

Product



- THIS DETAIL SHEET RELATES TO GUARAFLEX R ROOF WATERPROOFING SYSTEM.
- The system is for use on flat roofs with limited access in either an inverted roof specification or a protected roof specification (eg covered by pavers or other suitable protection).

The Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the applications, and the Conditions of Certification, respectively.

Design Data

1 General

1.1 Guaraflex R Roof Waterproofing System is satisfactory for use on flat, limited or pedestrian access roofs as:

- (1) A waterproofing layer in an inverted roof specification.
- (2) A waterproofing layer protected by pavers or other suitable protection.
- (3) A waterproofing layer (tanking specification) on a flat roof with a zero fall slope.

Note: The design specification (see Figure 1) should be selected for the appropriate roof design.

1.2 Limited access roofs are defined for the purpose of this Certificate as those roofs subjected only to pedestrian traffic for such duties as maintenance of the roof covering and cleaning of gutters. Where traffic in excess of this is envisaged, special precautions such as additional protection to the membrane must be taken.

1.3 Flat roofs are defined for the purpose of this Certificate as those roofs having a minimum finished fall of 1:80. Pitched roofs are defined as those having falls in excess of 1:6. Completely flat roofs are defined for the purpose of this Certificate as those roofs having a finished fall of less than 1:80:

- (a) as described in the relevant clauses of BS 8217 : 1994, or
- (b) the subject of a current BBA Certificate and be used in accordance with and within the limitations of that Certificate.

1.4 Precast concrete and concrete block decks to which the product is to be applied must comply with the relevant requirements of BS 6229 : 1982,

BS 8217 : 1994 and, where appropriate, NHBC Standards, Chapter 7.1 or the Zurich Building Guarantees Technical Standards, Section 5, clause 5.9.3.19.

2 Weathertightness



2.1 Data examined confirm that the system will adequately resist the passage of moisture to the inside of the building and so meet or satisfy the relevant requirements of the national Building Regulations:

England and Wales

Approved Document C, Requirement C4, Section 5.1

Scotland

Regulation 17, Standard G3.1

Northern Ireland

Regulation C4.

2.2 The membrane is impervious to water and, when used in the systems described will give a waterproofing layer capable of accepting minor structural movements without damage.

3 Resistance to foot traffic

3.1 Results of tests indicate that provided there are no sharp objects present on the membrane's surface prior to and during installation of the protective layer above, it will not be damaged by normal foot traffic.

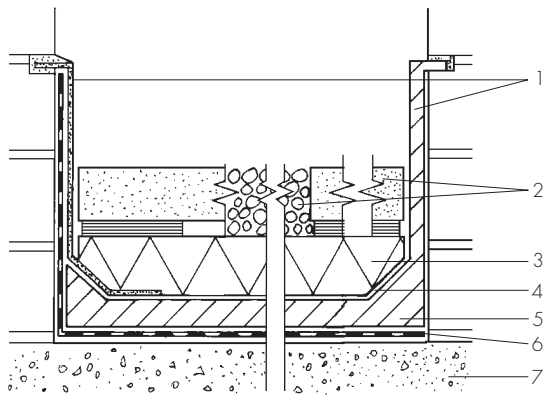
3.2 The membrane can accept, without damage distributed loads. Concentrated point loads can cause damage and should be avoided.

4 Properties in relation to fire



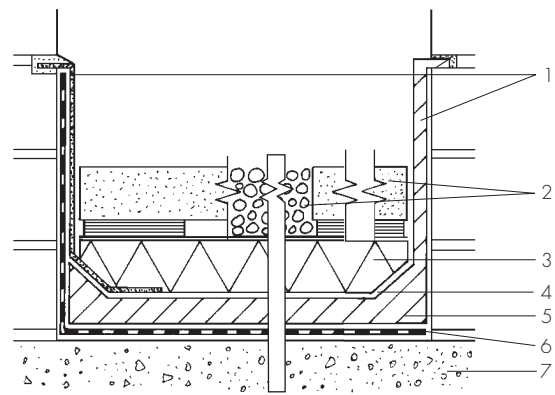
4.1 In the opinion of the BBA, Guaraflex R will have similar properties in relation to fire as the traditional grades of mastic asphalt described in BS 8218 : 1998.

