GRADES AND THICKNESSES

(i)	Type B Grade S	For roads, footways, roof top car parks
(ii)	Type T50 Grade S	and similar applications
(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.

SPREADING

The mastic asphalt should be laid, normally in one coat, at a temperature between 175 degrees Centigrade and 230 degrees Centigrade and spread uniformly by hand using wooden floats or by machine on the prepared and regulated surface. The thickness of the mastic asphalt and the percentage of added coarse aggregate should be in accordance with Table 3 of BS 1447 : 1988 or as specified by the client. Where necessary, battens of the requisite dimensions should be employed.

SURFACE FINISH TO CARRIAGEWAYS

Unless otherwise specified by the client, the mastic asphalt for carriageways, while still warm and in plastic condition, should be covered with a layer of coated 14mm or 20mm chippings.

The chippings should be evenly distributed at the rate of 7.5kg/m^2 to 10.0kg/m^2 for 14mm chippings and 10.0kg/m^2 to 13.0kg/m^2 for 20mm chippings.

The chippings should then be rolled into the surface of the asphalt by means of a suitable hand or mechanical roller.

When the chippings are being spread, the channels against the kerbs should be covered with battens, not less then 150mm wide, so as to ensure that a smooth channel is maintained to facilitate the flow of surface water to the gullies.

JOINTS

Care should be taken to ensure that all joints are properly and truly made. The joints between sections of work should be made by warming the existing mastic asphalt by the application of hot mastic asphalt which is subsequently trimmed off to form an accurately level joint.

PROJECTIONS

Before laying mastic asphalt, the edges of all manholes, gulley frames, boxes etc. against which it is to abut should be cleaned and painted with a thin coating of high-bond primer. The finished surface should be kept flush with, or not exceeding 3mm above, such projections. Where the surfacing is to abut kerbs, the edges of these should be similarly cleaned and painted.

CHANNELS

Channels should be formed to provide a fall sufficient to avoid retention of surface water.

ACCURACY OF FINISH ON CARRIAGEWAYS

The surface of the mastic asphalt, tested with a straightedge 3m long placed parallel to the centre line of the carriageway, should have no depression greater than 7mm.

PATCHING AND REINSTATEMENT TECHNIQUES

Mastic asphalt paving grade is an ideal material for the reinstatement of all high quality wearing surfaces. As mastic asphalt is available in both hot charge and block format, (gritless blocks are remelted and the specified quantity of coarse aggregate added on site) reinstatement can be completed in any quantity and at any time in a mastic asphalt grade which matches the existing wearing course.

Red Routes and Proprietorial Materials
Red asphalt for the patching of red routes is readily available as are polymer grades, acid resisting and other colours. Precoated chippings to match the existing surfacing can be supplied.

Reinstatement around street ironwork
Since mastic asphalt requires no compaction, it is the ideal material for reinstatement around ironwork. 150mm width is the minimum reinstatement width required and because no compaction equipment is needed, damage to the ironwork bedding mortar is eliminated. The recommended grade is BS1447:1988 Type T50 Grade S 40% 6 or 10mm aggregate laid in lifts not exceeding 50mm with 14 or 20mm precoated chippings applied.

Removal of mastic asphalt: It should be appreciated that mastic asphalt paving, like all other trafficked surfaces will require maintenance. All repair work to mastic asphalt must be completed by a specialist mastic asphalt contractor. When it is necessary to remove an area of mastic asphalt the perimeter of the patch or reinstatement should first be cut along the pre-marked lines, with a diamond saw disc cutter prior to the removal of the defective area by jackhammer. Under no circumstances should a hammer and cold chisel be used as this may cause uncontrolled cracking to adjacent areas of mastic asphalt.

Defective material should be carefully removed and all exposed vertical faces should be coated with a suitable bituminous jointing compound and the horizontal faces primed with a tack coat to BS434 (bitumen emulsion grade K1-40). When jointing new work to old the principle of the lapped joint should be observed. In multi-layer reinstatements the existing perimeter of the mastic asphalt should be softened to permit removal of the material to the depth of the original coarse thickness for a width not exceeding 75mm. New mastic asphalt should then be applied in the traditionally approved method.

TRAFFIC CONTROL

Newly laid sections should not be opened to traffic until the mastic asphalt has cooled to the prevailing atmospheric temperature.