

# NBS J21 SPECIFICATION

## 50 MM FLEXIPHALTE CDPM3 CAR PARK WATERPROOFING SYSTEM – INSULATED

By

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## **J21 MASTIC ASPHALT ROOFING/ INSULATION/ FINISHES**

To be read with Preliminaries/ General Conditions.

### **TYPES OF COATING/ PAVING**

#### **155A FLEXIPHALTE INSULATED WATERPROOF PAVING TO CAR DECK**

- Substrate: Float finish concrete laid to designed falls.  
– Preparation:
- Insulation: As clause 440.
- Concrete: As clause 500.  
Separating layer (loose laid): Glass fibre tissue, 50 – 70 g/m<sup>2</sup> with 50 mm minimum laps.
- Paving: Mastic asphalt.  
– Manufacturer: Briggs Amasco.  
– Undercoat reference: Flexiphalte Pommar.  
Application: 20 mm nominal thickness in two coats.  
– Wearing coat reference: Flexiphalte Pompav.  
Application: 30 mm nominal thickness in one coat.  
Colour: Black  
Finish: Crimped as clause 876.

#### **155C FLEXIPHALTE INSULATED WATERPROOF PAVING TO CAR RAMP**

- Substrate: Concrete ramp tamped to a ridge depth not exceeding 5 mm.  
– Preparation:
- Insulation: As clause 440 spiked onto hoops.
- Concrete: As clause 500.
- Paving: Mastic asphalt.  
– Manufacturer: Briggs Amasco.  
– Undercoat reference: Flexiphalte modified roofing grade asphalt  
Application: 10 mm nominal thickness in one coat.  
– Wearing coat reference: Flexiphalte Pompav.  
Application: 25 mm nominal thickness in one coat.  
Colour: Black  
Finish: Crimped as clause 876.  
Dense bitumen macadam or hot-rolled asphalt can be used as an alternative to the Flexiphalte modified paving grade asphalt.

#### **185 SKIRTINGS/ VERTICAL WORK – FLEXIPHALTE SKIRTINGS**

- Substrate: Concrete.  
– Preparation: Primer – See Clause 320.
- Separating layer: Not required.
- Keying: Not required.
- Coating: Mastic asphalt – see clause 750 for application.  
– Manufacturer: Briggs Amasco  
Product reference: Flexiphalte modified roofing grade asphalt.  
– Application: 13 mm (nominal) in two coats.  
– Height above finished roof level (minimum): 150 mm.  
– Fillet profile: 45° angle, 40 mm minimum width on face.
- Surface protection: Solar reflective paint.

### **PERFORMANCE**

#### **210 ROOF PERFORMANCE**

- General: Secure, free draining and weathertight.

#### **220 VAPOUR CONTROL**

- Interstitial condensation risk of roof: Determine as recommended in BS 6229. Modify calculation method to conform to BS 5250.
- Basic design data:  
– Outdoor notional psychometric conditions, winter:

- Temperature: -5°C.
- Relative humidity: 90%.
- Vapour pressure: 0.36kPa.
- Duration: 60 days.
- Outdoor notional psychometric conditions, summer:
  - Temperature: 18°C.
  - Relative humidity: 65%.
  - Vapour pressure: 1.34kPa.
  - Duration: 60 days.
- Indoor notional psychometric conditions:
  - Temperature: 20°C
  - Relative humidity: 35%
  - Vapour pressure: 2.45kPa.
- Winter interstitial condensate:
  - Calculated amount (maximum): 0.35 kg/m<sup>2</sup>.
  - Calculated annual net retention: Nil.
- Vapour control layer: If calculated amounts of condensate exceed allowed maxima, provide a suitable membrane so that damage and nuisance from interstitial condensation do not occur.

#### 230 INSULATION

- Requirement: Determine type and thickness of insulation and integral or separate overlay to satisfy the following criteria:
  - Thermal transmittance of the roof (maximum): 0.25 W/m<sup>2</sup>K.
  - Compressive strength of insulation (minimum) at 10% compression: 300 KPA
  - Finished surface: Suitably even, stable and robust to receive roof covering.
  - Insulation compliance: To a relevant British Standard, or Agrément certified.

