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Seymour Court  
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Cheshire  
WA7 1SY

For the attention of: Mr A Chapman

# Technical Services Report

Subject: TESTING OF MOBILE MAN  
ANCHORS IN ACCORDANCE WITH  
EN 795: 1997

Firm: Safesite Limited  
Our ref: SPC00440/1/PJD/NW  
Your ref:  
Date: 31 March 2006

## Conditions of Issue:

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Tests marked † are not UKAS accredited.

## INTRODUCTION

Samples of deadweight anchor devices, as detailed in table 1, were received by SATRA on 18 January 2006, for testing in accordance with EN 795: 1997 for a class E device. Testing was carried out between 6 & 7 February and on 20 March 2006, in the presence of Mr Andrew Chapman and Mr Graham Willmott of Safesite Limited.

The man anchor consists of a central four-point hub (containing attachment handle), onto which a series of masses and extension arms are fitted. In addition, an energy-absorbing spring was fitted to the attachment handle on the central hub – total weight of the anchor assembly was 250 kg. See figures 1 & 2 for test configuration

The man anchors were tested on two types of roof surface:

1. Single-ply PVC membrane, mounted on foam insulation to simulate typical roof construction
2. Loose stone chipping on tar surface, made up from 3 separate boards

Each roof surface was thoroughly wetted before the man anchor was mounted, and again before dynamic testing.

Table 1 – Details of samples

SAMPLE REFERENCE	DESCRIPTION
21AS Natural Flat	Flat rubber pads, adhered directly to masses
52BS Flat	Flat rubber pads, adhered directly to masses
52BS Cup type	Rubber boots, held around masses, with circular ‘cup’ formations on bottom side
21AS Cup type	Rubber boots, held around masses, with circular ‘cup’ formations on bottom side

## TEST RESULTS

Table 2 – Testing of man anchor reference “21AS Natural Flat” (See note 1)

EN 795: 1997 CLAUSE / TEST	EN 795: 1997 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.3.5 Dynamic performance	When tested with a rigid steel mass of 100 kg, the test mass shall be arrested	Roof surface: Single-ply membrane Attachment directly to handle 12 masses fitted to anchor	PASS
	Displacement, <i>L</i> , of the centre of mass of the deadweight anchor device shall not exceed 1 m	100 kg mass arrested by man anchor  <i>L</i> = 0.48 m <i>H</i> = 0.61 m	
	Displacement, <i>H</i> , of the 100 kg mass shall not exceed 1 m after 3 minutes		

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EN 795: 1997 CLAUSE / TEST	EN 795: 1997 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.3.5 Dynamic performance	<p>When tested with a rigid steel mass of 100 kg, the test mass shall be arrested</p> <p>Displacement, <math>L</math>, of the centre of mass of the deadweight anchor device shall not exceed 1 m</p> <p>Displacement, <math>H</math>, of the 100 kg mass shall not exceed 1 m after 3 minutes</p>	<p>Roof surface: Single-ply membrane</p> <p>Attachment to spring</p> <p>12 masses fitted to anchor</p> <p>100 kg mass arrested by man anchor (See figure 2)</p> <p><math>L = 0.50</math> m</p> <p><math>H = 0.76</math> m</p>	PASS
		<p>Roof surface: Single-ply membrane</p> <p>Attachment to spring</p> <p>Man anchor reduced to 8 masses</p> <p>100 kg mass arrested by man anchor</p> <p><math>L = 0.72</math> m</p> <p><math>H = 0.96</math> m</p>	PASS
		<p>Roof surface: Single-ply membrane</p> <p>Attachment to spring</p> <p>Man anchor reduced to 10 masses</p> <p>100 kg mass arrested by man anchor</p> <p><math>L = 0.42</math> m</p> <p><math>H = 0.56</math> m</p>	PASS
		<p>Roof surface: Stone chippings</p> <p>Attachment to spring</p> <p>12 masses fitted to anchor</p> <p>100 kg mass arrested by man anchor</p> <p><math>L = 0.70</math> m</p> <p><math>H = 0.96</math> m</p>	PASS