Figure 1 Design specifications



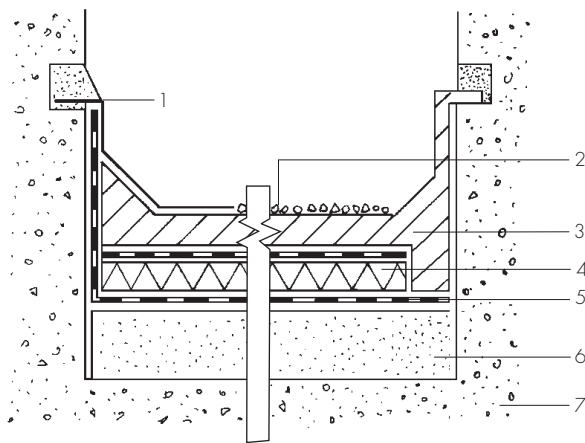
System 1 – standard inverted insulated roofs/patios

- 1 Guaraflex U and T upstand or traditional asphalt upstand with Guaraflex PR
- 2 precast paving slabs on pads/gravel ballast 50 mm to 75 mm
- 3 thermal insulation
- 4 geotextile membrane
- 5 15/20 mm Guaraflex PR
- 6 Guarafelt CP
- 7 concrete substrate with asphalt/sand-cement screed to falls



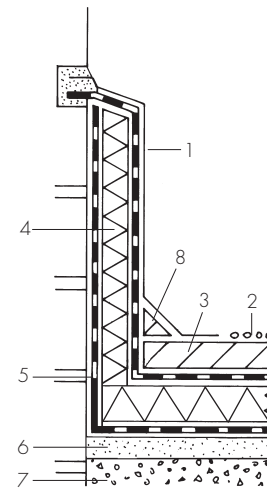
System 2 – super inverted insulated roofs/patios

- 1 Guaraflex U and T upstand or traditional asphalt upstand with Guaraflex PR
- 2 precast paving slabs on pads/gravel ballast 50 mm to 75 mm
- 3 thermal insulation
- 4 geotextile membrane
- 5 20 mm Guaraflex PR
- 6 Guarafelt CP Super
- 7 concrete substrate flat or with asphalt/sand-cement screeds to falls



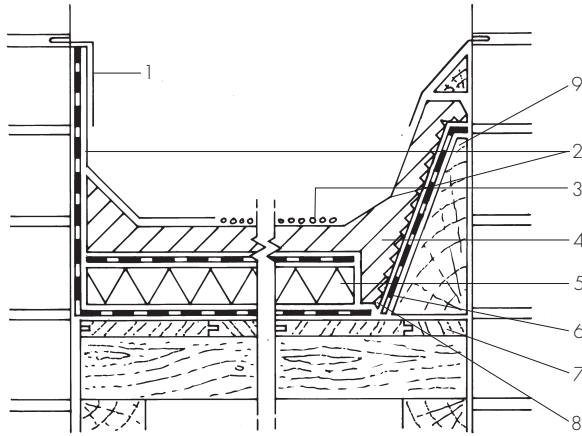
System 2R – concrete deck screeded to falls

- 1 Guaraflex U and T upstand, or traditional asphalt upstand with Guaraflex PR
- 2 solar reflective paint or 10 mm reflective chippings in bitumen
- 3 15/20 mm Guaraflex PR on Guarafelt CP with asphalt screed or Guarafelt CP Super with sand-cement screed
- 4 insulation board
- 5 single-layer Guaraflex PR or two-layer high-performance felt vapour barrier
- 6 asphalt/sand cement screed to falls
- 7 concrete deck

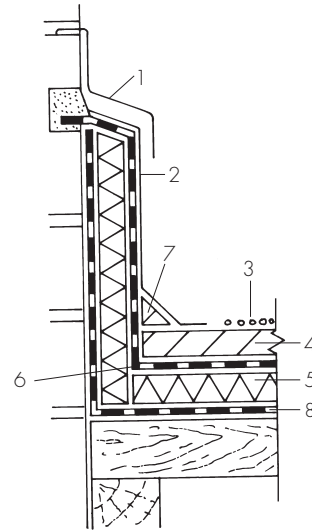


System 2R – concrete deck screeded to falls – with insulated upstand

- 1 Guaraflex U and T upstand
- 2 solar reflective paint or 10 mm reflective chippings in bitumen
- 3 15/20 mm Guaraflex PR on Guarafelt CP with asphalt screed or Guarafelt CP Super with sand-cement screed
- 4 insulation board
- 5 single-layer Guaraflex PR or two-layer high-performance felt vapour barrier
- 6 asphalt/sand cement screed to falls
- 7 concrete deck
- 8 Guaraflex PR angle fillet



