

Evaluation report
for

**Brown 3 Ply Hard Sheet
Floors protection product**

Manufactured by

Best Choice Floors Protection Manufacturing L.L.C.

Evaluated by

Research & Standardization Management Office (RSMO)

Dubai Central laboratory Department (DCL)

Dubai Municipality (DM)

Prepared by

Name Eng. Khader Akkawi
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Date 28/10/2010

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Date 28/10/2010

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ANNEXES:

ANNEX A:	BIG 5 GAIA 2009 BRONZE AWARD
ANNEX B:	BRE REPORT #259348/R4 ON TENSILE & TEAR STRENGTH
ANNEX C:	BRE REPORT #259348/R2 ON WATERTIGHTNESS
ANNEX D:	BRE REPORT #259348/R1 ON IMPACT RESISTANCE
ANNEX E:	BRE REPORT #259348/R3 ON SURFACE BURNING CHARACTERISTICS
ANNEX F:	INSTALLATION & FIXING

1 Introduction

The customer "Best Choice Floors Protection Manufacturing LLC - Dubai" (to be referred to hereinafter as the company) submitted a request to Dubai Central laboratory – Research & Standardization management office for conducting a study on their floor protection product identified as “Brown 3Ply Hard Sheet” (to be referred to hereinafter as the "product") for its suitability for the purpose of protecting floors in general and ceramic tiles in specific during the construction period and to establish a set of characteristics and properties that will help in evaluating the product's performance with regard to its intended use.

2 Scope

This report includes the product characteristics/properties and performance criteria tests for the purpose of evaluating the product's suitability for its intended use.

3 Product description

Product is three (3) plies hard sheet in roll form. The three plies compose of a corrugated paper layer covered by a flat hard paper adhered to polyethylene facing layer (brown film).



4 Product intended use

The product is intended to be used as temporary floor protection during the construction stage of buildings through covering the installed flooring tiles using the product thus protecting the tiles from damage due to execution of works inside the buildings.



5 Company profile

Customer provided valid industrial license and Ministry of economy license for the company.

Company address is as follows:

Best Choice Floors Protection Manufacturing L.L.C.

Tel: +971 4 3396669

Fax: +971 4 3396668

Email: bchoice@emirates.net .ae

Website: www.bchoicefloor.com

P.O.Box 81161 - Dubai - UAE

In addition customer provided audited income statements copies and information about the sales of product summarized as follows:

Year	No. of rolls provided to the markets	Area of product provided to the markets (m ²)
2006	52,572	2,760,019
2007	61,188	3,212,368
2008	85,850	4,507,143
2009	65,252	3,425,737
2010*	37,318	1,959,176
Total	302,180	15,864,442

* Up to July 2010

6 Exhibitions and Awards

Company provided evidence of participation in the Big 5 exhibition for the years 2009 & 2010. Company also, won the “Bronze Big 5 GAIA 2009 Award” for the product (see Annex A)

7 Product usage and Track records

Company provided track records for the use of the product in major projects for the years 2008 -2010.

8 Product characteristics & performance requirements

8.1 Basic materials

(Information not to be provided, by applicant request)

8.2 Product performance criteria

8.2.1 General

During work, several types of factors will affect the performance of the product after covering the floor tiles for protecting it. Following is a summary of such factors:

- Product at building sites will be subjected tearing damage due to the walking of workers wearing their shoes over it and placing their working instruments and tools over it. For this purpose the product was tested for its tensile and tears properties.
- Dropping hard items over the product will cause impact forces that may damage the product. Therefore, the product needs to resist such impact forces in order to transfer its effect to the floor tiles.
- Spilling or pouring water over the product will cause damages to the product if it is non-water-proof. Therefore, it is necessary to check the waterproofing resistance of the product.
- Product may be subjected to small fire sources. Therefore it should not help in propagating the fire. For this purpose its surface burning characteristics need to be evaluated.

8.2.2 Testing and evaluation

For the purpose of evaluation of the product performance, samples were tested at the Building Research Establishment (BRE) – UK. Tests conducted are as follows:

8.2.2.1 Tear Resistance

In order to determine the product's tear resistance it was tested in accordance with BS EN 12310-2 "Flexible sheets for waterproofing - Determination of tear resistance - plastics and rubber sheets for roof waterproofing"

The test results are shown in the following tables.

Table 1 Tear resistance with corrugations perpendicular to long axis of sample

Specimen reference	Maximum tensile force (N)
259348/02/1	34.48
259348/02/2	34.28
259348/02/3	32.6
259348/02/4	33.8
259348/02/5	39
Mean	34.8

Table 2 Tear resistance with corrugations parallel to long axis of sample

Specimen reference	Maximum tensile force (N)
259348/02/6	29.52
259348/02/7	26.12
259348/02/8	25.68
259348/02/9	30.16
259348/02/10	25.04
Mean	27.3

For more information see BRE report number 259348/R4 shown in Annex B.

8.2.2.2 Tensile Strength

In order to determine the product's tensile strength it was tested in accordance with BS EN 12311-2 "Flexible sheets for waterproofing - Determination of tensile properties of plastics and rubber for roof waterproofing"

The test results are shown in the following tables.

