

BITUMEN MASTIC / MASTIC ASPHALT / PITCH MASTIC (IS 5317 & IRC 107)

MASTIC ASPHALT is a mix of filler, bitumen, fine aggregates in suitable proportion so as to yield a void- less mass which flows like fluid at high temperature, but on cooling down to normal temperature, is in solid or semisolid state. It does not require any compacting effort either.

The mastic asphalt is a potentially advantageous paving material due to its **high stability, high durability, very low maintenance and good riding quality.**

The ability of bitumen mastic **to absorb shocks and vibrations, to self-heal cracks and to prevent bleeding** makes it suitable for selection as a surfacing material. It **overcomes the problems of water seepage** through its **void less nature.**

In India, Mastic asphalt is laid on pavements for **city streets** which carry extremely heavy traffic and on critical locations such as **roundabouts, intersections, bus stops, bridge decks, etc** for which it is recognized for its excellent service over the years. Mastic asphalt has gained and would further gain wide acceptance in road construction technique. The continuous and systematic research for a strong and durable surface to cater heavy traffic volume with higher axle loads has resulted in the development of mastic asphalt. So, The Indian Road Congress (IRC) and Ministry of Roads Transport & Highways (MORTH) strongly recommend this grade for Road surfacing & bridge decking.

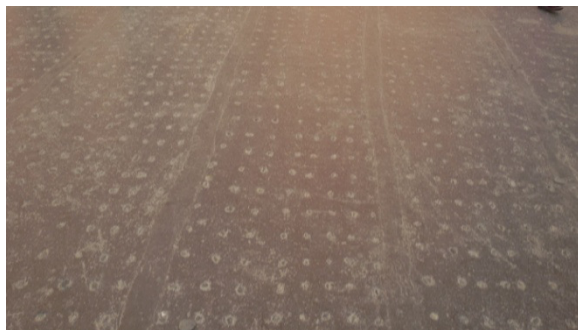
As per MORTH clause 2702.1 Mastic asphalt 25mm thick with 40mm BC and 50mm Mastic asphalt single layer are specified.

SPECIFICATION FOR 25MM THICK MASTIC ASPHALT

Providing and laying 25MM thick mastic asphalt wearing coat with bitumen of grade 90/15 as per IS 702 prepared by using mastic cooker and laid to required level and slope as per IS 5317 & IRC 107 and clause 516 of MORTH.

SURFACE FINISH (For Wearing Course only)

The bitumen mastic surfacing has got a very fine texture which on initial laying provides very little resistance to skidding. Therefore for providing an anti skid surface, bitumen /emulsion pre-coated fine grained hard stone chipping of 20 mm nominal size at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces is not less than 100°C, protruding 1 mm to 4 mm



25mm thick Bitumen Mastic wearing course



Mastic Cooker



Bitumen Boiler (Open Type)

JOINTS

It will be ensured that all construction joints are properly and truly made. These joints will be made by warming existing bitumen mastic by using LPG Torch or Bitumen coating.

MATERIALS USED FOR MASTIC ASPHALT

Binder

Industrial grade **Bitumen 90/15 or 85/25** as per IS 702 are two typical examples of binder which will satisfy the requirements as mentioned in IS, IRC Codes & MORTH.

Please note that, paving grade **Bitumen 30/40 (VG-40)** as per IS 73 can be used as binder only in those areas where paving temperature is below 10°C (High altitude areas like Himalaya region).

Filler

The filler will be Limestone Powder passing **75 micron** IS Sieve and shall have a Calcium Carbonate content of not less than 80 percent by weight.

Coarse Aggregate

The coarse aggregate shall consist of clean, hard, durable, crushed rock free of disintegrated pieces, organic and other deleterious matter and adherent coatings retained on **2.36mm** sieve. They shall be hydrophobic, of low porosity, and satisfy the physical requirements set forth in IS 5317 and MORTH clause 516.

Nominal size will be **13.20 mm to 2.36 mm**
Aggregate having **6mm average** size can be used as Coarse aggregates in 25mm thick Mastic asphalt work.

Fine Aggregates

The fine aggregates shall consist of crushed hard rock or natural sand or a mixture of both passing **2.36mm** sieve and retained on **0.075 mm** sieve.

Hardness Number

The hardness number of Mastic Asphalt shall be determined at 25°C in accordance with the method specified in IS 1195. It shall conform to the following requirements:

- 1) Without coarse aggregates at 25°C - 60-80
- 2) With coarse aggregates at 25°C - 10-20



Samples for Hardness testing (100 mm X 100 mm X 25 mm)



Hardness Testing Machine

BITUMEN MASTIC FLOORING (IS 1195, IS 8374, IS 13026)

BITUMEN MASTIC is dustless, odourless, joint less and impervious to transmission of moisture either in liquid or vapour form. The mastic asphalt is hard, durable and highly resistant to deformation. It can absorb shock, vibrations and is a self-healing type without bleeding. It is highly durable and needs little maintenance.

Bitumen Mastic has been considered very suitable for use in the flooring of industrial buildings, LPG Plants, LPG Godowns, ware houses, and grain storage structures etc. because of its **resiliency, sparkless, imperviousness, wearing quality and ease of maintenance.**

It may also be used as a base coat to receive floor coverings such as linoleum, flexible PVC sheets and rubber.



35mm thick Mastic Flooring in LPG Bottling Plant



Mastic Flooring is mandatory for the floor of LPG Godowns and LPG Bottling Plants to get the approval from The Controller of Explosives .

We had done a lot of Projects for LPG Plants and Godowns.

