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For the attention of: Mr T McMahon

# Technical Report

Subject: TESTING OF TEMPORARY GUARD RAIL REFERENCE “NON-TRIP RADIUS US” IN ACCORDANCE WITH EN 13374: 2004

Your ref:

Our ref: SPC0178165/0936/5

Date: 5 October 2009

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Report signed by: Nathan Wright  
Position: PPE Technologist  
Department: Safety Product Centre

## INTRODUCTION

A sample of temporary guard rail, reference “Non-Trip Radius US”, was received by SATRA on 1 October 2009, for limited testing in accordance with EN 13374: 2004 Temporary edge protection systems – Product specification & test methods. Testing was carried out on 1 October 2009, in the presence of Mr Tony McMahon, of AKM Fabrications Ltd

## CONCLUSIONS

The sample of temporary guard rail, reference “Non-Trip Radius US”, as received by SATRA on 1 October 2009, was tested in accordance with EN 13374: 2004, and achieved the results given in the table below:

SAMPLE REFERENCE	STANDARD	CLAUSE / TEST	PASS / FAIL
Non-Trip Radius US	EN 13374: 2004	5.1.1 Basic requirements	PASS
		5.1.3 Principal guardrail	PASS
		5.1.4 Toeboard	PASS
		5.2.1 Additional requirements – Edge protection system class A	PASS
		6.3.1.1 Static loads – Horizontal load $F_H$ – General	PASS
		6.3.6 Accidental loading	PASS

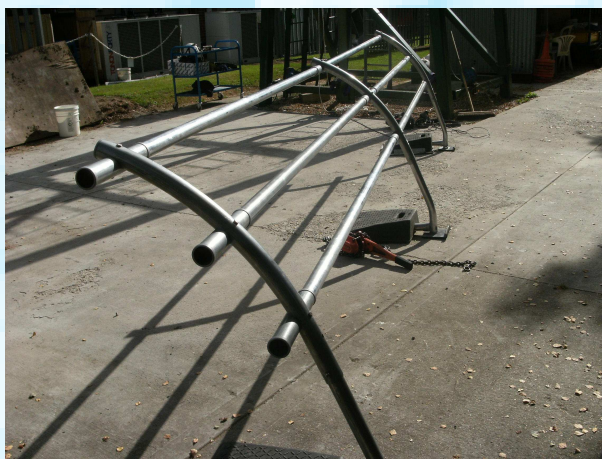


Figure 1 - Guardrail system reference “Non-Trip Radius US”

## TEST RESULTS

EN 13374: 2004 CLAUSE / TEST	EN 13374: 2004 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
5.1.1 Basic requirements	<p>An edge protection system shall comprise at least a principal guardrail and an intermediate guardrail or intermediate protection</p> <p>It shall be possible to attach a toeboard</p>	<p>Edge protection system includes a principle guardrail and an intermediate guardrail</p> <p>Optional toeboard can be attached to base of legs</p>	PASS
5.1.3 Principal guardrail	The distance between the uppermost part of the edge protection and the working surface shall be at least 1.0 m measured perpendicular to the working surface	Height of principle guardrail = 1.12 m	PASS
5.1.4 Toeboard	<p>The upper edge of the toeboard shall be at least 150 mm above the working surface</p> <p>The toeboard shall be designed to avoid gaps between it and the working surface on normally a flat working surface</p> <p>If there are gaps, a sphere with a diameter of 20 mm shall not pass through them</p>	<p>Height of optional toeboard = 150 mm</p> <p>No gap is created between the toeboard and working surface when correctly installed</p> <p>Not applicable</p>	PASS

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5.2.1 Additional requirements – Edge protection system class A	<p>The inclination of edge protection system class A shall not deviate from the vertical by more than 15 °</p> <p>If an intermediate guardrail is provided, any gap shall be so dimensioned that a sphere of 470 mm diameter will not pass through the protection</p> <p>If there is no intermediate guardrail or if it is not continuous, the edge protection system shall be so dimensioned that a sphere with a diameter of 250 mm will not pass through it</p> <p>If it is not possible to verify the load requirements by calculation, the static load tests shall be carried out. In this case, to comply with this standard:</p> <p>a) On the completion of the deflection tests, the adjusted elastic deflection, <math>\delta</math>, shall not be greater than 55 mm</p> <p>b) On completion of the strength tests, the adjusted strength, <math>R_u</math>, shall be not less than 1.2 times the maximum test load</p> <p>c) The residual deflection, <math>\delta_3</math>, shall not exceed 10 % of the deflection at maximum load, <math>\delta_{max}</math></p>	<p>Approximate angle of inclination of edge protection = 10° at base (uprights curve towards rear of edge protection)</p> <p>Distance between principle and first intermediate guardrail = 335 mm</p> <p>Distance between first &amp; second intermediate guardrails = 255 mm</p> <p>Not applicable</p> <table border="0" data-bbox="790 1294 1316 1400"> <tr> <td>Position</td> <td>Elastic deflection / mm</td> </tr> <tr> <td>Top rail, midspan</td> <td>10</td> </tr> <tr> <td>Top rail, on upright</td> <td>15</td> </tr> </table> <table border="0" data-bbox="790 1467 1316 1572"> <tr> <td>Position</td> <td>Maximum load / kN</td> </tr> <tr> <td>Top rail, midspan</td> <td>0.78</td> </tr> <tr> <td>Top rail, on upright</td> <td>0.74</td> </tr> </table> <table border="0" data-bbox="790 1639 1316 1744"> <tr> <td>Position</td> <td>Residual deflection / mm</td> </tr> <tr> <td>Top rail, midspan</td> <td>0</td> </tr> <tr> <td>Top rail, on upright</td> <td>0</td> </tr> </table>	Position	Elastic deflection / mm	Top rail, midspan	10	Top rail, on upright	15	Position	Maximum load / kN	Top rail, midspan	0.78	Top rail, on upright	0.74	Position	Residual deflection / mm	Top rail, midspan	0	Top rail, on upright	0	<p>PASS</p>
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6.3.1.1 Static loads – Horizontal load $F_H$ – General	Each edge protection and each of its components, except toeboards, shall be designed to withstand a load $F_{HI} = 0.3$ kN applied perpendicular to the axis of the post	Position: Top rail, midspan 0.3 kN sustained for 1 minute without failure  Position: Top rail, upright 0.3 kN sustained for 1 minute without failure	PASS
6.3.6 Accidental loading	Any guardrail or intermediate guardrail or toeboard, regardless of its method of support, shall be capable of resisting a downwards point load $F_D = 1.25$ kN on a length of 100 mm	Position: Top rail, midspan 1.25 kN sustained for 1 minute without failure  Position: Top rail, upright 1.25 kN sustained for 1 minute without failure	PASS

\*\*\*\*\* END OF REPORT \*\*\*\*\*

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