Table 3 Tensile strength with corrugations perpendicular to long axis of sample

Specimen reference	Maximum tensile force (N)	Elongation at max. force (%)
259348/02/11	410.5	4.33
259348/02/12	407.5	3.63
259348/02/13	399.2	3.27
259348/02/14	390.4	2.88
259348/02/15	390.4	2.88
Mean	399.6	3.4

Table 4 Tensile strength with corrugations parallel to long axis of sample

Specimen reference	Maximum tensile force (N)	Elongation at max. force (%)
259348/02/16	364.4	2.93
259348/02/17	372.8	4.8
259348/02/18	365.6	5.6
259348/02/19	380	3.79
259348/02/20	380	4.44
Mean	372.6	4.3

For more information see BRE report number 259348/R4 shown in Annex B.

As can be seen from the test results, the product encountered tear and tensile strength that will help in preventing its tearing during normal working conditions.

8.2.2.3 Watertightness

In order to determine the product's water tightness it was tested in accordance with BS EN 1928 "Flexible Sheets for Waterproofing - Bitumen, Plastic and Rubber Sheets for Roof Waterproofing - Determination of Watertightness" but with modified pressure of 10kPa for 24 hours.

The test results are shown in the following tables.

Table 5 Watertightness results

Specimen reference	Water Penetration	Result
259348/02/21	None	Pass
259348/02/22	None	Pass
259348/02/23	None	Pass
	Final Result	Pass

For more information see BRE report number 259348/R2 shown in Annex C.

As can be seen from the test result the product has a sufficient resistance to water penetration. This will help protecting the flooring from any causes of staining due to damage of the product by water.

8.2.2.4 Impact (falling objects) resistance

In order to determine the product's impact resistance it was tested in accordance with BS EN ISO 10545-5 "Ceramic Tiles Part 5: Determination of Impact Resistance by Measurement of Coefficient of Restitution".

The test was repeated on ceramic tiles covered by the product to evaluate the new Coefficient of Restitution and the degree of damage of the ceramic tile made by the falling object.

The test results are shown in the following tables.

Table 6 Impact resistance of ceramic tiles without test product overlay

Specimen reference	Description	Coefficient of Restitution (1)	Coefficient of Restitution (2)	Coefficient of Restitution (3)
259348/01/1	Without product	0.74	0.73	0.74
259348/01/2	Without product	0.71	0.71	0.72
259348/01/3	Without product	0.70	0.70	0.71
259348/01/4	Without product	0.71	0.72	0.72
259348/01/5	Without product	0.69	0.71	0.71
		Average Coefficient of Restitution		0.71

Table 7 Impact resistance of ceramic tiles with test product overlay

Specimen reference	Description	Coefficient of Restitution (1)	Coefficient of Restitution (2)	Coefficient of Restitution (3)
259348/01/1	With product	0.56	0.56	0.56
259348/01/2	With product	0.60	0.60	0.59
259348/01/3	With product	0.59	0.60	0.62
259348/01/4	With product	0.63	0.63	0.61
259348/01/5	With product	0.57	0.57	0.58
		Average Coefficient of Restitution		0.59

For more information see BRE report number 259348/R1 shown in Annex D.

As can be seen from the test results a reduction of 17% of the coefficient of restitution has been noticed when covering the ceramic tiles with the product. This will help in reducing the effect of any impact forces due to any falling objects on the floors when covered with the product.

8.2.2.5 Surface burning characteristics

In order to determine the product's surface burning characteristics it was tested in accordance with ASTM E 84 "Surface burning characteristics of building materials" The test results are shown in the following table.

Table 8: Surface burning characteristics

Test Specimen	Flame Spread Index	Smoke Developed Index
259348/01/14	790	20

For more information see BRE report number 259348/R3 shown in Annex E.

As can be seen from the test results, the smoke developed index is too small which indicates that almost no smoke was developed during the test, but the flame spread is found to be higher than the maximum value (200) of the US classification of Class C or Class 3.

9 Product installation

In order to achieve its utmost performance, the product shall be installed and fixed as per the manufacturer's instructions. Annex E shows the recommended installation & fixing methods.

10 Conclusion & Recommendations

Based on the evaluations made by Dubai Central laboratory for the company and the product, DCL would:

- 1- Recommend further product improvements in the surface burning characteristics.
- 2- Recommend further testing and investigations to be conducted to confirm the suitability of the product for its intended use and to ensure the uniformity of production over time.
- 3- Encourage the use of the product for temporary protection of floors in buildings during the construction stage.

11 Disclaimer

This report is meant for research purposes and identification of some characteristics of the product. It should not be considered as approval or certification from Dubai Municipality / Dubai Central laboratory Department.

The Dubai Municipality / Dubai Central Laboratory Department shall not be held liable for any action (legal or otherwise) raised by any party on matters resulting from implementation of this report or the use of the product.

Annex A
Big 5 GAIA 2009 Bronze Award


5 THE BIG
GAIA
AWARDS
2009
BRONZE

PRESENTED TO
BROWN 3 PLY HARD SHEET

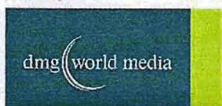
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Annex B

BRE Report #259348/R4 on Tensile & Tear Strength



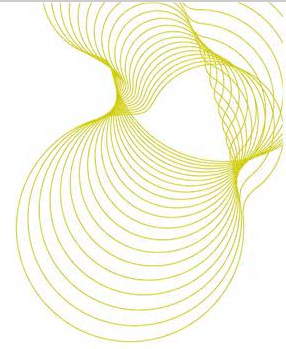
bre

**Testing of Three Ply
Floor Protection Product
– Tensile and Tear
Strength**

Prepared for:
Mr Maged Elias
Best Choice Floors Protection
Manufacturing LLC
P.O. Box 81161
Dubai U.A.E

5 July 2010

Test report number 259348/R4



Prepared by

Name Sarah Billcliffe
Position Consultant, Building Technology Group, BRE
Date 21/06/10

Signature

A handwritten signature in black ink, appearing to read 'SB', written over a horizontal line.

