The innovative rescue device that makes the evacuation of frail or immobile persons from life threatening situations simple and easy.

User’s Manual

ALBAC ENTERPRISES PTY LTD
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Beginning:

The concept of the AlbacMat™ arose due to fire evacuation training that Allison Backhouse attended as part of her employment at Vision Australia – Kelaston Nursing Home Ballarat. It was mentioned here how difficult it was to remove immobilised patients quickly. With facilities becoming carpeted, the method of removing patients by sliding them on their bedsheets no longer worked due to the friction of the bedsheets/sheet etc on the carpet. The AlbacMat™ is an advancement on the blanket rescue method. The features of the AlbacMat™ such as the foot holder, securing and moving straps are included to minimize potential hazards to both the patient and the rescuer.

After researching various facilities and speaking to a range of hospital and evacuation professionals Allison discovered that there was no available solution on the market. With a passion for challenges, Allison decided she would create the solution.

Finding the right material to do the job proved to be a major stumbling block, with some burning on the carpet and others not sliding as well as was required, and others not sliding on all surfaces required. Discussions with Work Safe and an MFB fire training officer, revealed the product did not have to be fire retardant or fire-proof due to the nature of the product – it was designed to get people out before the fire - not be pulled through fire. This research widened the material available significantly, however the right one still proved elusive. After trying a dozen or so materials and making half a dozen prototypes the right material was sourced. It has been flammability tested with slow to no ignition of the materials used. The AlbacMat™ also meets AS 2755.2 and AS 2001.2.3.2 standards.

*The AlbacMat™ in use*
Design:

The design of the AlbacMat™ is primarily for ease of use. Tapered for patient comfort it encompasses the patient without the need for a sleeping bag type structure. The patient is simply laid onto the mat, strapped in and is ready to be taken to safety, by only one person. The straps are Velcro™ that run parallel with the AlbacMat™ so that they are easily accessible – even if a person is struggling. There are two sets of straps, one to be fastened across the chest and another at approximately the knees of the patient. The foot holder also keeps the feet together and prevents the patient from sliding off while in transit. An important factor in evacuations/rescues is the lack of assistance available at times eg) Night shift in a thirty bed nursing home has only two staff on. The AlbacMat™ has been designed so that only one person is required to move the patient. Keeping in mind safety in numbers in an emergency, the staff can rescue two people simultaneously instead of one in the same time frame, while still being able to assist each other if needed.

Perhaps the best feature of the AlbacMat™ is its storage requirements – or lack thereof. The AlbacMat™ rolls up into itself making it only 30cm by 7cm.

Visibility and ease of use has been addressed, with the AlbacMat™ having fluorescent strapping, and easy to read label with instructions on the front to enable anyone not trained in using the AlbacMat™ to assist with rescues.
Manufacturing
The product is manufactured by Aprotec Pty Ltd and meets Australian Standards 2755.2 and 2001.2.3.2. Quality Control measures are conducted on each individual item to guarantee excellence.

Material
All types of products have been tried and tested for use, and after months of trials corrugated polypropylene board does the job superbly and is readily available and easy to work with. Most importantly it is slide-able over Flotex and Uger carpet (most common in hospitals and nursing homes) and also lino and timber floors. Travelling over surfaces such as concrete, gravel, bitumen etc is also simple as the air pockets in the board provide cushioning on these rougher surfaces. It is extremely tough – with a crushing point of 4.92 (kgf/cm²) and will handle the job without stretching, tearing or burning. The material enables the rescuer to move the patient on the AlbacMat™ with relative ease as there is minimal friction ensuring that one person is only required to rescue one patient. The rigidness of the board removes any concussion while in transit and provides added protection to the patient.

Testing
The AlbacMat™ has been trialled and tested in a range of situations and on various surfaces. The surfaces include Flotex and Uger carpet; and linoleum and vinyl floors. Because of the simple nature of the product, the testing was relatively simple – does it move easily over the surfaces required? This was tested at a number of health facilities with various weighted patients and rescuers. As most assembly points are outside, testing also included gravel, concrete, grass and bitumen. The AlbacMat™ can be used by anyone, anywhere!

Steps are no problem with the AlbacMat!