#### 240 ATTACHMENT OF ROOFING

- Requirement: Determine methods of attachment to resist wind loads. Provide for relative movement of materials and effects of vapour pressure. Do not reduce performance of vapour control layer.
- Wind loads: Calculate to BS 6399-2, Standard Method.
  - Basic wind speed ( $V_b$ ): \_\_\_\_\_
  - Attitude factor ( $S_a$ ): \_\_\_\_\_
  - Direction factor ( $S_d$ ): \_\_\_\_\_
  - Seasonal factor ( $S_s$ ): 1.
  - Probability factor ( $S_p$ ): 1.
  - Terrain and building factor ( $S_b$ ): \_\_\_\_\_
  - Size effect factor ( $C_a$ ): 1.
  - External pressure coefficients ( $C_{pe}$ ): \_\_\_\_\_
  - Internal pressure coefficients ( $C_{pi}$ ): \_\_\_\_\_

### PRODUCTS

#### 320 PRIMER FOR CONCRETE

- Type: Adhesive primer.
- Manufacturer and product reference: As recommended by Briggs Amasco.

#### 380 PROPRIETARY MOVEMENT JOINTS FOR CAR PARK

- Manufacturer and reference: Radflex (or similar approved) Movement Joints as detailed in BA-Flexiphalte Design and Technical Guide Waterproof Vehicle Deck Surfacing and Agrément Certificate TBC .

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- Joints must extend through full depth of the roof construction. Ensure that joints coincide with movement joints in the base.
- Preparation: As detailed in BA-Flexiphalte Design and Technical Guide page 5 Technical Advice.

#### 380A ALTERNATIVE PROPRIETARY MOVEMENT JOINTS FOR CAR PARK

- Manufacturer and reference: Radflex S200 mechanical expansion joint or similar as detailed in BA-Flexiphalte Design and Technical Guide page 20 detail 7.

#### 440 EXTRUDED POLYSTYRENE (XPS) CAR DECK INSULATION

- Manufacturer: As recommended by Briggs Amasco
  - Product Reference: 0 Ozone Depletion Potential; < 5 Global Warming Potential
- Edges: Ship lapped
- Thickness: To suit required U-value
- Integral topping: None.

#### 455 SAND FOR RUBBING

- Type: Clean, coarse sand from natural deposits, free from loam
  - Size: Passing a 600 micrometre sieve and retained on a 212 micrometre sieve.

#### 495 SOLAR REFLECTIVE PAINT

- Manufacturer: As recommended by Briggs Amasco.
  - Product Reference: As recommended by Briggs Amasco
- Colour: White.

#### 500 LYTAG CONCRETE:

- 25 N Lytag concrete incorporating A142 fabric mesh reinforcement.
- Thickness: To suit thickness of insulation.

### EXECUTION GENERALLY

#### 510 ADVERSE WEATHER

- General: Do not lay mastic asphalt in wet or damp conditions unless effective temporary cover is provided over working area.
- Unfinished areas of the roof: Keep dry.

#### 520 INCOMPLETE WORK

- Daywork joints in warm roofs and edges of phased roofing: Adequately protected and fully weathertight.

#### 525 PREPARING EDGES OF EXISTING MASTIC ASPHALT

- Single coat applications:
  - Cut edges: Soften and clean
- Two coat applications:
  - Cut edges: Soften and remove half depth of softened material for minimum width of 75 mm.
  - Jointing: Lapped between new and existing material at prepared edges.
- Timing: Immediately prior to laying mastic asphalt.

#### 530 APPLYING PRIMERS

- Coverage per coat (minimum): 1 L/m<sup>2</sup>.
- Surface coverage: Even and full.
- Coats: Fully bonded. Allow volatiles to dry off thoroughly between coats.

#### 550 CONTROL SAMPLES

- Type of mastic asphalt: Flexiphalte car park waterproof system.
- Sample area:
  - Location: \_\_\_\_\_
  - Details: \_\_\_\_\_
- Approval of appearance: Obtain before proceeding

### SUBSTRATES/ VAPOUR CONTROL LAYERS/ WARM ROOF DECK INSULATION

#### 610 SUITABILITY OF SUBSTRATES

- Substrates generally:
  - Secure, even textured, clean, dry and frost free.
- Preliminary work: Completed including
  - Chases (minimum): 25 x 25 mm.
  - External angles: Chamfered where required to maintain full thickness of mastic asphalt.
  - Formation of upstands and kerbs.
  - Grading to correct falls.
  - Movement joints.
  - Penetrations/ Outlets.
- Moisture content and stability of substrate: Must not impair integrity of roof.

#### 642 KEYING TO VERTICAL/ SLOPING DENSE CONCRETE

- Surface preparation: Remove mould oil, clean and apply proprietary high bond primer or proprietary keying mix of cement sand slurry incorporating a bonding agent.