Approved on behalf of BRE

Name Dr Martyn Webb
Position Principal Consultant., Building Technology Group, BRE
Date 21/06/10

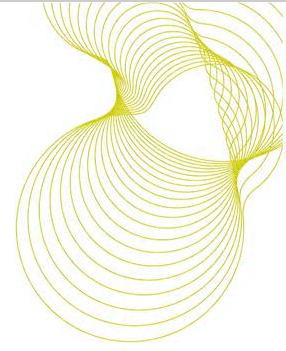
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A handwritten signature in black ink, reading 'Martyn Webb', written over a horizontal line.

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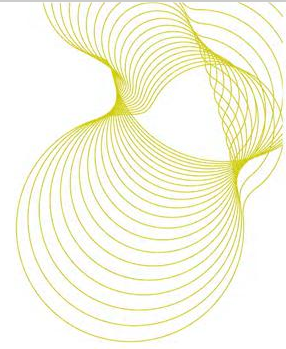
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2.2	Tensile Strength	6
3	Test results	7
3.1	Tear Resistance	7
3.2	Tensile Strength	8



1 Introduction

At the request of Mr Khadar Akkawi of the Dubai Central Laboratory, acting on behalf of Mr Maged Elias, Best Choice Floors Protection Manufacturing LLC, BRE have undertaken tensile and tear resistance strength tests on the floor protection product supplied by Best Choice Floors Protection Manufacturing LLC.

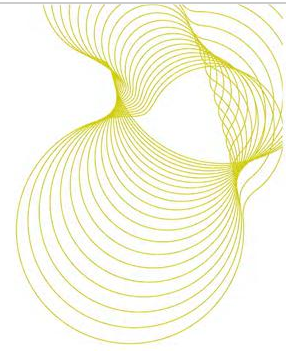
The product was a three ply hard sheet roll. The plies were composed of a corrugated paper layer covered by a flat hard paper adhered to a polyethylene facing layer.

Details of the samples received are shown in Table 1, with test details given in Section 2.

Sample Reference	Description	Date Received
259348/01	Three Ply Floor Protection Product	10/03/2010 and 13/04/2010
259348/02	Three Ply Floor Protection Product	24/04/2010

Table 1. Details of samples received

This report contains a factual account of the testing undertaken.



2 Details of tests carried out

2.1 Tear Resistance

Tear resistance was first attempted following the requested method, ie that detailed in BS EN 21974 – Paper, determination of tearing resistance, Elmendorf method.. When testing was attempted, the material was found to be too thick for the apparatus so an alternative tear resistance test was proposed.

With agreement from the client, the tear resistance was carried out following the method given in BS EN 12310-2 - Flexible sheets for waterproofing – determination of tear resistance– plastics and rubber sheets for roof waterproofing. The samples were taken in accordance with BS EN 13416 and cut following the method detailed in Part 7, BS EN 12310-2. The nature of the test arrangement is shown in Figure 1 below.

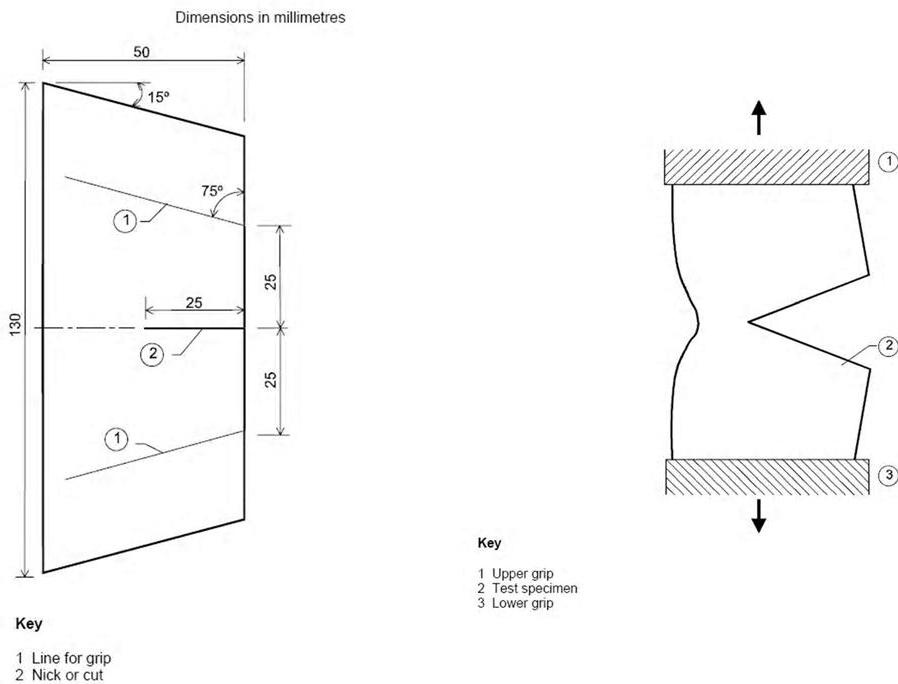
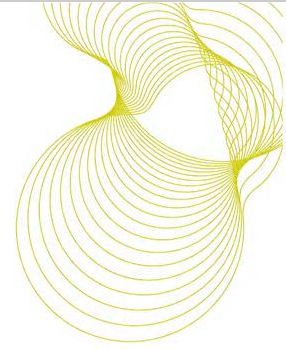
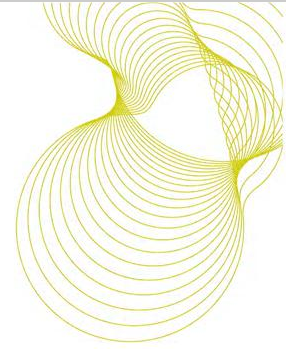


Figure 1. Diagrams showing the dimensions of the test specimens as-cut, and the test arrangement



2.2 Tensile Strength

Tensile strength was carried out following the method given in BS EN 12311-2 – Flexible sheets for waterproofing – Determination of tensile properties plastics and rubber sheets for roof waterproofing, using rectangular specimens measuring 200 mm x 50 mm.