The components and assembly of the AlbacMat have been independently tested by AWTA Textiles. Their report includes the breaking point of the stitching being 470kg with flammability testing being very slow ignition in a consistent flame environment and no ignition of the main material length ways. The reports of this testing are included in the Appendices.
Training

On site demonstrations can be conducted at the time of delivery. Detailed instructions on how to use the AlbacMat™ are contained below with instructions also printed on the label of each unit. You have also been supplied with a DVD to show the AlbacMat in use. This also has a demonstration training section.

Separate products are not required for training purposes. Regular usage of the AlbacMat™’s within the facility for training is recommended. (See General Maintenance for further details) Outside use is however not suggested as you can graze the back-board. While this will not wear out the AlbacMat, it will compromise the slide-ability in an emergency, so the AlbacMat should be only taken on hard surfaces – concrete, bitumen or gravel in an emergency situation to ensure the unit is pristine when it is required.

The AlbacMat™ should be treated as part of the fire drill sessions and trained with in the same way. New staff should be introduced to the AlbacMat™ during the induction process.

Signage

Upon purchasing the AlbacMat™ it is suggested the facility display signs in a suitable location to indicate the presence of the AlbacMat™ in the institution and explain the location of these, so that visitors and staff are reminded the facility is fitted with these devices and know where to find them, should the need arise. These are supplied in laminated form for the facility to install.

General Maintenance

Units should be unrolled routinely every three months and reverse rolled loosely once, to ensure memory of the plastic board is not permanent. The unit can then be re-rolled into its correct position ready for use. Albac Enterprises suggests using each unit during at least one drill session as this will help prevent the memory of the plastic board from retaining its rolled position when using the AlbacMat.

Cleaning

Units can be cleaned and/or sanitized with no detriment to the materials, although harsh chemicals are not recommended. A hose or cloth will suffice and towel drying to remove excess water is recommended. Allowing the unit to air-dry as well will ensure complete dryness before rolling unit into its storage position.
Using the AlbacMat™
All staff on duty must know the location of the AlbacMat™.

On the Mat
To use the AlbacMat™ hold the AlbacMat™ by the top handle across your body with the logo away from you. Be standing at the foot end of the bed and ‘throw out’ the AlbacMat™ to unravel it from within itself (keep hold of the handle) beside the bed. Once unravelled, (pic right) position the mat beside the patient – either on the floor or on the bed. With the patient on their side, butt the AlbacMat™ to their back and roll the patient onto their back once more so that they are now on the AlbacMat™.

An additional method is to undo the mat and place near the feet of the patient. Move to the shoulders of the patient and roll them away from the AlbacMat™ onto their side. Keeping hold of their shoulder, use the other hand to unravel the AlbacMat™ behind their back. Roll them onto their back and continue.

Evacuation

Using the straps down each side, strap the patient in across the chest and the knees. Use the side strap at the head end of the AlbacMat™ to turn the patient and lower them from the bed and pull them to safety. If the patient is on the floor, in a narrow area use the handle (not the strap) at the foot end to pull them to an area where you can then use the handles at the head end for your comfort.

Once the patient is at the assembly point, they can be left on the AlbacMat™ while the rescuer returns to evacuate other patients.

Two person rescue
May be required with a large or difficult patient.
The process is the same, just with two people working either side of the patient.
They each have a free hand to assist another person at the same time, open doors etc should it be required.
Stairs:
The AlbacMat has been tested using various methods of descending stairs and staircases. While it is preferable to have two ‘rescuers’ when negotiating stairs, it can also be performed by a single person. The two methods are almost opposite in their application. I have listed the recommended procedures for each method below.

**Single personnel:** *(Not recommended but if required)*

It is recommended that the side handles be used for maximum control. The rescuer has brought the patient to the staircase and may need to adjust their handle usage before beginning the descent. The rescuer walks on a backward angle down the stairs so that the patient will travel backwards down the stairs. Be aware that the patients’ bottom and feet will fall into each step this way so some caution will need to be taken. The patients back may rest against the rescuers thigh. This will assist with balance and gravity for the rescuer as they can almost push into this weight as opposed to being pushed down the stairs.

The above method enables the rescuer to have full control of the patient and they can turn them as necessary to negotiate each flight of stairs.

**Two personnel:** *(This is highly recommended)*

The evacuation involving stairs can be performed a lot quicker with two personnel. If one person is stationed at the stairs during the evacuation, the staircase can be easily negotiated.

