

**BRITISH STANDARD CODE OF PRACTICE**

**CP 144:Part 3: 1970**

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**METRIC UNITS**

# **ROOF COVERINGS**

**Part 3. Built-up bitumen felt.**

**Metric units**

**THE COUNCIL FOR CODES OF PRACTICE  
BRITISH STANDARDS INSTITUTION**



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CP 144 : Part 3 : 1970

# ROOF COVERINGS

## Part 3. Built-up Bitumen felt.

### Metric units

Incorporating amendment issued April 1978 (AMD 2527)

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BRITISH STANDARD CODE OF PRACTICE  
ROOF COVERINGS

PART 3. BUILT-UP BITUMEN  
FELT. METRIC UNITS

This Part of CP 144 has been prepared by a committee convened by the Codes of Practice Committee for Building. Having been endorsed by the Council for Codes of Practice, it was published under the authority of the Executive Board on 14th December, 1970.

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This Code of Practice makes reference to the following British Standards and Codes of Practice:

BS 476. Fire tests on building materials and structures.  
Part 3. External fire exposure roof tests.

BS 743. Materials for damp proof courses. Part 2. Metric units.

BS 747. Roofing felts.

BS 1088 & BS 4079 Plywood for marine craft.

BS 1105 Wood wool slabs up to 102 mm thick.

BS 1142. Fibre building boards.

BS 1202. Nails.

BS 1455 Plywood manufactured from tropical hardwoods.

BS 1474. Wrought aluminium and aluminium alloys.  
Bars, extruded round tube and sections.

BS 2604. Resin-bonded wood chipboard.

BS 2717. Glossary of terms applicable to roof coverings.

BS 3235. Test methods for bitumen.

BS 3444 Blockboard and laminboard.

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- BS 3690. Bitumens for road purposes.
- BS 3717. Asbestos cement decking.
- BS 3837 Expanded polystyrene boards.
- BS 3940. Adhesives based on bitumen or coal tar.
- BS 5250 Code of basic data for the design of buildings:  
the control of condensation in dwellings.
- BS 5268 Code of practice for the structural use of timber.  
Part 5. Preservative treatments for constructional  
timber.
- CP 3. Code of basic data for the design of buildings.  
Chapter V (Part 2 : 1970). Wind loading. Metric  
units.  
Chapter V (1967). Loading.  
Part 1. Dead and imposed loads.

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*British Standard Codes of Practice are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users ascertain that they are in possession of the latest amendments or editions.*

The following BSI reference relates to the work on this Code of Practice:  
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CP 144 : Part 3 : 1970

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**This Code of Practice represents a standard of good practice and takes the form of recommendations. Compliance with it does not confer immunity from relevant legal and statutory requirements.**

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## BRITISH STANDARD CODE OF PRACTICE CP 144

## ROOF COVERINGS

## Part 3. Built-up bitumen felt. Metric units

## FOREWORD

This metric edition of CP 144, which has been designated Part 3, is the metric version of Part 1 published in imperial units in June, 1968.

Part 3 is not a technical revision of the Code, and has been prepared as part of the change to the metric system in the construction industry giving values in SI units. For further information on SI units, reference should be made to PD 5686\*. The Code of Practice was first published in 1952, and revised in 1961 and 1968 when fixing techniques were included for the appropriate insulation materials and also guidance on the use and application of vapour barriers, together with information on methods of ventilation to assist the drying out of the substructure. Part 3 is virtually the same, but with metric units.

The dimensional co-ordination recommendations† of Technical Committee B/94, Modular Co-ordination in Building, are applied where appropriate to the Code.

## 1. GENERAL

## 1.1 SCOPE

1.1.1 This Code with the use of bitumen felts conforming to BS 747‡.

1.1.2 It sets down requirements for materials, design and construction of roofs and the preparation of surfaces on which built-up roofing is to be laid and gives general recommendations to ensure a satisfactory roof covering.

1.1.3 The Code does not deal with the requirements of temporary structures where a single layer of felt is sometimes used.

\* PD 5686, 'The use of SI units'.

† BS 2900, 'Recommendations for the co-ordination of dimensions in building. Glossary of terms'.

BS 4011, 'Recommendations for the co-ordination of dimensions in building. Basic sizes for building components and assemblies'.