3 Test results

3.1 Tear Resistance

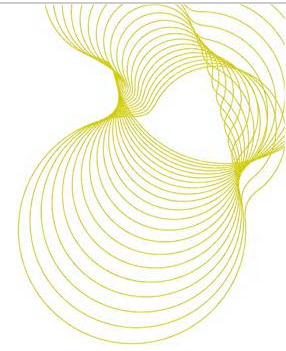
The tear resistance test was carried out on 07/06/10 with the results summarised in Tables 2 and 3 below.

Specimen reference	Maximum tensile force (N)
259348/02/1	34.48
259348/02/2	34.28
259348/02/3	32.6
259348/02/4	33.8
259348/02/5	39
Mean	34.8

Table 2. Tear resistance with corrugations perpendicular to long axis of sample

Specimen reference	Maximum tensile force (N)
259348/02/6	29.52
259348/02/7	26.12
259348/02/8	25.68
259348/02/9	30.16
259348/02/10	25.04
Mean	27.3

Table 3. Tear resistance with corrugations parallel to long axis of sample



3.2 Tensile Strength

The tear resistance testing was carried out on 06/06/10, with the results summarised in Tables 4 and 5 below.

Specimen reference	Maximum tensile force (N)	Elongation at max. force (%)
259348/02/11	410.5	4.33
259348/02/12	407.5	3.63
259348/02/13	399.2	3.27
259348/02/14	390.4	2.88
259348/02/15	390.4	2.88
Mean	399.6	3.4

Table 4. Tensile strength with corrugations perpendicular to long axis of sample

Specimen reference	Maximum tensile force (N)	Elongation at max. force (%)
259348/02/16	364.4	2.93
259348/02/17	372.8	4.8
259348/02/18	365.6	5.6
259348/02/19	380	3.79
259348/02/20	380	4.44
Mean	372.6	4.3

Table 5. Tensile strength with corrugations parallel to long axis of sample

=====REPORT ENDS=====

Annex C

BRE Report #259348/R2 on Watertightness

The image features a decorative background with a dark blue vertical band on the left and a white area on the right. Thin, curved yellow lines flow from the blue band into the white area. The 'bre' logo is printed in yellow on the blue band.

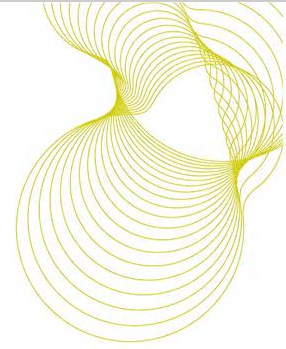
bre

**Testing of Three Ply
Floor Protection Product
– Watertightness at 10
kPa**

Prepared for:
Mr Maged Elias
Best Choice Floors Protection
Manufacturing LLC
P.O. Box 81161
Dubai U.A.E

5 July 2010

Test report number 259348/R2



Prepared by

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Position Consultant, Building Technology Group, BRE
Date 21/06/10

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A handwritten signature in black ink, appearing to read 'SB', written over a horizontal line.

Approved on behalf of BRE

Name Dr Martyn Webb
Position Principal Consultant., Building Technology Group, BRE
Date 21/06/10

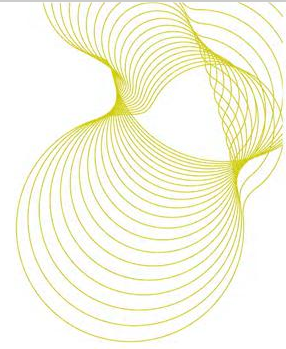
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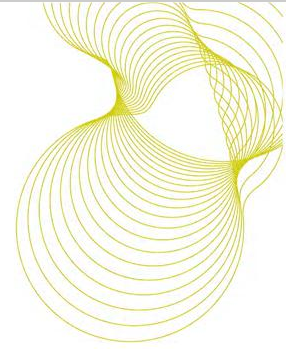
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2.1	Watertightness	5
3	Test Results	7
3.1	Watertightness	7



1 Introduction

At the request of Mr Khadar Akkawi of the Dubai Central Laboratory, acting on behalf of Mr Maged Elias, Best Choice Floors Protection Manufacturing LLC, BRE have undertaken a watertightness test (to 10 kPa) on the floor protection product supplied by Best Choice Floors Protection Manufacturing LLC.

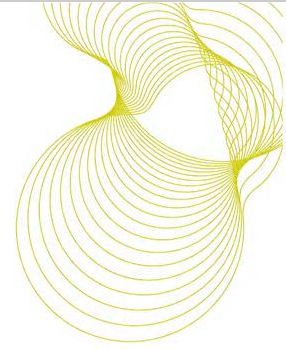
The product was a three ply hard sheet roll. The plies were composed of a corrugated paper layer covered by a flat hard paper adhered to a polyethylene facing layer.

Details of the samples received are shown in Table 1, with details of the watertightness test given in Section 2.

