

Guaranteed Asphalt Ltd

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Agrément Certificate
00/3691
Product Sheet 1

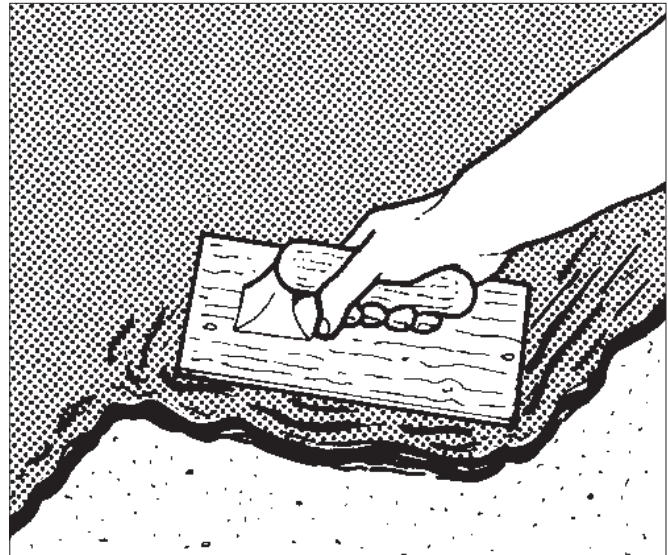
GUARAFLEX P

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Guaraflex P, a polymer-modified mastic asphalt system for use as a waterproofing and paving system for concrete car park decks and heavy goods vehicle (HGV) service decks.

AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Weathertightness — the system will resist the passage of moisture into a building (see section 5).

Properties in relation to fire — the use of the system can enable a roof to be unrestricted under the current Building Regulations (see the *Regulations* section and section 6).

Resistance to wind uplift — the system will resist the effects of any likely wind suction acting on the roof (see section 7).

Resistance to mechanical damage — the system can accept the traffic loads and the effects of thermal or other minor movement likely to occur in service without damage (see section 8).

Durability — under normal service conditions the system will provide a durable waterproof surfacing with a service life of at least 20 years (see section 10).

The BBA has awarded this Agrément Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément



Simon Wroe
Head of Approvals — Materials



Greg Cooper
Chief Executive

Date of First issue: 12 January 2009

Originally certified on 10 March 2000

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Guaraflex P, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2000 (as amended) (England and Wales)

Requirement:	B4(2)	External fire spread
Comment:		On flat roofs incorporating the system and with one of the supporting structures prescribed in part iv of Table A5 of Approved Document B, the roof shall be deemed to be of designation AA. See sections 6.2 and 6.3 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		Tests for water resistance on the system indicate that the system will enable a roof to satisfy this Requirement. See sections 5.1 and 5.2 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The system comprises acceptable materials. See sections 10.1 to 10.3 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The use of the system satisfies the requirements of this Regulation. See sections 9, 10.1 to 10.3 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	2.8	Spread from neighbouring buildings
Comment:		In the opinion of the BBA, a roof incorporating the system applied to a concrete substrate, can be regarded as having low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 6.2 and 6.3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		Tests for water resistance on the system indicate that it will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.7 ⁽¹⁾⁽²⁾ . See sections 5.1 and 5.2 of this Certificate.
Regulation:	12	Building standards — conversions
Comment:		All comments given for the system under Regulation 9, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system comprises acceptable materials. See sections 10.1 to 10.3 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The system is acceptable. See section 9 of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		Tests for water resistance on the system indicates that it will enable a roof to satisfy the requirements of this Regulation. See sections 5.1 and 5.2 of this Certificate.
Regulation:	E5(a)(b)	External fire spread
Comment:		On flat roofs incorporating the system and with one of the supporting structures prescribed in part iii of Table 4.6 of Technical Booklet E, the roof shall be deemed to be of designation AA. See sections 6.2 and 6.3 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 2 *Delivery and site handling* (2.1, 2.2 and 2.3) and the 12 *Procedure* (12.1).

Non-regulatory Information

NHBC Standards 2008

In the opinion of the BBA, the use of Guaraflex P, in relation to this Certificate, is not subject to the requirements of these Standards.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, the use of Guaraflex P, in relation to this Certificate, is not subject to the requirements of this Technical Manual.

General

This Certificate relates to Guaraflex P, a polymer-modified mastic asphalt system for use as a waterproofing and paving system for concrete car park decks and heavy goods vehicle (HGV) service decks.

The products are laid using the traditional techniques for mastic asphalt described in the relevant Clauses of BS 8218 : 1998, and the Certificate holder's instructions.