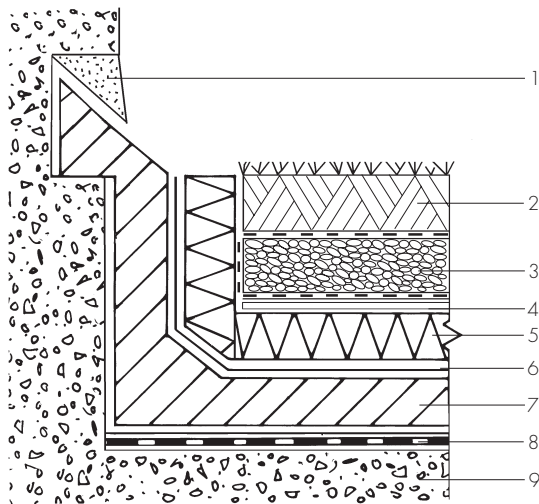
System 3R – timber deck



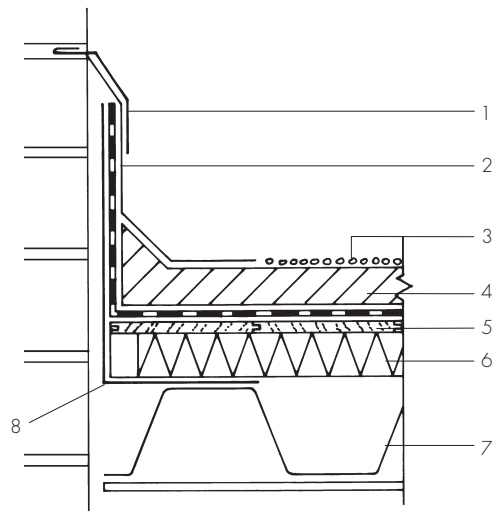
System 3R – timber deck with insulated upstand

- 1 cover flashing
- 2 Guaraflex U and T upstand or traditional asphalt upstand with Guaraflex PR
- 3 solar reflective paint, or 10 mm reflective chippings in bitumen
- 4 1.5/20 mm Guaraflex PR on Guarafelt CP or CP Super
- 5 insulation board
- 6 single-layer Guaraflex PR or two-layer high-performance felt vapour barrier
- 7 plywood deck or softwood boarding
- 8 expanded metal lathing on Guarafelt sheathing
- 9 free-standing timber kerb

- 1 cover flashing
- 2 Guaraflex U and T upstand or traditional asphalt upstand with Guaraflex PR
- 3 solar reflective paint, or 10 mm reflective chippings in bitumen
- 4 1.5/20 mm Guaraflex PR on Guarafelt CP or CP Super
- 5 insulation board
- 6 single-layer Guaraflex PR or two-layer high-performance felt vapour barrier
- 7 Guaraflex PR angle fillet
- 8 vapour barrier



Insulated roof gardens and planters

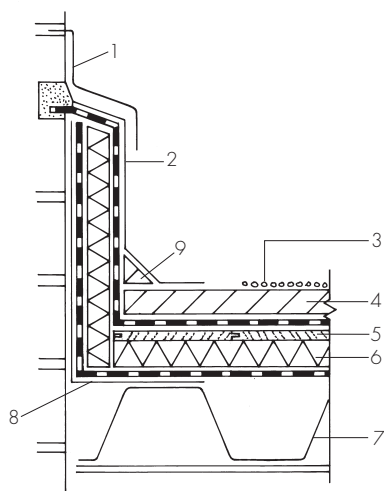


System 4R – metal deck

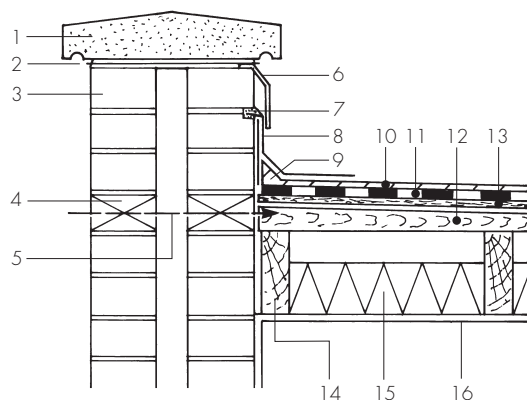
- 1 cement mortar pointing
- 2 soil and vegetation
- 3 filter layer with filter membrane
- 4 paving slab
- 5 insulation board
- 6 non-woven polyester fleece isolating layer
- 7 three-coat Guaraflex PR, 30 mm horizontally and 20 mm vertically, continued 150 mm above landscaped level
- 8 Guarafelt CP Super
- 9 concrete roof deck/screed