Sample Reference	Description	Date Received
259348/01	Three Ply Floor Protection Product	10/03/2010 and 13/04/2010
259348/02	Three Ply Floor Protection Product	24/04/2010

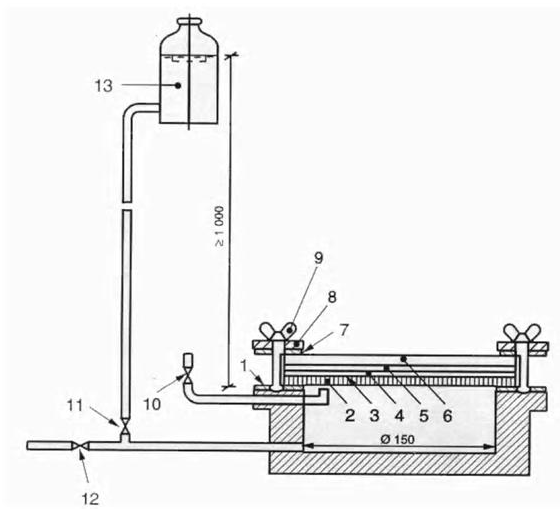
Table 1. Details of samples received

This report contains a factual account of the testing undertaken.



2 Details of tests carried out

2.1 Watertightness

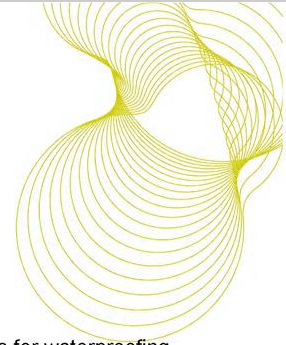


Key

- 1 Lower rubber sealing gasket
- 2 Test specimen inserted such that the surface normally exposed to the weather/water will be in contact with the water under test
- 3 Laboratory filter paper
- 4 Moisture indicating mixture uniformly spread over surface of test specimen. A moisture passing through the test specimen is readily detected using an indicator consisting of a mixture of fine white (icing) sugar (99.5 %) and methylene blue dye (0.5 %) sieved over a 0.074 mm mesh and dried over calcium chloride in a desiccator
- 5 Laboratory filter paper
- 6 Circular ordinary window glass sheet:
- 5 mm thick for pressure of water \leq 10 kPa
- 8 mm thick for pressure of water \leq 60 kPa
- 7 Upper rubber sealing gasket
- 8 Steel clamping ring
- 9 Wing nuts
- 10 Air exhaust valve
- 11 Water inlet valve
- 12 Water supply and draining valve
- 13 Means to apply and control pressure up to 60 kPa

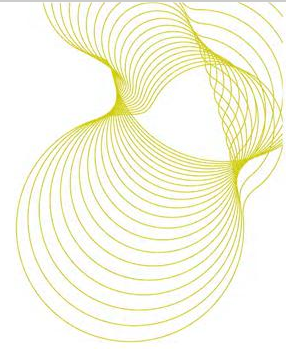
Figure 1. Diagram showing the test arrangement for the watertightness test

Testing of Three Ply Floor Protection Product – Watertightness at 10 kPa



The specimens were tested following the method given in BS EN 1928 – Flexible sheets for waterproofing – Bitumen plastic and rubber sheets for roof waterproofing, but was modified to subject the specimens to a pressure of 10 kPa for 24 hours. This modification to the test method was agreed with the client prior to proceeding. Figure 1 shows the test arrangement.

The sampling was carried out in accordance with BS EN 13416. Samples were circular with a 200 ± 2 mm diameter.



3 Test Results

3.1 Watertightness

The test was carried out in accordance with BS EN 1928 with a reduced pressure of 10 kPa between 9 - 15/06/10. Results are presented in Table 2 below.

Specimen Reference	Water Penetration	Result
259348/02/21	None	Pass
259348/02/22	None	Pass
259348/02/23	None	Pass
	Final Result	Pass

Table 2. Watertightness results for the product with 30 µm polyethylene coating at 10 kPa pressure.

=====REPORT ENDS=====

Annex D

BRE Report #259348/R1 on Impact Resistance

The image features a decorative background with a dark blue vertical band on the left and a white area on the right. Thin, curved yellow lines flow from the blue band into the white area. The 'bre' logo is positioned in the blue band.

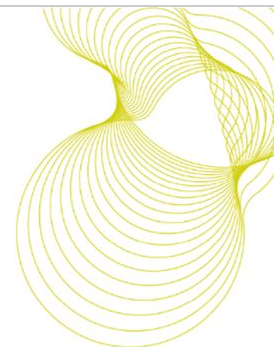
bre

**Testing of Three Ply
Floor Protection Product
- Impact**

Prepared for:
Mr Maged Elias
Best Choice Floors Protection
Manufacturing LLC
P.O. Box 81161
Dubai U.A.E

5 July 2010

Test report number 259348/R1



Prepared by

Name Sarah Billcliffe
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Signature

Approved on behalf of BRE

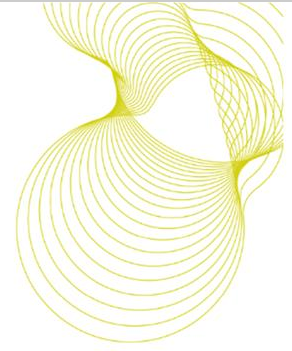
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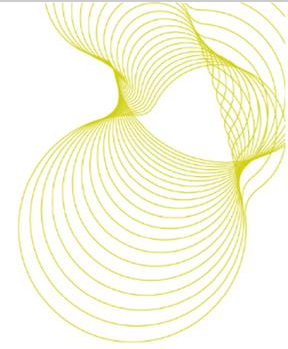
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3.1	Impact Resistance	7



1 Introduction

At the request of Mr Khadar Akkawi of the Dubai Central Laboratory, acting on behalf of Mr Maged Elias, Best Choice Floors Protection Manufacturing LLC, BRE have undertaken an impact test on the floor protection product supplied by Best Choice Floors Protection Manufacturing LLC.