The products are manufactured and marketed in the UK by the Certificate holder.

Technical Specification

1 Description

1.1 Guaraflex P is a polymer-modified asphalt waterproofing and paving system for elevated decks and car parks for cars, light commercial and heavy vehicles. It may comprise a waterproofing layer of asphaltic cement with graded limestone aggregate and a paving layer, incorporating 6 mm or 10 mm coarse aggregate.

1.2 The waterproofing layer may be omitted from internal specifications where not subjected to hosing.

1.3 Materials used with the system include:

- Guaraflex PR — polymer-modified waterproofing grade mastic asphalt manufactured by blending bitumen, graded aggregates, filler and polymer using conventional techniques
- Guaraflex PP — polymer-modified mastic asphalt paving (standard grade)
- Guaraflex PPH — polymer-modified mastic asphalt paving (hard grade) for use in uninsulated, heated internal areas and heavy vehicle applications
- Guaraflex standard waterproofing — polymer-modified mastic asphalt waterproofing layer for use in economy specifications
- Guaraflex standard paving — polymer-modified mastic asphalt paving for use in economy specifications
- Guaraflex U — 4 mm thick, polymer-modified bitumen torch-on membrane used as flashing at abutments
- Guaraflex T — 4 mm thick, polymer-modified bitumen torch-on membrane (mineral finished) used as flashing at abutments
- Guaraflex CP — 2 mm thick, aluminium-faced polymer-modified bitumen membrane
- Guaraflex CP Super — 4 mm thick, aluminium-faced, polymer-modified bitumen membrane
- Guaraflex G — bitumen-coated woven glassfibre scrim
- glassfibre tissue — for use as an asphalt underlay
- high-density extruded polystyrene insulation — for use in insulated specifications. (Grade and thickness to suit required U value)
- Lytag/sand concrete or similar — used with A142 steel mesh reinforcement for protection to the insulation in insulated specifications.

1.4 Ancillary items outside of the scope of the assessment include:

- Guaraflex S — polymer-modified design mix asphalt screed⁽¹⁾ for use as a supporting layer under Guaraflex PR in warm roof specifications or as a protection layer over Guaraflex PR
(1) Available in a terrazzo finish for internal application.
- Flexible Fillet Strip — 15 mm thick by 45 mm wide torch-on flexible, preformed strip used as an alternative to an in-situ formed asphalt fillet
- Foamglas Type S3 — cellular glass insulation with a nominal compressive strength of 900 kNm⁻² for use in insulated specifications
- Foamglas Type F — cellular glass insulation with a compressive strength of 1700 kNm⁻² for use in insulated specifications
- Procoat — a liquid-applied polyurethane spray or float-applied rubber compound used for forming skirting details.