The rescuer brings the patient on the AlbacMat to the top of the staircase. The patient’s feet need to be over the edge of the stairs so the person on the stairs can assist using the handle (not the strap) at the foot pocket in positioning the patient. This person then guides the patient until their feet/body are resting on top of the stairs.

The person at the head end is to guide the patients’ weight. The AlbacMat will do the work. They need to walk down the stairs almost normally. One of the longer straps may be useful here. The method is to allow the mat to ‘skate’ over the top of each step, so the lower the patient is on the mat, the better weight transference and the easier it will slide down the stairs.

The person at the foot end is there as a support to turn the mat at each flight and can slow the patient if the AlbacMat gets a little fast. This is done simply by raising the feet, using the handle on the foot pocket. They are also available to ‘tug’ the mat if required if it stalls on the edge of a step (crease in board may rest upon a step).
Up Stairs:
Going up stairs can be achieved with one or two personnel. Individual rescuers abilities, length of stairs and patient weight and co-cooperativeness will determine personnel required.

There is only one method and that is to go straight up! Use the handles at the head end and try to have patients torso raised. This will assist both the rescuers and patient’s comfort. Caution will need to be exercised as the bottom of the patient may fall into each step – although if torso is raised – this is minimised.

After Use:
Once the emergency is over all AlbacMat’s used for evacuation should be inspected by an authorized person for any damage. The stitching on the handles and straps must be inspected closely for any breakages or signs of wear. Please also check the stitching surrounding the polypropylene board. If stitching is worn or broken in any place, it is recommended to replace the item, as the strength of the material will be weakened so re-stitching is not recommended. Included in the inspection routine is the under side of the polypropylene board which needs to be checked for grazing or puncture damage. Slight grazing (no bigger than a fist) and small punctures (from gravel or rough terrain) will not restrict the performance of the AlbacMat, however if grazing is significant the material will lose its slide-ability and therefore its ease of use so replacement is recommended.

If the AlbacMat passes the inspection it can be cleaned before rolling up and put back in place for future use. When rolling it up for storage, have the left side (reverse angle ie: person rolling is at head end and facing mat length ways; the rollers left) of the mat on the bottom of the overlap to avoid the joining of the Velcro straps. Please contact Albac Enterprises Pty Ltd if you have any questions – 0407 386 487
Where the AlbacMat is being used:

As explained earlier, the AlbacMat was designed for the Aged Care/Hospital market to assist in the efficient evacuation of residents or patients who required assistance to evacuate.

New markets have now formed as the reach of the AlbacMat continues. Each person has a new use for the AlbacMat! The development of the AlbacMat with Thermal cover was originally to cater for the mining sector, but it has also proved its use in the hospital market in Operating Rooms largely as patients can be carried over the non-slip flooring in this environment.

Other markets to take advantage of the more effective way to move immobile people are:

**Mining** - has taken full advantage of the AlbacMat with Thermal cover with numerous wins in evacuation competitions.

**Undertakers** – unfortunately stretcher beds do not reach every conceivable location and it is a way of moving the deceased with minimal handling, until the stretcher can be used.

**Schools** – especially those with students who have special needs. It ensures the student can be moved in an emergency event, safely for all involved.

**Cruise ships** – being such a confined area, storage space is paramount. And when patrons are enjoying the activities of a quiet island (ie hiking) and become injured, can be easily moved back to the ship for treatment.

**Emergency Services** – The Metropolitan Ambulance Service (Vic) have installed the AlbacMat with Thermal Cover in their Complex Patient Vehicles. Some stations of the Country Fire Authority (Vic) also have units in their rescue vehicles and fire trucks. State Emergency Service (Vic) branches also have the AlbacMat in their vehicles to assist in the variety of situations they work in – car rescue etc.

**General Public** – Many people have purchased the AlbacMat as a safety pre-caution should an emergency occur in their home. The situation may arise that they are unable to move their spouse, sibling or child in the event of (for example) a house-fire, and they suffer smoke inhalation, or become unconscious due to a fall etc.

