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Copy of letter No.8696/W. dated 22.8.2011 from the Under Secretary to Government, Works Department, Orissa, Bhubaneswar addressed to the Chief Engineer (Roads) Orissa/Chief Engineer, N.Hs, Orissa/Chief Engineer, World Bank Projects, Orissa, Bhubaneswar.

Sub:- Use of modified bitumen in BM/DBM layers for National Highway works.

I am directed to enclose herewith a copy of letter No. RW/NH 33041/3/2001 S&R(R) dt. 19.7.2011 of Executive Engineer SR & T (Roads) for Director General (RD) & Special Secretary on the above subject for your information and necessary action.

OFFICE OF THE ENGINEER-IN-CHIEF (CIVIL) ORISSA

Memo No. P.IM-Misc-17/07

42920(50) Dt. Bhubaneswar, the 15th Sept'11

Copy forwarded to all Executive Engineers/Assistant Engineers/Junior Engineers under Chief Engineer, World Bank Projects/all A.E. (P)/J.E. (P) for information and necessary action.

~~15/9/11~~  
EXECUTIVE ENGINEER (WORLD BANK PROJECT)

Bipin/8.9.

Copy of letter No. RW/NH-33041/3/2001-S&R(R) dated 19th July 2011 from Executive Engineer SR&T(Roads) for Director General(RD) & Special Secretary, Ministry of Road Transport & Highways, Govt. of India, Parivahan Bhawan, New Delhi addressed to the Chief Secretaries of all State Government/U.Ts./The Principal Secretaries Secretaries of all States/U.Ts. Public Works Department dealing with National Highways, other Centrally Sponsored Schemes and State Schemes./etc, etc.

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Sub:- Use of modified bitumen in BM/DEM layers for National Highway Works.

Ministry has been issuing circulars on the use of modified bitumen in surfacing of the flexible pavement.

2. Flexible pavements with bituminous surfacing are widely used in India. The high traffic intensity in terms of commercial vehicles, overloading of trucks and significant variations in daily and seasonal temperature of the pavement have been responsible for early development of distress symptoms, like raveling, undulations, rutting, cracking, bleeding, shoving and potholing of bituminous surfacing. A factor which causes further concern in India is very high and very low pavement temperatures in some parts of the country. Under these conditions, flexible pavements tend to become soft in summer and brittle in winter.
3. Investigations in India and countries abroad have revealed that properties of bitumen and bituminous mixes can be improved to meet requirements of pavement with the incorporation of certain additives or blend of additives. These additives are called "Bitumen Modifiers" and the bitumen premixed with these modifiers is known as "Modified Bitumen".
4. Properties of modified binders depend upon type and quantity of modifier used and process employed adopted for their manufacture. The advantages of modified bitumen can include one or more of the following for road works.
  - . Lower susceptibility to daily and seasonal temperature variations.
  - . Higher resistance to deformation at elevated pavement temperature.
  - . Better age resistance properties
  - . Better adhesion between aggregate and binder
  - . Higher fatigue life of mixes

- . Delay of cracking and reflective cracking
- . Overall improved performance in extreme climatic conditions and under heavy traffic conditions.

5. Modified bitumen performs better than ordinary bitumen in high rainfall areas and in situations, where the aggregates are prone to stripping. Due to their better creep resistance properties, they can also be used at busy intersections, bridge decks and roundabouts. (Styrene-Butadiene-Styrene) SBS modified bitumen is known to perform better in snow bound areas. Modified bitumen also finds useful applications in porous asphalt.

6. Therefore, at these places modified bitumen may be used in surfacing & base layers (EM/DEM) also. The design of mix may be done as per IRC SP 53-2002. It is advised that use of modified bitumen in base layer of flexible pavement may be adopted as per requirements based on site conditions, availability of material and fund.

7. The contents of this Circular may please be brought to the notice of all the concerned in your organization.

Enclo:- As above.

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