Table 3 – Testing of man anchor reference “52BS Flat” (See note 1)

EN 795: 1997 CLAUSE / TEST	EN 795: 1997 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.3.5 Dynamic performance	<p>When tested with a rigid steel mass of 100 kg, the test mass shall be arrested</p> <p>Displacement, <i>L</i>, of the centre of mass of the deadweight anchor device shall not exceed 1 m</p> <p>Displacement, <i>H</i>, of the 100 kg mass shall not exceed 1 m after 3 minutes</p>	<p>Roof surface: Single-ply membrane</p> <p>Attachment directly to handle</p> <p>12 masses fitted to anchor</p> <p>100 kg mass arrested by man anchor</p> <p><i>L</i> = 0.74 m</p> <p><i>H</i> = 0.85 m</p>	PASS
		<p>Roof surface: Single-ply membrane</p> <p>Attachment to spring</p> <p>12 masses fitted to anchor</p> <p>100 kg mass arrested by man anchor</p> <p><i>L</i> = 0.52 m</p> <p><i>H</i> = 0.83 m</p>	PASS
		<p>Roof surface: Stone chippings</p> <p>Attachment directly to handle</p> <p>12 masses fitted to anchor</p> <p>100 kg mass arrested by man anchor</p> <p><i>L</i> = 0.96 m</p> <p><i>H</i> = 0.98 m</p>	PASS
		<p>Roof surface: Stone chippings</p> <p>Attachment to spring</p> <p>12 masses fitted to anchor</p> <p>100 kg mass arrested by man anchor</p> <p><i>L</i> = 0.47 m</p> <p><i>H</i> = 0.70 m</p>	PASS
		<p>Roof surface: Stone chippings</p> <p>Attachment to spring</p> <p>Man anchor reduced to 10 masses</p> <p>100 kg mass arrested by man anchor</p> <p><i>L</i> = 0.71 m</p> <p><i>H</i> = 0.86 m</p>	PASS

Table 4 – Testing of man anchor reference “52BS Cup type” (See note 1)

EN 795: 1997 CLAUSE / TEST	EN 795: 1997 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.3.5 Dynamic performance	<p>When tested with a rigid steel mass of 100 kg, the test mass shall be arrested</p> <p>Displacement, <i>L</i>, of the centre of mass of the deadweight anchor device shall not exceed 1 m</p> <p>Displacement, <i>H</i>, of the 100 kg mass shall not exceed 1 m after 3 minutes</p>	<p>Roof surface: Single-ply membrane</p> <p>Attachment directly to handle</p> <p>12 masses fitted to anchor</p> <p>100 kg mass arrested by man anchor</p> <p><i>L</i> = 0.77 m</p> <p><i>H</i> = 0.93 m</p>	PASS
		<p>Roof surface: Single-ply membrane</p> <p>Attachment to spring</p> <p>12 masses fitted to anchor</p> <p>100 kg mass arrested by man anchor</p> <p><i>L</i> = 0.69 m</p> <p><i>H</i> = 0.96 m</p>	PASS
		<p>Roof surface: Stone chippings</p> <p>Attachment directly to handle</p> <p>12 masses fitted to anchor</p> <p>100 kg mass arrested by man anchor</p> <p><i>L</i> = 0.98 m</p> <p><i>H</i> = 0.97 m</p>	PASS
		<p>Roof surface: Stone chippings</p> <p>Attachment to spring</p> <p>12 masses fitted to anchor</p> <p>100 kg mass arrested by man anchor</p> <p><i>L</i> = 0.43 m</p> <p><i>H</i> = 0.68 m</p>	PASS
		<p>Roof surface: Stone chippings</p> <p>Attachment to spring</p> <p>Man anchor reduced to 10 masses</p> <p>100 kg mass arrested by man anchor</p> <p><i>L</i> = 0.48 m</p> <p><i>H</i> = 0.74 m</p>	PASS

Table 5 – Testing of man anchor reference “21AS Cup type” (See note 2)