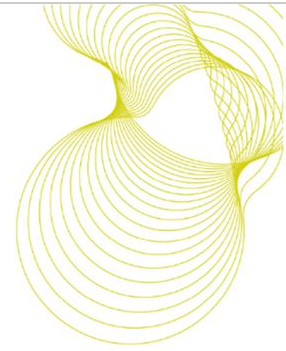
The product was a three ply hard sheet roll. The plies were composed of a corrugated paper layer covered by a flat hard paper adhered to a polyethylene facing layer.

Details of the samples received are shown in Table 1. Details of the impact test method are given in Section 2.

Sample Reference	Description	Date Received
259348/01	Three Ply Floor Protection Product	10/03/2010 and 13/04/2010
259348/02	Three Ply Floor Protection Product	24/04/2010

Table 1. Details of samples received

This report contains a factual account of the testing undertaken.



2 Details of tests carried out

2.1 Impact Resistance

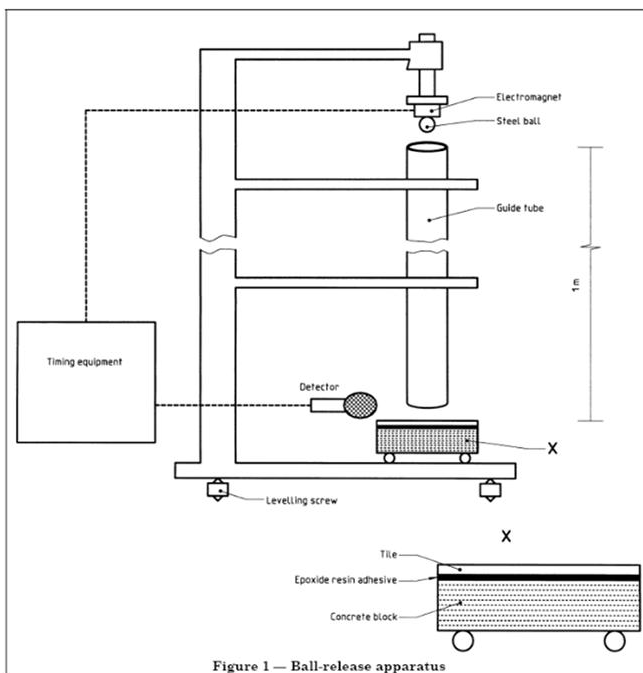
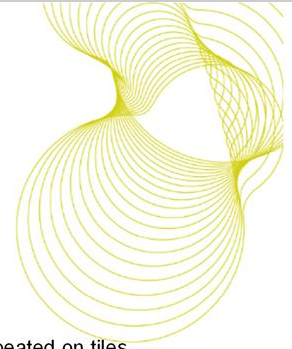


Figure 1. Diagram showing the test arrangement utilised for the impact testing.

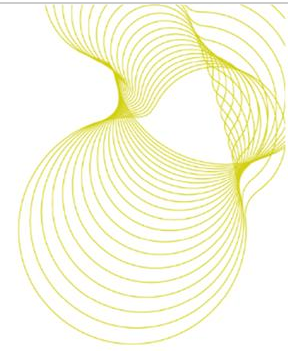
Impact resistance was carried out following the method given in BS EN ISO 10545-5 – Determination of impact resistance by measurement of coefficient of restitution, with Figure 1 above showing the test arrangement. The tiles used were unglazed 100 mm x 100 mm x 5 mm that were cut down to the required dimensions of 75 mm x 75mm.

Testing of Three Ply Floor Protection Product - Impact



The impact resistance was determined initially on uncovered ceramic tiles, and then repeated on tiles covered by the floor protection product as a comparative test. The test product was attached to the tile by construction tape.

The test was carried out on behalf of BRE by Ceram, Staffordshire.



3 Test Results

3.1 Impact Resistance

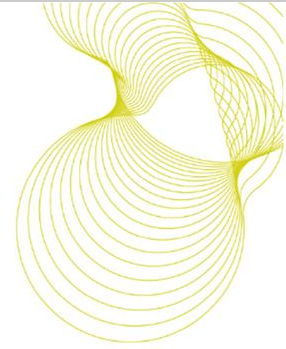
The results presented below are in accordance with Part 9 of BS EN ISO 10545. The tests were carried out on 27/04/10, with the results presented in Tables 2 and 3 below.

There was no indentation or cracking reported on the covered or uncovered tiles.