BS 4330, 'Recommendations for the co-ordination of dimensions in building. Controlling dimensions'.

PD 6444, 'Recommendations for the co-ordination of dimensions in building. Basic spaces for structure, external envelope and internal sub-division'.

PD 6445, 'Recommendations for the co-ordination of dimensions in building: tolerances and joints. The derivation of building component manufacturing sizes from co-ordinating sizes'.

‡ BS 747, 'Roofing felts', Part 2, 'Metric units'.

**1.1.4** For the selection of felts, see A.2.

**1.1.5** In this Code the word ' must ' indicates a requirement that is to be adopted to comply with the Code, while the word ' should ' indicates a recommended practice.

## 1.2 DEFINITIONS

Many of the roofing terms used throughout this Code have meanings assigned to them in BS 2717\*; for the purposes of this Code the following definitions additional to those included in BS 2717\* apply:

(1) *Mopping*. The method of application of hot bitumen compound by means of mops and brushes.

(2) *Pouring and rolling*. The method of application of hot bitumen compound by pouring in advance of the roll of roofing felt when laying.

## 1.3 EXCHANGE OF INFORMATION AND TIME SCHEDULE

The working drawings and specification should be prepared in sufficient detail and should be available to the roofing contractor to afford proper guidance in the preparation of estimates and execution of the work. The design should include details of the construction of the roof and of its built-up roof coverings and finishes in relation to such requirements as may affect them, such as thermal insulation, type of substructure suitable for the application of built-up felt roofing, weather resistance, durability, solar reflectivity and surfaces to take foot traffic.

**1.3.1** Where bills of quantities form part of the contract, they should be prepared in accordance with the Standard Method of Measurement of Building Work. There should be a full exchange of information between all concerned with the roofing and work adjacent to it to ensure that the covering can be carried out at the proper time and to ensure that all necessary provisions have been made for fixing, for disposal of rainwater and methods of temporary drainage of lightweight screeds, until the roof covering is completed.

**1.3.1.1** *General information should include the following:*

(1) description and precise location of the site and any unusual conditions or circumstances relating to access to the site;

(2) number of attendances, proportion of work at each attendance; and interval of time between each, assuming average weather conditions;

(3) whether hoisting facilities and scaffolding will be supplied free of charge by the main contractor for the use of the felt roofing contractor;

\* BS 2717, ' Glossary of terms applicable to roof coverings '.

(4) time schedule; the roofing contractor should be consulted to enable him to make sure that times allocated for his work are feasible.

**1.3.1.2 Design information should include the following:**

- (1) area and position of roofs to be covered;
- (2) height of roofs above ground;
- (3) nature and type of substructure, screeding and thermal insulation;
- (4) special conditions, such as traffic, special processes and unusual conditions.

**1.3.1.3 Roofing information (for the laying of built-up roofing) should include the following:**

- (1) gradient and direction of falls;
- (2) class and weight of felt;
- (3) number of layers;
- (4) nailing battens on slope and vertical work;
- (5) any unusual method of fixing;
- (6) details and treatment at eaves, verges and abutments;
- (7) surface finish required.

## 2. MATERIALS

### 2.1 GENERAL

Materials in the substructure, such as cement and sand for screeding, woodwool slabs, insulating materials, lightweight aggregates for screeds, nails, metal for flashings, should conform to the relevant British Standards.

**2.1.1 Roofing felts.** Roofing felts conforming to the requirements of BS 747\* should be selected from the types detailed in A.2 (see also 3.13).

**2.1.2 Bitumen primer.** In the absence of a British Standard, the following will give an indication of the type which is suitable.

Bitumen cut-back with volatile solvent having the following characteristics:  
viscosity: Redwood No. 2 at 21 °C—25 s maximum;  
volatile solvent 60 % by weight.

**2.1.3 Bitumen bonding compound.** Bitumen bonding compound should comply with type 8 adhesives of BS 3940†.

The roofing contractor will advise on the type of bitumen to be used, depending on the type of structure and situation.

\*BS 747, 'Specification for roofing felts'.

† BS 3940, 'Adhesives based on bitumen or coal tar'.

