

## Introduction

Mastic asphalt was first used as a wearing course on carriageways in the 1860s and a century of testimonials is proof of its superior durability.

Mastic asphalt is the natural replacement for hot rolled asphalt and is a satisfactory alternative, especially where hand-lay application is the only choice. Patching and reinstatement of the HRA mixes incorporating Trinidad Lake Asphalt or coloured pigments can be conveniently completed using equivalent mastic asphalt grades.

Both TLA and polymer modified mastic asphalt mixes are available in hot charge or block form. This allows difficult contract sites to be completed at the most convenient time for traffic and planning consideration without the need for adjacent hot mix plant capacity.

Bridge deck resurfacing and busy urban roads, where traffic disruption has to be minimised and where exceptional durability is required are other natural outlets for mastic asphalt.

The ability to design mixes for any situation provides design engineers and clients with a wonderful opportunity to surface their most difficult paving problems, particularly as mastic asphalt can be produced in very small quantities economically. This coupled with mastic asphalt's unique characteristics can often provide the solution to those intractable problems.

If the designer considers that durability and stability of the paving is of paramount importance then consideration should be given to specifying either Trinidad Lake Asphalt modified mixes or polymer modified binder mixes.

Mastic asphalt is normally specified for the wearing surfaces of roads and for the waterproofing and surfacing of bridge decks. It is frequently specified as the wearing surface for many speciality uses some of which are listed in the Index.

The recommendations for mastic asphalt paving applications assume that the specified construction has been designed to carry the weight and volume of traffic throughout its design life.

## Design considerations

### **CLASSIFICATION**

The types and grades of mastic asphalt shall be specified according to the asphalt cement incorporated, according to Table 1: BS 1447:1988

Type B : bitumen

Type T50 : 50% refined Lake Asphalt, 50% bitumen by mass.

The designer should select the tables appropriate for this specified design criteria.



**PAVING Pt 2**

*paving*

## GRADES AND THICKNESSES

- (i) Type B Grade S For roads, footways, roof top car parks and similar applications
- (ii) Type T50 Grade S
- (iii) Type T50 Grade H For bus stops, loading bays and areas subject to very high stresses
  
- (iv) Polymer modified High performance grades of paving incorporating polymer modified binders are available from MAC manufacturers and are designed to meet the demands of modern construction.

### Recommended grades and thicknesses of mastic asphalt

Grade	Application	Thickness range	Nominal size coarse aggregate	Coarse agg. content, % by mass of total mix
S	Footways	20-30mm	3mm	25 ± 5
S	Roof top car parks	25-35mm	6 or 10mm	30 ± 5
S	Roads & carriageways	30-50mm	6 or 10mm	40 ± 10
H	Heavily stressed areas	40-50mm	10mm	45 ± 10

Note: Some indentations should be expected from long-standing point loads and deformation may result from situations of very high stress.

## HARDNESS NUMBER

When tested in accordance with BS 5284:1993, the hardness number of the mastic asphalt at the time of manufacture and prior to the addition of any coarse aggregate shall be:

Grade S 30 to 60 @ 25 degrees Centigrade  
 Grade H 15 to 25 @ 25 degrees Centigrade

## Laying the mastic asphalt paving

### GENERAL

The surface on which the mastic asphalt is to be laid should be made good and adjusted to a contour approximating to the final contour and swept clean of debris and standing water.

### CONTOUR

The crossfall of roads with straight crossfall should not be more than 2.5% nor less than 2% unless the purchaser gives other directions. With roads to be cambered the average fall of the finished surface from the crown to the channel should not be more than 3.3% nor less than 2.2%. These recommendations for crossfall do not apply to curves with superelevation.