Specimen reference	Description	Coefficient of Restitution (1)	Coefficient of Restitution (2)	Coefficient of Restitution (3)
259348/01/1	Without product	0.74	0.73	0.74
259348/01/2	Without product	0.71	0.71	0.72
259348/01/3	Without product	0.70	0.70	0.71
259348/01/4	Without product	0.71	0.72	0.72
259348/01/5	Without product	0.69	0.71	0.71
			Average Coefficient of Restitution	0.71

Table 2. Impact resistance of ceramic tiles without test product overlay

Testing of Three Ply Floor Protection Product - Impact



Specimen reference	Description	Coefficient of Restitution (1)	Coefficient of Restitution (2)	Coefficient of Restitution (3)
259348/01/6	With product	0.56	0.56	0.56
259348/01/7	With product	0.60	0.60	0.59
259348/01/8	With product	0.59	0.60	0.62
259348/01/9	With product	0.63	0.63	0.61
259348/01/10	With product	0.57	0.57	0.58
			Average Coefficient of Restitution	0.59

Table 3. Impact resistance of ceramic tiles with test product overlay

=====REPORT ENDS=====

Annex E

BRE Report #259348/R3 on Surface Burning Characteristics

The image features a decorative background with a dark blue vertical band on the left and a white area on the right. Thin, curved yellow lines flow from the blue band into the white area. The 'bre' logo is printed in yellow on the blue band.

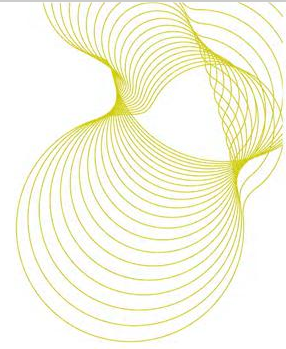
bre

**Testing of Three Ply
Floor Protection Product
– Surface Burning
Characteristics**

Prepared for:
Mr Maged Elias
Best Choice Floors Protection
Manufacturing LLC
P.O. Box 81161
Dubai U.A.E

5 July 2010

Test report number 259348/R3



Prepared by

Name Sarah Billcliffe
Position Consultant, Building Technology Group, BRE
Date 21/06/10

Signature

A handwritten signature in black ink, appearing to read 'SB', written over a horizontal line.

Approved on behalf of BRE

Name Dr Martyn Webb
Position Principal Consultant., Building Technology Group, BRE
Date 21/06/10

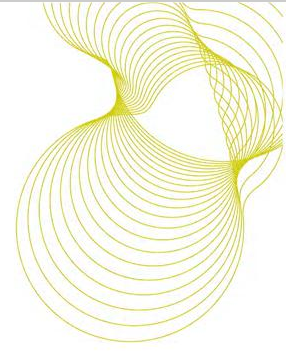
Signature

A handwritten signature in black ink, reading 'Martyn Webb', written over a horizontal line.

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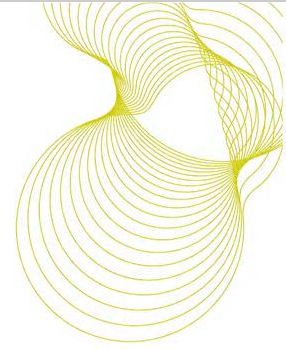
This report may only be distributed in its entirety and in accordance with the terms and conditions of the contract. Test results relate only to the items tested. BRE has no responsibility for the design, materials, workmanship or performance of the product or items tested. This report does not constitute an approval, certification or endorsement of the product tested.

This report is made on behalf of BRE. By receiving the report and action on it, the client – or any third party relying on it – accepts that no individual is personally liable in contract, tort or breach of statutory duty (including negligence).



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2	Details of tests carried out	5
2.1	Surface Burning Characteristics	5
3	Test results	6
3.1	Surface Burning Characteristics	6



1 Introduction

At the request of Mr Khadar Akkawi of the Dubai Central Laboratory, acting on behalf of Mr Maged Elias, Best Choice Floors Protection Manufacturing LLC, BRE have arranged a surface burning characteristics test on the floor protection product supplied by Best Choice Floors Protection Manufacturing LLC.

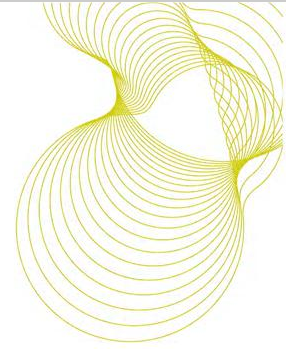
The product was a three ply hard sheet roll. The plies were composed of a corrugated paper layer covered by a flat hard paper adhered to a polyethylene facing layer.

Details of the samples received are shown in Table 1, with the test method given in Section 2.

Sample Reference	Description	Date Received
259348/01	Three Ply Floor Protection Product	10/03/2010 and 13/04/2010
259348/02	Three Ply Floor Protection Product	24/04/2010

Table 1. Details of samples received

This report contains a factual account of the testing undertaken.



2 Details of tests carried out

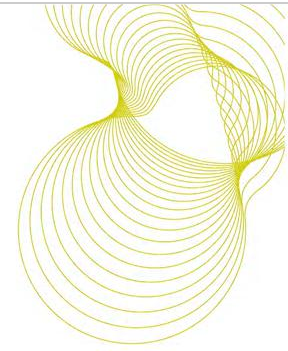
2.1 Surface Burning Characteristics

Surface burning characteristics was carried out following the method given in ASTM E 84 – Surface burning characteristics of building materials, on a 7315 mm x 610 mm sample of the test product.

The ASTM E84 (25 foot tunnel) test method is intended to compare the surface flame spread and smoke developed measurements to those obtained from test of mineral fibre cement board and select grade red oak flooring. The test specimen surface is exposed to a flaming fire exposure during the 10 minute test duration while flame spread over its surface and density of the resulting smoke are measured and recorded. Test results are presented as the computed comparisons to the standard calibration methods.

This standard should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which taken into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.

This test was carried out on behalf of BRE by Intertek through their Chester office.



3 Test results

3.1 Surface Burning Characteristics

The first set of tests was carried out in accordance with ASTM E84 on 11/06/2010. Results are presented in Tables 2 to 4 and Figure 1 below.