**2.1.4 Bitumen dressing compound.** Cut-back bitumen to BS 3690\*, Grade 25 s, has been found suitable for bedding mineral chippings to built-up felt roofing. This should not be interpreted as excluding the use of any other grade of bitumen-based dressing compound recommended by the felt roofing contractor.

NOTE. The properties of the bitumen materials referred to in 2.1.1, 2.1.3 and 2.1.4 are based on the methods of test in BS 3235, 'Test methods for bitumen'.

## 2.2 SCREEDS

Normally the mixture for screeds on which built-up roofing is to be laid should be one part of cement to four parts of clean coarse sand by volume.

## 2.3 INSULATING MATERIALS

Where thermal insulation is required under built-up roofing, it may consist of one of the following, which does not exclude the use of other suitable insulating materials.

(1) *Granulated cork slabs.* The slabs should consist of pure granulated cork, compressed into slab form, steam baked and held together by the natural cork gum. The thickness of the cork slab will vary according to the thermal insulation required.

(2) *Fibre insulation board.* Fibre insulation board complying with BS 1142\*. The thickness of the insulation board will vary according to the thermal insulation required.

(3) *Lightweight concrete.* Lightweight aggregate mixed with cement or aerated concrete laid to the manufacturer's instructions. The thermal insulation value will depend upon the density, the water content and the thickness laid.

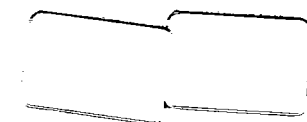
(4) *Expanded polystyrene.* Prefelted expanded polystyrene, HD grade, can be used on roofs which will be inaccessible after completion.

*As altered  
April 1978*

(5) *Fibre glass board.* The board should consist of resin-bonded glass fibre of 144 kg/m<sup>3</sup> density and finished with a waterproof paper on one side. The thickness of the board will vary according to the insulation required.

A screed should not be laid over dry insulation material.

\* BS 3690, 'Bitumens for road purposes'.  
\* BS 1142, 'Fibre building boards'.



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## 2.4 ROOF DECK MATERIALS

*As altered  
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**2.4.1** Roof decks may be selected from the following materials and care should be taken in the design to prevent ingress of moisture.

- (1) Concrete.\*
- (2) Hollow tiles and hollow beams.
- (3) Precast concrete beams\*.
- (4) Precast cellular concrete beams\*.
- (5) Metal decking complying with the requirements of the Metal Roof Deck Association code of design and technical requirements for light gauge metal roof decks.
- (6) Asbestos cement decking complying with the requirements of BS 3717.†
- (7) Wood wool slabs complying with the requirements of BS 1105.‡
- (8) Timber complying with the natural durability levels or preservative treatment recommendations given in BS 5268 : Part 5.\*\*
- (9) Plywood complying with the requirements of BS 1088,†† excepting Gaboon, or with the requirements of BS 4079.††

**2.4.2** The following materials may also be used as roof decks in the knowledge that they may be subject to excessive movement and may fail structurally from persistent moisture ingress arising from site exposure, condensation or leakage. Designers wishing to use these decks should ensure that every step is taken to minimize such risks.

- (1) Timber, the durability of which is below that given in 2.4.1 (8) and which has not been treated with preservative.
- (2) Resin bonded wood chipboard complying with the requirements of BS 2604††.
- (3) Plywood having a performance equivalent to MR or better as specified in BS 1455§§.
- (4) Blockboard and laminboard complying with the requirements of BS 3444|||.

## 2.5 NAILS

Nails for fixing felt to timber structures must be not less than 19 mm ( $\frac{3}{4}$  in) galvanized round extra large headed clout nails conforming to the requirements of BS 1202§.

*As altered  
April 1978*

\* If these items contain high alumina cement, reference should be made to the Building Regulations regarding the use of this material.

† BS 3717, 'Asbestos cement decking'.

‡ BS 1105, 'Wood wool slabs up to 102 mm thick'.

\*\* BS 5268, 'Code of practice for the structural use of timber, Part 5, 'Preservative treatments for constructional timber'.

†† BS 1088 and BS 4079, 'Plywood for marine craft'.

‡‡ BS 2064, 'Resin-bonded wood chipboard'.

§§ BS 1455, 'Plywood manufactured from tropical hardwoods'.

||| BS 3444, 'Blockwood and laminboard'.