detachments or structural failures observed.
Result:	Complies

5.0 REMARKS

The as supplied posts (NA007 modified) and panels (NA003 modified) comply with AS/NZS 4994.1-2009 appendices A, B, C and D when secured to a concrete type floor with 3 x dynabolts per post in a two post configuration.



Figure: 1
Subject: General assembly of the panels (single only) ready for impact testing of the bottom section



Figure: 2
Subject: Vertical post foot bolting configuration (NA007 modified)



Figure: 3
Subject: Top panel ready for mid-point impact test



Figure: 4
Subject: Bottom panel outwards horizontal load. .