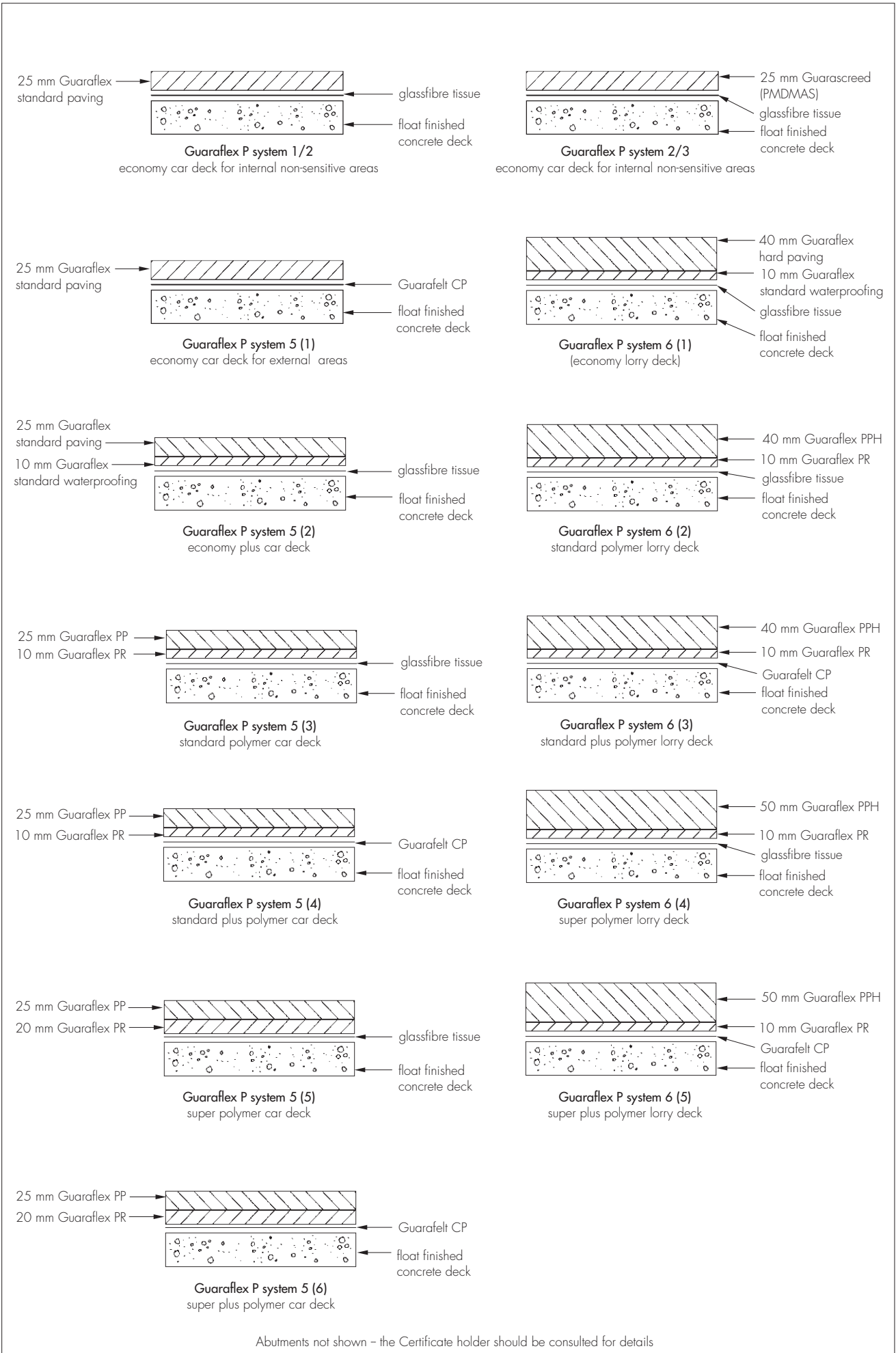
1.5 The standard specifications, descriptions and uses are given in Figure 1.

Quality control

1.6 Guaraflex P waterproofing and paving layers are manufactured by blending the appropriate bitumen, polymer, limestone filler and aggregates using conventional mixing techniques.

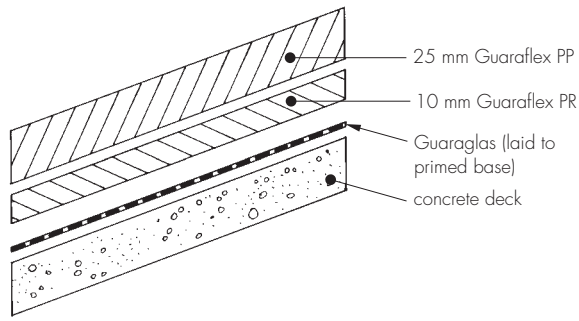
1.7 Quality control checks are performed on incoming raw materials, during production and on the finished components.

Figure 1 Standard specifications

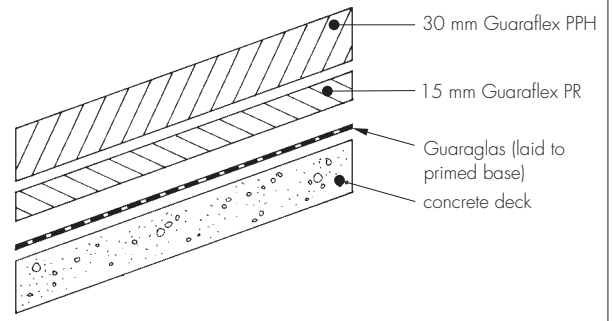


Abutments not shown - the Certificate holder should be consulted for details

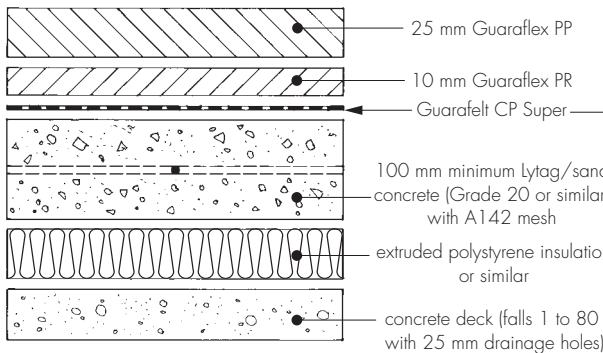
Figure 1 Standard specifications (continued)