EN 795: 1997 CLAUSE / TEST	EN 795: 1997 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.3.5 Dynamic performance	<p>When tested with a rigid steel mass of 100 kg, the test mass shall be arrested</p> <p>Displacement, <i>L</i>, of the centre of mass of the deadweight anchor device shall not exceed 1 m</p> <p>Displacement, <i>H</i>, of the 100 kg mass shall not exceed 1 m after 3 minutes</p>	Roof surface: Single-ply membrane Attachment to spring	PASS
		100 kg mass arrested by man anchor	
		L = 0.54 m H = 0.84 m	
		Roof surface: Stone chippings Attachment to spring	PASS
		100 kg mass arrested by man anchor	
		L = 0.24 m H = 0.42 m	
		Roof surface: Single-ply membrane Attachment to spring 120 kg test mass used	PASS
		120 kg mass arrested by man anchor	
		L = 0.72 m H = 0.99 m	
		Roof surface: Stone chippings Attachment to spring 120 kg test mass used	PASS
		120 kg mass arrested by man anchor	
		L = 0.34 m H = 0.53 m	

Note 1 – Testing carried out & originally reported under SATRA reference 66799/0602/SPC-0

Note 2 – Testing carried out & originally reported under SATRA reference 68665/0610/SPC-0



## CONCLUSIONS

The samples of deadweight anchor device, detailed in table 1, as received by SATRA on 18 January 2006, have been tested in accordance with EN 795: 1997 for a class E device, and found to achieve the following requirements:

SAMPLE REFERENCE	STANDARD	CLAUSe / PROPERTY	PASS / FAIL
21AS Natural Flat – Attachment directly to handle	EN 795: 1997	4.3.5 Dynamic performance – Single-ply membrane roof surface	PASS
21AS Natural Flat – Attachment to spring		4.3.5 Dynamic performance – Single-ply membrane roof surface	PASS
		4.3.5 Dynamic performance – Stone chippings roof surface	PASS
21AS Natural Flat (10 masses) – Attachment to spring		4.3.5 Dynamic performance – Single-ply membrane roof surface	PASS
21AS Natural Flat (8 masses) – Attachment to spring		4.3.5 Dynamic performance – Single-ply membrane roof surface	PASS
52BS Flat – Attachment directly to handle		4.3.5 Dynamic performance – Single-ply membrane roof surface	PASS
		4.3.5 Dynamic performance – Stone chippings roof surface	PASS
52BS Flat – Attachment to spring		4.3.5 Dynamic performance – Single-ply membrane roof surface	PASS
		4.3.5 Dynamic performance – Stone chippings roof surface	PASS
52BS Flat (10 masses) – Attachment to spring		4.3.5 Dynamic performance – Stone chippings roof surface	PASS
52BS Cup type – Attachment directly to handle		4.3.5 Dynamic performance – Single-ply membrane roof surface	PASS
		4.3.5 Dynamic performance – Stone chippings roof surface	PASS
52BS Cup type – Attachment to spring		4.3.5 Dynamic performance – Single-ply membrane roof surface	PASS
	4.3.5 Dynamic performance – Stone chippings roof surface	PASS	
52BS Cup type (10 masses) – Attachment to spring	4.3.5 Dynamic performance – Stone chippings roof surface	PASS	
21AS Cup type – Attachment to spring	4.3.5 Dynamic performance – Single-ply membrane roof surface	PASS	
	4.3.5 Dynamic performance – Stone chippings roof surface	PASS	



In addition, the deadweight anchor device reference “21AS Cup type” was found to PASS the requirements of EN 795: 1997 Clause 4.3.5 when tested using a 120 kg test mass in place of the 100 kg mass specified by the standard (See note 2).