- 1 cover flashing
- 2 Guaraflex U and T insulated upstands
- 3 solar reflective paint or chippings
- 4 20 mm Guaraflex PR on Guarafelt CP Super
- 5 plywood joints taped with Guarafelt CP
- 6 insulation board with plywood face and foil vapour barrier fixed to deck
- 7 metal deck
- 8 metal angle

Figure 1 Design specifications (continued)



System 4R – metal deck with insulated upstands



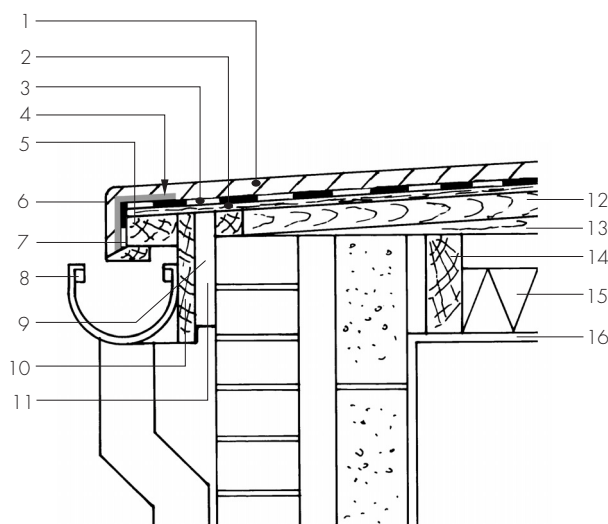
DS2 – timber deck

- 1 cover flashing
- 2 Guaraflex U and T insulated upstand
- 3 solar reflective paint or chippings
- 4 20 mm Guaraflex PR on Guarafelt CP Super
- 5 plywood joints taped with Guarafelt CP

- 6 insulation board with plywood face and foil vapour barrier fixed to deck
- 7 metal deck
- 8 metal angle
- 9 Guaraflex PR angle fillet

- 1 concrete coping stone or similar capping
- 2 damp-proof course
- 3 brick cavity wall
- 4 air brick or similar ventilation
- 5 air flow ventilation space
- 6 metal cover flashing
- 7 25 mm by 25 mm chase with mastic sealant pointing
- 8 Guaraflex U and T upstand

- 9 angle fillet
- 10 15/20 mm Guaraflex PR
- 11 Guarafelt CP Super
- 12 timber firrings, minimum fall 1:80
- 13 timber board-type decking or similar
- 14 softwood roof joists
- 15 insulation
- 16 foil-backed plasterboard ceiling



DS1 – timber deck

- 1 15/20 mm Guaraflex PR
- 2 softwood or plywood decking to cross battens at 450 mm centres
- 3 Guarafelt CP Super
- 4 EML
- 5 softwood batten 50 mm by 75 mm screwed through fascia
- 6 Guaraflex PR apron 15 mm with splayed edge
- 7 temporary splay batten to form asphalt feathered edge to apron
- 8 150 mm deep-flow PVC guttering fixed level to provide shallow falls with gutter brackets; brick or block cavity walls

- 9 25 mm air flow gap between brickwork and fascia
- 10 25 mm timber fascia board fixed to 25 mm by 75 mm hardwood
- 11 insect mesh fixed to fascia
- 12 softwood cross battens 38 mm by 38 mm
- 13 softwood firrings fixed to timber roofing joists
- 14 softwood roofing joists
- 15 insulation laid between joists with minimum 75 mm air flow from top of firrings
- 16 foil-backed plasterboard ceiling



4.2 When used for flat roofs with one of the supporting structures prescribed in the national Building Regulations the roof is deemed or considered to be of designation AA, thus:

England and Wales

Approved Document B, Appendix A, Table 5, Part IV

Northern Ireland

Technical Booklet E, Table 4.6, Part III.



4.3 The designation of other specifications (eg on combustible substrates) should be confirmed by:

England and Wales

test or assessment in accordance with Approved Document B, Appendix A, Clause A1

Scotland

test to confirm with Standard D9.1

Northern Ireland

test or assessment by a UKAS accredited fire testing laboratory, or an independent consultant with appropriate experience.

5 Durability



5.1 Test data indicate that Guaraflex PR has improved high-temperature stability and increased extensibility at lower temperatures than those of conventional mastic asphalt. Accelerated ageing tests indicate a satisfactory retention of properties. On the basis of available data, Guaraflex R should have a life expectancy in excess of that of conventional grades of mastic asphalt used in roofing applications.

5.2 When fully protected and subject to normal service conditions it will provide an effective barrier to the transmission of liquid water and water vapour for the design life of the roof/substructure on which it is incorporated.