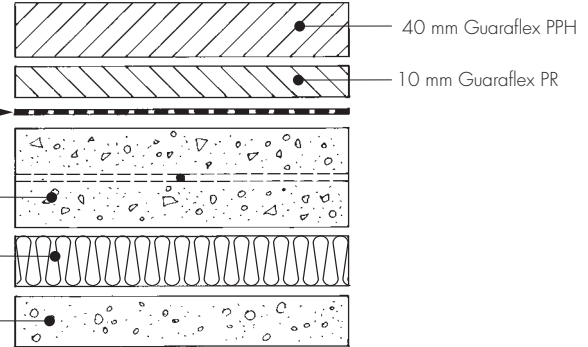
Guaraflex P system 7⁽¹⁾
external ramps (not exceeding 1 to 10 gradient)
for cars and light commercial vehicles



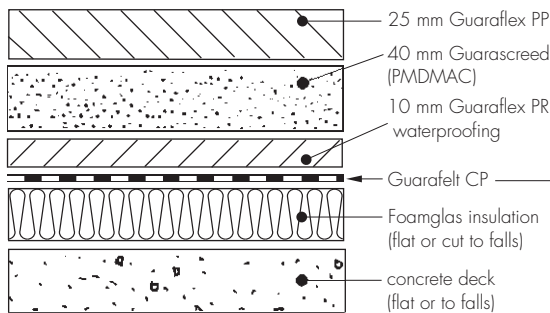
Guaraflex P system 8⁽¹⁾
external ramps (not exceeding 1 to 10 gradient)
for heavy commercial vehicles



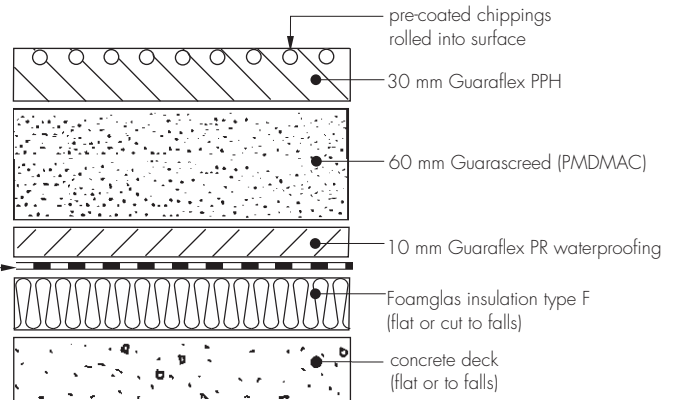
Guaraflex P system 9⁽¹⁾
insulated decks for cars and light
commercial vehicles (max wheel
load 2 tonnes per axle)



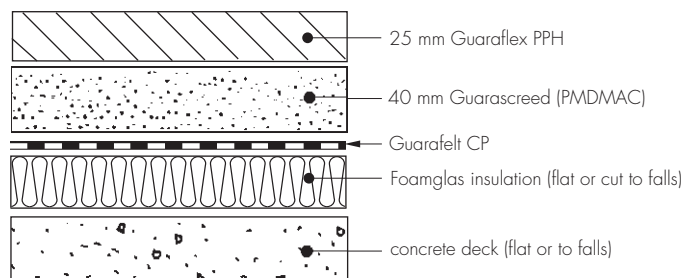
Guaraflex P system 10⁽¹⁾
insulated decks for heavy commercial vehicles
(max wheel load 10.5 tonnes per axle)



Guaraflex P system 11⁽¹⁾
insulated decks, 'fast-track' system for cars and light
commercial vehicles (max wheel load 2 tonnes per axle)



Guaraflex P system 12⁽¹⁾
insulated decks, 'fast-track' system for heavy goods
vehicles (max wheel load 10.5 tonnes per axle)



Guaraflex P system 13⁽¹⁾
covered insulated deck, 'fast-track' system for cars and light
commercial vehicles (max wheel load 2 tonnes per axle)

(1) Details at abutments not shown

2 Delivery and site handling

2.1 The products are supplied in hot charge (molten) form, delivered to site in purpose-built transporters. The product information is supplied on the relevant delivery notes with each consignment. The manufacturer's material safety data sheet should be consulted prior to discharging and handling the molten product.

2.2 Alternatively, the products may be supplied in block form (similar to traditional mastic asphalt) with labels bearing the product type and name. Each block weighs approximately 16 kg and should be stored in the same manner as traditional mastic asphalt.