The AlbacMat really is an item that can be used in a variety of places and situations. Simple bathroom falls or the emergency evacuation of an unconscious person in any environment means an AlbacMat should be available at all times – at home, at work and maybe even in the car!
Ms. Allison Backhouse  
Albac Enterprise Pty. Ltd.  
P.O. Box 1093  
Bacchus Marsh 3340

Re CSIRO Test Report No. 07 – 0779

Dear Ms. Backhouse,

You have asked me to comment on the test results from the “Albac Mat – Rescue Mat” you sent to CSIRO Textile and Fibre Technology for evaluation.

The samples were tested to evaluate the strength of the fabric and the construction of the rescue mat.

The strength of the fabric when tested as a 50 mm wide strip was found to be 1221 N in the length direction and 887 N in the width. The extension of the fabric before breaking was 18% in the length and 17.2% in the width. These results appear to be more than adequate tensile strength properties for the base fabric for such an end use.

The tensile strength of the handles which will receive a significant amount of stress during use was also tested. In all cases the handles came away from the mat at the stitching which broke at an average force of 5163 N. This is equivalent to over 500Kg in weight and as it is only the breaking force for one handle it again appears to well above the requirements for such an application.

The tear strength of the base fabric was also tested and in both directions, the test results were in excess of 150 N which indicates a relatively high force required to tear the fabric. Under normal use conditions tearing should not be an issue, it would only be an issue if the mat became cut or damaged prior to use and in that case the 150 N plus should still see the mat intact.

The seamed or sewn areas of the mat where the fabric was sewn to the solid slide structure were also tested to determine when and how these areas broke down under force. In 4 specimens the fabric tore during the testing in one case the sewing thread gave away. The average seam strength was 700 N again showing the fabric is adequately attached to the base board for the end use.

It is my opinion that the base fabric and the attachments and the manner in which the mat is constructed are adequate for the end use the rescue mat is intended for.

Yours truly,

Dale R Carroll  
Manager – Consulting Services  
CSIRO Textile and Fibre Technology
**CSIRO Textile and Fibre Technology**

Henry St, Belmont, Victoria 3216, Australia.
Telephone: (03) 52464000 Fax: (03) 52464057
Email: texlab@csiro.au Web: http://www.tft.csiro.au

**Textile Testing Laboratory**

**TEST REPORT**

<table>
<thead>
<tr>
<th>Report Number: 07-0779</th>
<th>Date Issued: 14/11/07</th>
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<tbody>
<tr>
<td>Client: Albac Enterprise Pty Ltd</td>
<td></td>
</tr>
<tr>
<td>Contact: Allison Backhouse</td>
<td></td>
</tr>
<tr>
<td>Address: PO Box 1093 Bacchus Marsh VIC 3340</td>
<td></td>
</tr>
<tr>
<td>Fax: 03 5367 7151</td>
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</table>

Sample Description: 1 x Albac Rescue Mat

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Results</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS 2001.2.3.1-01 DETERMINATION OF MAXIMUM FORCE AND ELONGATION AT MAXIMUM FORCE USING THE STRIP METHOD</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Maximum Load</th>
<th>Direction 1</th>
<th>1221</th>
<th>N</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Direction 2</td>
<td>887</td>
<td>N</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Elongation at Maximum Load</th>
<th>Direction 1</th>
<th>18.0</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direction 2</td>
<td>17.2</td>
<td>%</td>
</tr>
</tbody>
</table>

Gauge Length: 200mm
Rate of Elongation: 100mm/min
Specimens tested in conditioned state
Number of test specimens: 5

The results contained in this report apply only to the sample submitted to the laboratory. This report must not be reproduced without the written authority of the laboratory and then shall only be reproduced in full.

Approved by: D.R. Carroll - Laboratory Manager

*Australian Science. Australia’s Future*
TEST REPORT

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Contact: Allison Backhouse
Address: PO Box 1093  
Bacchus Marsh VIC 3340
Fax: 03 5367 7151

Sample Description: 1 x Albac Rescue Mat

Test Method          Results          Unit
AS 2001.2.3.1-01  DETERMINATION OF MAXIMUM FORCE AND ELONGATION AT MAXIMUM FORCE USING THE STRIP METHOD

HANDLE STRENGTH

Maximum Load
5163 N

Note: All specimens broke at stitching. Result is the mean of 4 specimens.