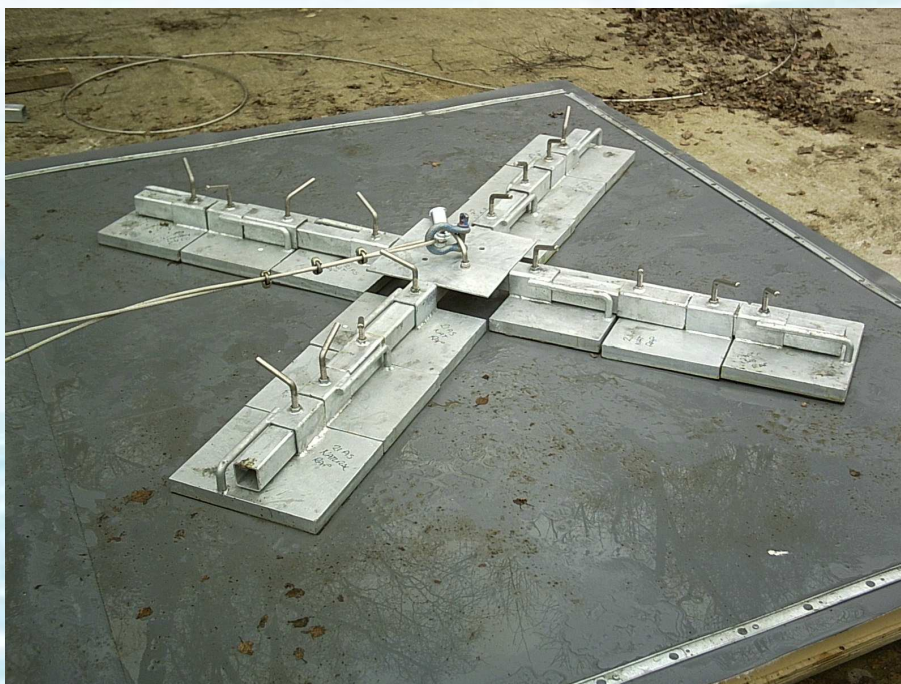


Figure 1 – Mobile Man Anchor reference “21AS Natural flat” mounted on Single-ply membrane roof before testing



Figure 2 – Mobile Man Anchor reference “21AS Cup type” mounted on Single-ply membrane roof before testing



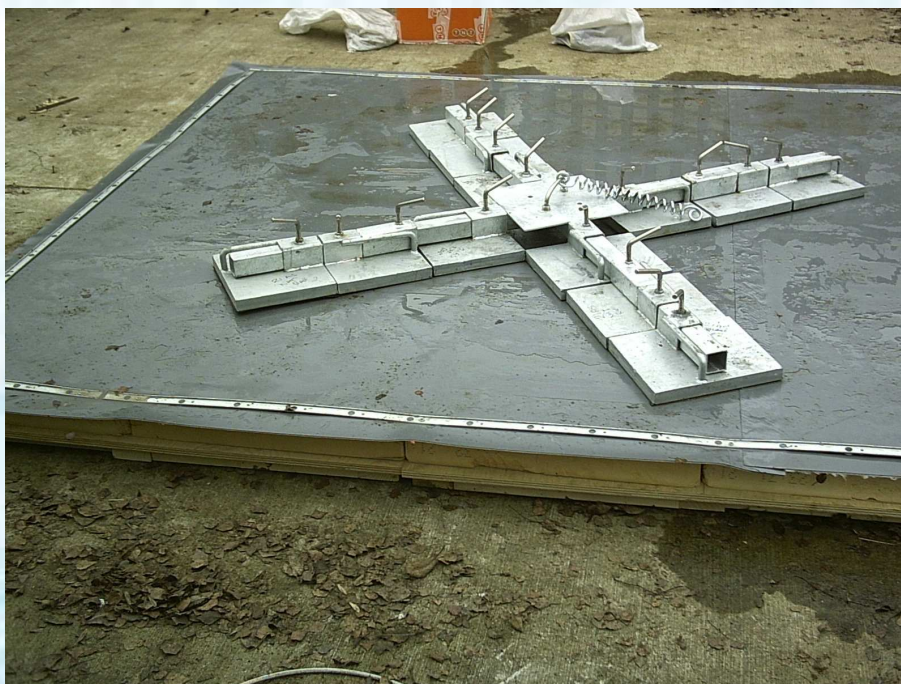


Figure 3 – Mobile Man Anchor reference “21AS Natural Flat” following drop test

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