2.3 The bitumen primer is supplied in 5 litre or 25 litre drums. The product is classified under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002* (CHIP3) and bears the appropriate hazard warning label. The flashpoint and hazard classification are given in Table 1.

2.4 Guaraflex and Guarafelt membranes are supplied in rolls and should be stored on end on a clean, level surface away from heat and protected from inclement weather.

Table 1 Flashpoint and hazard classification of the bitumen primer

Flashpoint (°C)	Classification
36	Flammable ⁽¹⁾ , Harmful

(1) The product should be stored in accordance with the Highly Flammable Liquids and Liquefied Petroleum Gases Regulations (1972).

Assessment and Technical Investigations

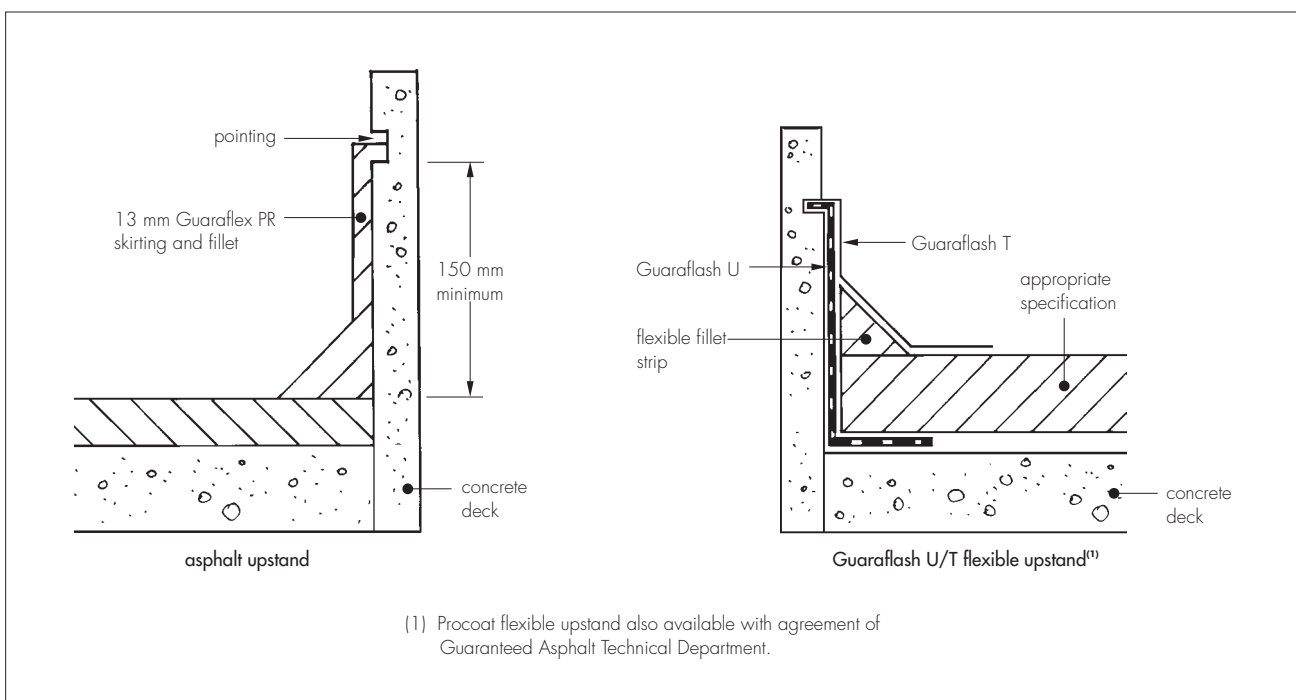
The following is a summary of the assessment and technical investigations carried out on Guaraflex P.

Design Considerations

3 General

3.1 Guaraflex P applied to a float-finished in-situ or precast screeded concrete deck, laid in accordance with BS 8110-1 : 1997, is satisfactory for use as a combined waterproof/wearing surface for rooftop car park decks and HGV service decks. The appropriate design specification (see Figure 1) should be selected for the appropriate trafficking situation, ie foot traffic, cars and light commercial vehicles or heavy goods vehicles. Typical details are shown in Figure 2.

Figure 2 Typical installation details



3.2 The concrete structure must be designed to support all static and imposed loads without undue deflection (the Certificate holder should be consulted for the weights imposed by specific design specification). A minimum fall of 1:80 is recommended to ensure good drainage to outlets and gutters.