Test Specimen	Flame Spread Index	Smoke Developed Index
259348/01/14	790	20

Table 2. Test results, index based on comparisons with mineral fibre board

Time (min:sec)	Observations
0:02	The specimen began to blister
0:08	The specimen ignited
0:16	Flaking on the specimen was observed
0:18	The specimen fell
0:31	Flames reached the end of the tunnel

Table 3. Observations of behaviour of material during the test

Distance (feet)	Damage Descriptions
0-24	Consumed

Table 4. Observations of behaviour of material after the test

Testing of Three Ply Floor Protection Product - Surface Burning Characteristics

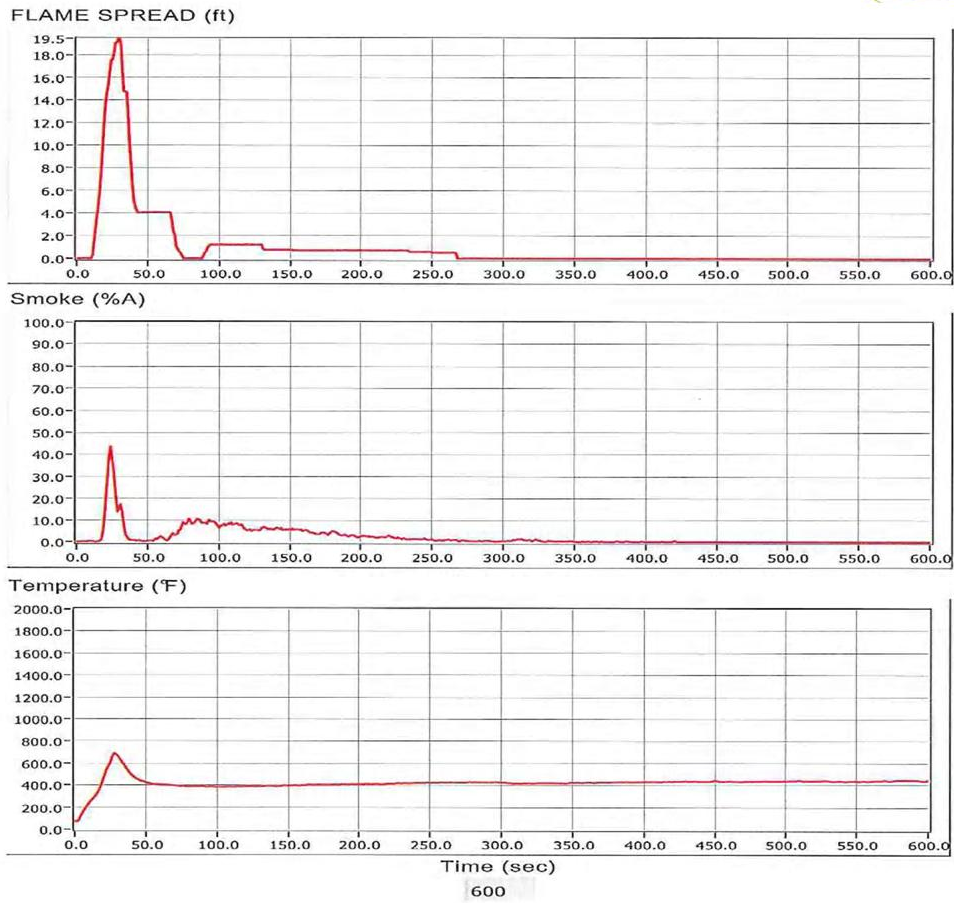
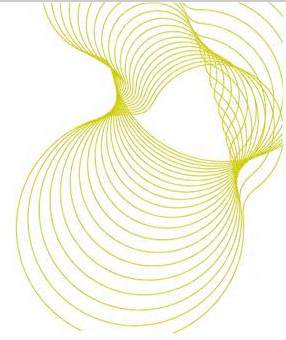


Figure 1. Graphs showing flame spread, smoke and temperature observed during the test.

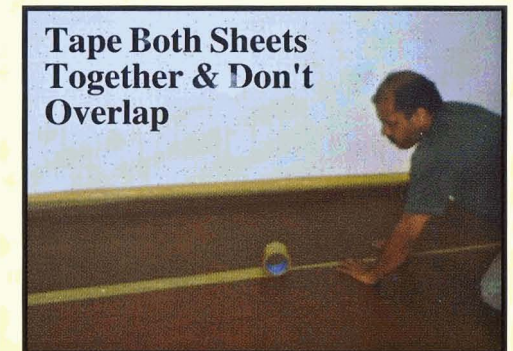
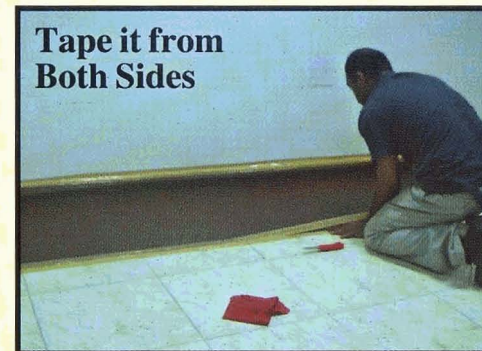
=====**REPORT ENDS**=====

Annex F

Installation & Fixing

METHOD OF FIXING

Your Choice..



**THE BEST PROTECTION YOU NEED FOR YOUR TILES,
CERAMIC, WALLS, ETC....**

High Quality Product for the most Economical Price

BEWARE OF IMITATION

احذر التقليد للحصول على أفضل النتائج