
Reinforced bitumen sheets for roofing — Specification

ICS 91.060.20

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee B/546, Flexible sheets for water and water vapour control, upon which the following bodies were represented:

- Association of British Roofing Felt Manufacturers
- Association of Building Component Manufacturers
- British Flat Roofing Council
- Construction Confederation
- Consumer Policy Committee of BSI
- Department of the Environment, Transport and the Regions (Represented by BSI)
- Department of the Environment, Transport and the Regions (Construction Directorate)
- Flat Roofing Alliance
- Mastic Asphalt Council Ltd.
- National Federation of Roofing Contractors
- National House Building Council
- Royal Institute of British Architects

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- Builders Merchants Federation
- London Chamber of Commerce Inc.

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Foreword

This British Standard has been prepared by Technical Committee B/546. It supersedes BS 747:1994, which is withdrawn.

Traditionally, products covered by this standard have been known as “felt”. Whilst the term remains valid in respect of class 4 products, the opportunity has been taken in this revision to change the title of the standard and of class 1, 3 and 5 products to the more accurate term “reinforced bitumen sheets for roofing”. This term also accords with titles of draft European Standards for these products.

This edition introduces changes which:

- improve the performance of type 3E mineral surface product by increasing the mass of the glass base and the amount of the bitumen coating;
- increase the number of class 5 products to include the ranges of polyester products in common use;
- introduce changes to the class 4 sheathing felts to reflect those now commonly and successfully used in practice.

The following types of pre-formed base roofing sheets are covered in this edition of BS 747.

Types of pre-formed base roofing sheets	Fibre base	Asbestos base	Glass fibre base	Polyester base
Fine mineral surfaced sheet, e.g. fine sand, talcum etc.	—	—	3B	5B and 5U
Granule surfaced sheet, e.g. slate granite or ceramic	—	—	3E	5E
Reinforced sheet	1F	—	—	—
Venting base layer	—	—	3G	—

A roofing sheet consists essentially of matted fibre rendered partially or completely impervious to water by treatment with bituminous materials. According to the purpose and type of roofing sheet required, the fibres may be derived from various sources, most commonly vegetable (e.g. cotton, jute, flax, wood pulp), mineral (e.g. glass), man made fibres (e.g. polyester) or a mixture of these.

Unproofed sheets are made in various thicknesses, masses, textures and mechanical strengths, depending partly upon the physical nature of the fibre. Whilst some are close textured and tough, others are of open texture and low strength, although treatment with the proofing generally increases the mechanical strength. The types of proofing materials, blended to give the required properties, include bitumens derived from petroleum oils.

Class 1, 3 and 5 products are manufactured by passing the untreated base through a tank containing a saturating material (bitumen), which is maintained in a hot fluid condition. Any excess saturant is removed by passing through rollers. These products are then coated with a more highly weather resistant material consisting of bitumen and a mineral filler. (The saturation process for the lightweight polyester and glass bases is optional as long as the material is sufficiently saturated during the coating process.)

The surface of the coated sheet is then covered with a surfacing material, appropriate to the type of product, which prevents sticking in the roll and which can also provide a decorative and protective finish.

Class 4 sheathing felts are not manufactured from a pre-formed base as with class 1, 3 and 5 products but are manufactured from comparatively long staple fibres, which are formed as a loose open batt on the production machine. This batt is immediately treated with the impregnating materials derived from petroleum oils or certain wood pitches and resins which bond the fibres together. These felts are used mainly as underlays for other roofing materials such as mastic asphalt and metal roof coverings.

Class 5 polyester-based products have improved performance capability, which is derived from the improved reinforcing properties and greater mechanical strength of the polyester base. The final properties of the bitumen polyester sheet are related to the mass/area ratio of the sheet, the composition of the base (polyester fibre/binder content) and the method of production. The four masses of polyester base which are in common use are now included in this standard, the properties of which are specified in Table 5.

The particular technical benefits conferred by bitumen polyester roofing sheets are:

- an improvement in the capability of the built up roof covering to accommodate deformation or movement;
- an increase in the puncture and general mechanical damage resistance of the covering;
- a higher nail holding or nail anchorage capability by virtue of the increased tear resistance of the polyester base.

Recommendations for the application of these products are given in BS 5534-1, BS 8000-4, BS 8204-5, BS 8217, BS 8218, CP 143-12 and CP 143-15.

Annex A is informative. Annexes B, C and D are normative.

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