3.3 Temporary drainage holes should be provided through the structural base to allow the downward drying of residual construction moisture or entrapped rainwater.

3.4 The product can accept, without damage, the foot and vehicular traffic defined in this Certificate, but some indentation should be expected from continuous heavy point loading.

3.5 In specifications incorporating Guarascreed (PMDMAC) and Foamglas insulation, ie Guaraflex P systems 11 to 13 in Figure 1, designers must ensure that imposed loads, especially heavy point loading, will be adequately resisted without undue deflection. In these cases, the advice of the Certificate holder must be sought.

4 Practicability of installation

The product can be installed readily by operatives experience with this type of material.

5 Weathertightness



5.1 Test data examined by the BBA confirm that the system will adequately resist the passage of water and water vapour to the inside of the building.

5.2 The system is impervious to water, and can accommodate the movement due to cracking permitted by BS 8110-1 : 1997 without leakage.

6 Properties in relation to fire

6.1 In the opinion of the BBA, the products will have similar properties in relation to fire as the traditional grades of mastic asphalt described in BS 8218 : 1998.



6.2 When fully supported on non-combustible concrete substrates, the system is deemed to be of designation AA.

6.3 The designation of other specifications should be confirmed by:

England and Wales — Test or assessment in accordance with Approved Document B, Appendix A, Clause A1

Scotland — Test to conform to Mandatory Standard 2.8, clause 2.8.1⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Test or assessment by a UKAS accredited laboratory, or an independent consultant with appropriate experience.

7 Resistance to wind uplift

The system when applied to an air impermeable deck will resist the effects of wind suction likely to occur in practice.

8 Resistance to mechanical damage

8.1 Tests indicate that the system can accept, without damage, the foot and vehicular traffic defined in this Certificate. Some indentation should be expected and reasonable care is required to avoid prolonged loading by sharp objects, (see the *Technical Investigations* section, Table for *Performance tests*).

8.2 The products can be detailed to accommodate the movement of designed expansion joints. The Certificate holder should be consulted for approved designs.

9 Maintenance



Gullies and drains should be kept free from leaves and debris, and damage resulting from abuse should be reported. Annual inspections should be made to report on the general integrity of the paving, paying particular attention to paving bay joints, expansion joints, mortar pointing, cover flashings, crash barrier supports and upstands.

10 Durability



10.1 Test data examined by the BBA indicate that the product is stable at high temperatures and is flexible and resistant to impact damage at low temperatures. Accelerated ageing tests indicate a satisfactory retention of properties.

10.2 The product has good chemical resistance to hydraulic fluids and aqueous solutions of acids, alkalis and de-icing salts, and is unaffected by contact with an alkaline substrate. Prolonged exposure to petrol and diesel may cause localised softening of the binder. In high-risk situations the advice of the Certificate holder should be sought, and a proprietary coating system used.

10.3 Available evidence indicates that the product should have a life expectancy in excess of that of conventional grades of mastic asphalt used in car parking and HGV service deck situations. With proper maintenance and repair, Guaraflex P should perform satisfactorily for a period in excess of 20 years.

11 General

11.1 Block material of Guaraflex P for re-melting on site is available for detail work and small horizontal areas. Coarse aggregate should be added to the re-melted paving material at 1% per mm thickness (see Table 2).

Table 2 Aggregate additions to paving material supplied in block form

Paving thickness (mm)	Size of coarse aggregate (mm)	Aggregate content (%)
25	6 or 10 ⁽¹⁾	25
30	6 or 10 ⁽¹⁾	30
40	6 or 10 ⁽¹⁾	40

(1) 6 mm aggregate used in Guaraflex PP, 10 mm aggregate used in Guaraflex PPH.

11.2 Concrete plinths should be cast off the structural slab to accommodate such features as crash barriers and handrail stanchions. The plinths should be at least 150 mm high and weatherproofed with Guaraflex PR waterproofing and a metal flashing where appropriate.

11.3 Where thermal insulation is required above the structural slab (see Figure 1, systems 9 and 10)⁽¹⁾, high-density or extruded polystyrene insulation is loose-laid direct to the float-finished base. Boards are tightly butted together with staggered joints, and accurately trimmed at abutments. An overlay screed of Lytag/sand concrete grade 20 or similar is applied direct to the extruded polystyrene with A142 steel wire mesh reinforcement placed at mid-height throughout.

(1) Alternative insulations may be used with the Certificate holder's consent.