Gauge Length:  200mm
Rate of Elongation: 100mm/min
Specimens tested in conditioned state
Number of test specimens: 4

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Approved by: D.R. Carroll - Laboratory Manager

Australian Science, Australia's Future
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<table>
<thead>
<tr>
<th>Test Method</th>
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<th>Unit</th>
</tr>
</thead>
</table>
| AS 2001.2.10-1986  
DETERMINATION OF THE TEAR RESISTANCE OF WOVEN TEXTILE FABRICS BY THE  
WING RIP METHOD | | |
| Direction 1 | 170 | N |
| Direction 2 | 154 | N |

**AS 2001.2.20 – 04  
SEAM PROPERTIES –Breaking Force  
EN ISO 13934-2 | | |
| Specimen 1 | 870 | N |
| Specimen 2 | 700 | N |
| Specimen 3 | 680 | N |
| Specimen 4 | 620 | N |
| Specimen 5 | 640 | N |
| **Average** | **700** | N |

Note: Seams obtained from rescue mat. Specimens 1 – 4 were fabric tears at the seam. Specimen 5 breaking of sewing thread.

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Approved by:  
D.R. Carroll  
Laboratory Manager

*Australian Science, Australia's Future*
SAMPLE DESCRIPTION
Sample of material from patient slide prototype
A - Red coated woven fabric
B - White stiffener

AS 2755.2-1985
Measurement of flame spread properties of
Sample A
Vertically oriented specimens

Barometric Pressure 1021 hPa
Relative Humidity 40 %
Burner Orientation Surface

Mean Severence Time Length Width s
To 1st marker thread FTI 34.0
To 2nd marker thread FTI 79.3
To 3rd marker thread FTI 107.8
Mean Flame Spread Time
1st marker to 2nd marker thread FTI 45.3
2nd marker to 3rd marker thread FTI 28.5
1st marker to 3rd marker thread FTI 73.8
Note: FTI = Failed to ignite
Observation:
Length: 3 specimens failed to burn to 1st marker thread
3 specimens were tested
Width: 2 specimens failed to burn to first marker thread
6 specimens were tested

Flame application caused a hole to be burnt or melted on face of specimen
Flame reaches the vertical edge of specimen
Flaming debris fell below the bottom edge of the frame and continued to burn
AWTA Textile Testing
Australian Wool Testing Authority Ltd – trading as AWTA Textile Testing
A.B.N. 43 006 014 106
26 Robertson Street, Kensington, Victoria 3031
P.O. Box 240, North Melbourne, Victoria 3051
Phone (03) 9371 2126 Fax (03) 9371 2102

TEST REPORT

AS 2755.2-1985 Measurement of Flame Spread Properties of Vertically Oriented Specimens

Sample B

Barometric Pressure: 1021 hPa
Relative Humidity: 40%
Burner Orientation: Surface

Test Results

<table>
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<tr>
<th>Severance Time</th>
<th>Length</th>
<th>Width</th>
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<tbody>
<tr>
<td>To 1st marker thread</td>
<td>41.6</td>
<td>105.9</td>
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<tr>
<td>To 2nd marker thread</td>
<td>55.2</td>
<td>159.9</td>
</tr>
<tr>
<td>To 3rd marker thread</td>
<td>120.9</td>
<td>193.7</td>
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</table>

Flame Spread Time

<table>
<thead>
<tr>
<th>Flame Spread Time</th>
<th>1st marker to 2nd marker thread</th>
<th>2nd marker to 3rd marker thread</th>
<th>1st marker to 3rd marker thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.5</td>
<td>53.0</td>
<td>55.7</td>
<td>33.8</td>
</tr>
<tr>
<td>79.3</td>
<td></td>
<td>86.8</td>
<td></td>
</tr>
</tbody>
</table>

Observation: Length and Width - 1 specimen was tested

Flame application caused a hole to be burnt or melted on face of specimen
Flame reaches the vertical edge of specimen
Flaming debris fell below the bottom edge of the frame and continued to burn

Note: One specimen in each direction tested only due to the amount of sample submitted.

128749
SAMPLE DESCRIPTION: Sample patient slide prototype

AS 2003.2.3.2-2001 Breaking Force of Textile Fabric (Grab Test)

GAUGE LENGTH: 75mm

SPREAD: 300mm/min

(MODIFIED)

Mean length: 4786 N

No of specimens tested: 10

Length: 10

Modification: Jaw size: 75mm wide

Stitching breakdown

128750