Installation

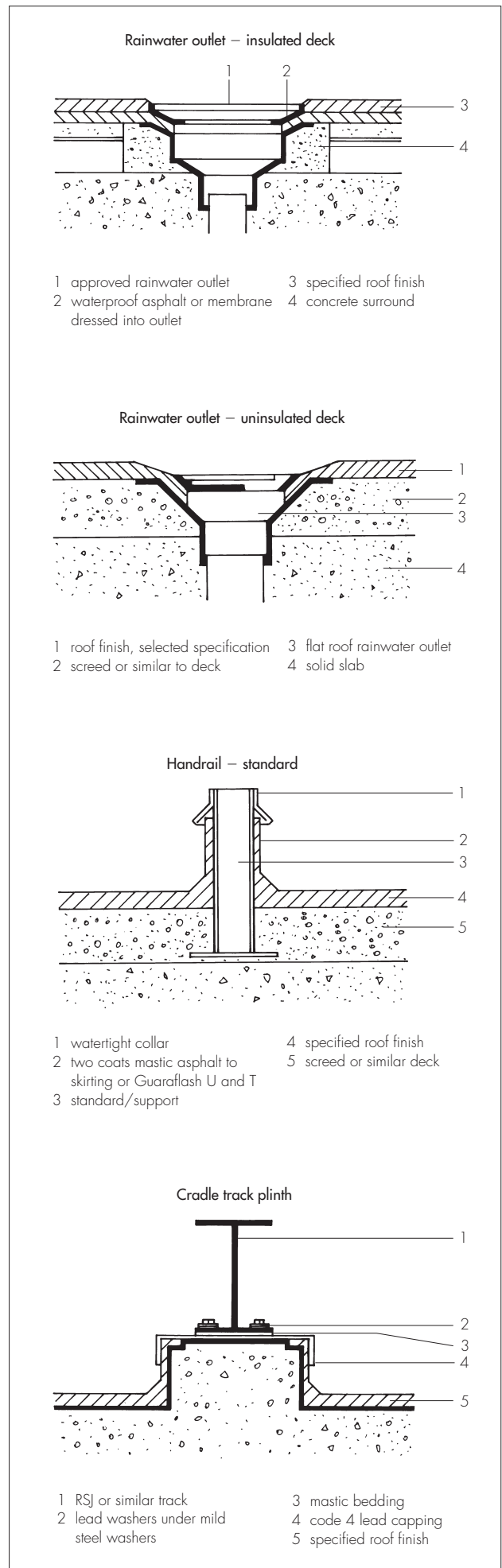
6 Procedure

6.1 Deck surfaces must be dry, clean, and free from sharp projections such as nail heads and concrete nibs.

6.2 Installation of Guaraflex R should be carried out using the traditional techniques for laying mastic asphalt described in the relevant clauses of BS 8218 : 1998 and in accordance with the manufacturer's instructions. Due to the improved high temperature stability of the product, remelt temperature may be 10°C higher than that quoted in the Code of Practice.

6.3 Where applicable, details are to be worked in accordance with traditional methods (see Figure 2 for typical installation details).

Figure 2 Typical installation



6.4 On completion of the roof the final coat should be rubbed with coarse sharp sand using a wooden float. For solar protection, or for protection against foot traffic, Guaraflex R should have one of the following surface finishes:

- (1) mineral aggregates, of 10 mm nominal size (limestone, granite, calcined flint, calcite, feldspar) bedded in a suitable compound
- (2) ballast of 20 mm to 40 mm graded aggregate, loose-laid on insulation, but secured around outlets, internal/external angles and roof perimeters
- (3) light-coloured pedestrian tiles bedded in a suitable compound
- (4) concrete paving slabs on proprietary support pads
- (5) solar reflective paint approved by Guaranteed Asphalt Ltd and applied in accordance with the manufacturer's instructions.

6.5 Other applications, such as green roofs or roof gardens, may need a protective screed laid on the asphalt or an isolating membrane, depending on the circumstances. In these situations the advice of Guaranteed Asphalt Ltd should be sought.

Bibliography

BS 6229 : 1982 *Code of practice for flat roofs with continuously supported coverings*

BS 8217 : 1994 *Code of practice for built-up felt roofing*

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



On behalf of the British Board of Agrément

Date of Second issue: 11th December 2002

Chief Executive

**Original Detail Sheet issued 30th March 2000. This amended version includes reference to the revised national Building Regulations, Detail Sheet format change, changes to design specification and additional design specification diagrams.*

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