11.4 Concrete structures should be designed and built in accordance with BS 8110-1 : 1997.

11.5 New concrete should be well compacted and finished, preferably by power floating and power trowelling, without excessive laitance, to a dense, smooth finish, free from defects. Concrete toppings/screeds⁽¹⁾ should be properly formulated, applied and compacted. They should be bonded to the substrate and have a wood-floated finish with minimum laitance.

(1) Alternatively, where the product is to be laid over an asphalt screed the advice of the Certificate holder should be sought.

11.6 A minimum curing period of 28 days is normally allowed before installing the product on new concrete substrates.

11.7 The surface must be dry, clean and free from loose particles, paint, grease and oil, or other contaminants which may affect the application of the product.

11.8 Substrates should be free from physical defects such as cracks. Small surface defects can be filled with a proprietary mortar.

11.9 When application is made to an old substrate the advice of the Certificate holder must be sought.

12 Procedure

12.1 Installation of the waterproofing layer should be carried out using the techniques for laying mastic asphalt described in the relevant Clauses of BS 8218 : 1998. Where not controlled by hot charge delivery, advice on the laying temperature of the paving layer should be obtained from the Certificate holder.

12.2 If required, Guaraflex PR waterproofing, can be applied over Guarafelt CP or Guarafelt CP Super felt underlay.

12.3 Guaraflex PP, Guaraflex PPH pavings and Guarascreed are applied in single layers and should be rubbed with coarse sharp sand with a wooden float, during the final floating of the hot asphalt. In addition a dimpled surface may be achieved by the use of a crimping roller.

12.4 Steel or timber gauges should be used to ensure the correct thickness of Guaraflex PP or PPH paving and to provide a bonding edge between adjacent bays of asphalt.

12.5 Ramps should be cross-tamped. To prevent undue thinning of Guaraflex PR waterproofing, the tamps should not exceed 5 mm in height, and it may be necessary to reduce the bay size to reduce slump during application. The advice of the Certificate holder should be sought regarding the design of service deck ramps for heavy goods vehicles.

12.6 In high-stress horizontal areas, 20 mm pre-coated chippings should be rolled into the surface to improve indentation resistance. The paving surface should not be sand rubbed when pre-coated chippings are used.

13 Repair

Localised repairs should be conducted by a specialist asphalt contractor, generally in accordance with the recommendations of BS 8218: 1998, Section 11.

14 Tests

14.1 The BBA obtained samples of the asphaltic cement for both Guaraflex P waterproofing and paving, and results of the BBA's tests for the system's general characteristics are summarised in Table 3.

Test (units)	Mean result	Method
Ash content (%)		BS 2000-223
Guaraflex PR	0.71	
Guaraflex PP	0.54	
Ring and ball softening point (°C)		BS 2000-58
Guaraflex PR	59	
Guaraflex PP	72	
Needle penetration at 25°C (dmm)		BS 2000-49
Guaraflex PR	38	
Guaraflex PP	25	

14.2 Results of the BBA's tests on the product's general physical properties are summarised in Table 4.

Test (units)	Mean result	Method
Density (kgm ⁻³)		direct measurement
10 mm Guaraflex PR	2137	
25 mm Guaraflex PP	2177	
25 mm Guaraflex PPH	2143	
Weight per unit area (kgm ⁻²)		direct measurement
10 mm Guaraflex PR	22	
25 mm Guaraflex PP	54	
25 mm Guaraflex PPH	54	
Tensile strength (Nmm ⁻²)		BS 2782-3.320
10 mm thick Guaraflex PR		
unaged	0.62	
56 days heat aged at 70°C	0.97	
180 days heat aged at 70°C	1.33	
Elongation (%)		BS 2782-3.320
10 mm Guaraflex PR		
unaged	3.6	
56 days heat aged at 70°C	1.9	
180 days heat aged at 70°C	0.9	
Water vapour permeability (gm ⁻² day ⁻¹)		BS 3177
10 mm Guaraflex PR	0.067	(75% RH/25°C)

