**Temporary Edge Protection Products**

**Testing Report**

Testing Report Number : FT141014-01-AWS

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Client

 **All Safework Pty Ltd**

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Joon man Yoo Corporate Signatory

Principal Mechanical Engineer

**SCOPE**

This report included following Edge Protection Systems and Independent Design Assessment and Testing Carried.

1. Edge Bracket Assembly
2. Tile Bracket Assembly
3. Gable Bracket Assembly
4. Garage Bracket Assembly
5. **INTRODUCTION**

FABTECH was engaged to perform an independent Design Assessment and Testing above Systems. Those systems were to be tested to determine its complying to the requirements of AS/ZNS 4994.1:2009 Temporary Edge Protection Part 1: General requirements. Appendices A. B and C

These four assemblies Product connect to Permanent testing Rig housing steel Frames providing a support for vertical post.

The completed system is designed to mitigate roof workers from falling and consequently designed to withstand impact only.

The tests the system were conducted at Factory #2, 375-5 Jeonui-Myun Sejong-City Korea and the testing was witnessed by FABTECH Principal Mechanical Engineer, Joon Man Yoo on 8,9,10 October 2014.

Testing was restricted to outward and inward static loading of a post and outward Impact of post

1. **CONCLUSIONS**

The components of the described Edge Protection Assembly System were able to sustain the following tests specified in AS/NZS 4994.1:2009, without exceeding the specified deflection limits, becoming detached or suffering structural failure.

1. Appendix A; Horizontal outward static loads (600 N) applied on top rail position of a centra post,
2. Appendix A; Horizontal outward static loads (1200 N) applied on top rail position of a centra post,
3. Appendix B; Horizontal inward static loads (600 N) applied on top rail position of a centra post,
4. Appendix C; Dynamic outward impact applied on top rail position of a centra post,
5. **TESTING PROCEDURE**
	1. Dimensional Check

The critical dimensions of each component of each system were measured. Measured values were then checked against those shown on the manufacturers drawings attached in Appendix 1. This important to ensure that the components are manufactured to the designers standard as variations on section thickness and weld procedures may decrease the capability of the system to perform its task.

***Appendix 1 : Manufacturer’s Drawings***

1. Edge Bracket Assembly ------------------- Figure 0.

AF-K1001-1, AF-J1001L, AF-P1001F

1. Tile Bracket Assembly --------------------- Figure 0.

AF-TB1001-0, AF-P1001F

1. Gable Bracket Assembly ------------------ Figure 0.

AF-GB1001, AF-GB1001-T, AF-GB1001-LR, AF-P1001F

1. Garage Bracket Assembly ---------------- Figure 0.

AF-G1001S, AF-G1001S-03, AF-P1001F

* 1. Static Testing

The Static tests required a means of applying and static test loads. An digital weight used to test loads during the tests. The digital weight are pictured in Figure 0.

* 1. Dynamic Testing

The dynamic tests required the use of a sand bag pendulum. A pendulum was constructed of 300 x 300 x 300mm, Polybag filled with sand equipment of the standard. The pendulum was weighed using digital weight readout and found to be 62 kg. This exceeds the 60 kg mass required by the standard.

The pendulum was suspended from a pin, allowing it to rotate freely without excessive friction. The pin was attached to a purpose built frame Test Rig to ensure it remained independent of the test structure. The pendulum is shown on Figure 0.

* 1. Acceptance Criteria
		1. Static Testing of posts (Appendix A of AS/NZS 4994.1:2009)

The standard gives the following acceptance criteria for the static testing of end posts:

1. Under a proof load of 600 N, Inwards or outwards, the deflection shall not reach 101mm.
2. Under the maximum test load of 1200 N, the post and any part of the supporting structure shall not suffer structural failure.
	* 1. Dynamic Testing of Posts (Appendix C of AS/NZS 4994.1:2009)

The standard gives the following acceptance criteria for the dynamic testing of posts:

1. Under test, the deflection of the top of the post, when tested alone, shall not reach 401 mm, measured horizontally outward.
2. No Component of the tested assembly shall become detached.
3. No part of the tested assembly shall suffer structural failure.
	1. Specifications

AS 4994.1:2009 “Temporary Edge Protection, Part 1 : General Requirements”

1. **RESULTS**
	1. Dimensional check

All components fabrication of and assembly systems are “Correct” with drawings and within allowance required by AS/NZS 4994.1:2009 Section2 and Section 3.

* 1. The results for the test conducted on the Edge Protection Systems are summarized in Table 1.

The deflection limits applicable to each test are given in the Table 1.

***Table 1 : Results for testing the Edge Protection Systems***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **APPEMDIX** | **Test Description** | **DeflectionLimits(mm)** | **Edge BracketAssembly** | **Tile Bracket Assembly** | **Gable Bracket Assembly** | **Garage Bracket Assembly** |
|  |  | **Deflection(mm)** | **Pass/Fail** | **Deflection(mm)** | **Pass/Fail** | **Deflection(mm)** | **Pass/Fail** | **Deflection(mm)** | **Pass/Fail** |
| A | Post; Static;Horizontal outward 600 N | 101 |  | pass |  | pass |  | pass |  | pass |
| Post; Static;Horizontal outward 1200 N | No structural failure | NA | pass | NA | pass | NA | pass | NA | pass |
| B | Post; Static;Horizontal inward 600 N | 101 |  | pass |  | pass |  | pass |  | pass |
| C | Post; Dynamic;Horizontal outward | 401 |  | pass |  | pass | NA | pass |  | pass |

The components tested were able to sustain the specified test loads without exceeding the specified deflection limits, becoming detached or suffering structural failure.