#### 695 SEPARATING LAYER

- Give notice: Where it is or becomes apparent that a separating layer is required.

### **ASPHALTING**

#### 720 DELIVERY

- Condition of mastic asphalt as delivered to site:
  - Hot prepared, do not remelt on site, or
  - Blocks: Remelt on site, mix thoroughly. Temperature of material (maximum), 230 °C.

#### 730 TRANSPORTING

- Transport distances: Minimize to avoid excessive cooling of molten mastic asphalt.
- Buckets, barrows or dumpers used for mastic asphalt: Line with minimum quantity of fine inert dust. Use silica or similar acid resisting dust where acid resisting mastic asphalt is being used.

#### 735 LOCALIZED HEATING

- Blowlamps and gas torches: Use only types with controlled gradual heating during laying, removal and repair of mastic asphalt.

#### 740 LAYING MASTIC ASPHALT

- Standard: To BS 8218.
- Application:
  - In bays to even thickness.
  - Re-heated asphalt: Do not use.
- External angles, junctions and tuck-ins: Maintain full thickness of asphalt.
- Fillets at internal angles: Solid, fully fused to asphalt coating.
- Previously laid coats: Protect whilst exposed.
- Successive coats:
  - Timing: Apply without delay and within same working period.
  - Coats: Apply at right angles to preceding.
  - Stagger joints between bays in consecutive coats (minimum): 75 mm.
- Condition of contact edges of previously laid bays: Warm and clean.
- Blowing: Pierce and make good affected areas while mastic asphalt is still at working temperature.
- Completion: During final floating operation, whilst asphalt is still warm, apply sand to horizontal surfaces and rub in well using wooden float. Remove surplus material.
- Surface condition at completion: Firmly adhered, weatherproof and free draining.

#### 750 MASTIC ASPHALT SKIRTINGS AND VERTICAL WORK

- Top edge: Tuck into 25 x 25 mm continuous splayed chase or groove.
- External angles: Maintain full thickness of asphalt.
- Splayed top: Form to shed water away from substrate.

### **SURFACING**

#### 876 CRIMPING

- Finish: Whilst asphalt is still sufficiently plastic, roll surface with indenting or crimping roller.
- Indentations: Regular and even.

#### 880 APPLYING SOLAR REFLECTIVE PAINTS

- Number of coats: 2
  - Coverage per coat: 7m<sup>2</sup>/L.
- Surface coverage: Even and full.
- Coats: Fully bonded.

### COMPLETION

#### 910 INSPECTION

- Interim and final roof inspections: Submit reports.

#### 940 COMPLETION

- Roof areas: Clean.
  - Outlets: Clear.
- Work necessary to provide a watertight finish: Complete.
- Storage of materials on finished surface: Not permitted.
- Completed mastic asphalt roof coating: Do not damage. Protect from petroleum based solvents and other chemicals, traffic and adjacent or high level working.

#### 950 SUBCONTRACTOR EMPLOYED:

- Briggs Amasco will be held responsible for the performance of the Flexiphalte Vehicle Deck specification and for the execution of all works including all waterproofing, insulation and any vapour control layer.
- Briggs Amasco shall design all details which shall be approved by the Main Contractor and CA. Briggs Amasco so employed by the Main Contractor shall have professional indemnity cover of 10m Euros.

#### 960 GUARANTEE:

- A guarantee is required on the installation
- Such guarantee must include the following:
  1. Completely undivided responsibility between asphalt manufacturer and installer, who shall also lay the insulation.
  2. Cover for defects in design as well as workmanship and materials.
  3. Cover for consequential damage in the event of water ingress being proved to be due to defective design, workmanship or materials in the Flexiphalte Vehicle Deck System.
  4. The guarantee period for 20 years.

#### 970 ANNUAL INSPECTION / MAINTENANCE:

- As with all waterproofing and surfacing systems, proper maintenance is essential to obtain maximum performance and ensure the longest life expectancy for the Flexiphalte system as a whole.
- It is an integral part of the guarantee. Any deficiencies should be reported immediately to Briggs Amasco.
- BS 6229: 2003 gives guidance on the content of maintenance manuals and the scope and frequency or routine maintenance inspections applicable to flat roofing. All Flexiphalte installations should be inspected at least once each year.
- Ideally, there should be inspections in Spring and Autumn, to enable the effects of annual extremes of weather to be checked. Vehicle decks exposed to high levels of pollution or in close proximity to trees require more frequent inspection.
- An inspection/maintenance Contract can be arranged with the installing Branch of Briggs Amasco following the defects liability period.