14.3 Results of the BBA's service performance tests on the product are summarised in Table 5.

Table 5 Service performance

Test (units)	Result	Method
Resistance to water pressure (6 m head)	no penetration	MOAT 27 : Method 5.1.4
Resistance to static indentation at 23°C		MOAT 27 : Method 5.1.9
Guaraflex PP on concrete substrate	L ₄	
Guaraflex PPH on concrete substrate	L ₄	
Resistance to impact (4 mm diameter indenter with 9J impact energy)		MOAT 27 : Method 5.1.10
Guaraflex PP on concrete substrate		
20°C	I ₄ (no cracking)	
-10°C	I ₄ (no cracking)	
Guaraflex PPH on concrete substrate		
20°C	I ₄ (no cracking)	
-10°C	I ₄ (no cracking)	
Resistance to sliding ⁽¹⁾ (mm)		MOAT 27 : Method 5.1.7
Guaraflex PP on scabbled concrete		
7 days at 70°C, included at 45°C ⁽¹⁾	≤5	
Abrasion resistance (A'Court)		Generally to BS 784
Mean weight loss per hour (g m ⁻² hour ⁻¹)		
granolithic screed control	25	
Guaraflex PP	142	
Guaraflex PPH	144	
Resistance to chloride ions		BD 47/94
10 mm Guaraflex PR	no penetration	
Resistance to long-term loading (mm)		BBA Test Method ⁽²⁾
25 mm Guaraflex PP at 23°C		
10 tonnes m ⁻² for		
1 day	1.11	
7 days	1.65	
28 days	2.19	
34 tonnes m ⁻² for		
1 day	1.52	
7 days	2.47	
28 days	3.70	
25 mm Guaraflex PPH at 23°C		
10 tonnes m ⁻² for		
1 day	0.40	
7 days	0.54	
28 days	0.79	
34 tonnes m ⁻² for		
1 day	0.90	
7 days	1.11	
28 days	1.58	
Hardness at 23°C (dmm)		BS 5284
Guaraflex PP		
unaged	6	
heat aged at 70°C for		
28 days	7	
56 days	7	
112 days	7	
5 cycles ⁽³⁾ at 240°C	3	
6 hours at 250°C	7	
6 hours at 270°C	7	
after exposure to the following chemicals	1 day	7 day
petrol	19	17
diesel	13	24
brake fluid	7	5
engine oil	7	10
anti-freeze	8	8
salt solution	7	6
battery acid	9	11
Skid resistance (SRVp)		TRL Report 176 Appendix E
Guaraflex PPH		
before abrasion	75	
after abrasion	69	

(1) This is a subjective test only, as Guaraflex P is not normally applied to slopes in excess of 10°.

(2) 25 kg and 85 kg loads applied to 50 mm by 50 mm steel plates placed on Guaraflex PP and Guaraflex PPH.

(3) 1 cycle = 6 hours heating at 240°C and 18 hours cooling at ambient temperature.

15 Investigations

15.1 The manufacturing process was examined, including the methods adopted for quality control, and details were obtained of the quality and composition of materials used.

15.2 An assessment was made of the system's behaviour in fire, based on the performance of traditional grades of mastic asphalt applied to concrete substrates.

15.3 A user-survey of existing sites in the UK was carried out to assess the system's performance, resistance to rutting and durability in service.

15.4 An assessment was made of the system's resistance to hard body impact.

Additional Information

The management systems of Guaranteed Asphalt Ltd have been assessed and registered as meeting the requirements of BS EN ISO 9002: 1994 by the British Standards Institution Quality Assurance, Certificate Nos KM 07942 and KM 07350.

Bibliography

BS 784 : 1973 *Methods of test for chemical stoneware*

BS 2000-49 : 1993 *Methods of test for petroleum and its products — Determination of needle penetration of bituminous material*

BS 2000-58 : 1993 *Methods of test for petroleum and its products — Determination of softening point of bitumen — Ring and ball method*

BS 2000-223 : 1993 *Methods of test for petroleum and its products — Determination of ash of petroleum products containing mineral matter*

BS 2782-3.320A to 320F : 1976 *Methods of testing plastics — Mechanical properties — Tensile strength, elongation and elastic modulus*

BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*

BS 5284 : 1976 *Methods. Sampling and testing mastic asphalt and pitchmastic used in building*

BS 8110-1 : 1997 *Structural use of concrete — Code of practice for design and construction*

BS 8218 : 1998 *Code of practice for mastic asphalt roofing*

BS EN ISO 9002 : 1994 *Quality systems. Model for quality assurance in production, installation and servicing*

MOAT No 27 : 1983 *General Directive for the Assessment of Roof Waterproofing Systems*

TRL Report 176 : 1997 *Laboratory tests on high-friction surfaces for highways*

BD 47/94 *Waterproofing and Surfacing of Concrete Bridge Decks, Appendix B Certification Test Requirements for Waterproofing Systems on concrete Bridge Decks*

16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

16.2 References in this Certificate to any Act of Parliament, Statutory Instrument, Directive or Regulation of the European Union, British, European or International Standard, Code of Practice, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

16.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

16.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.