

NO. RW/NHIII/P/10/84

*Dated the 25th July, 1984*

To

All Chief Engineers PWD in the States and Union Territories dealing with National Highways and State Sector Roads

Sub : Use of roughness measurements as an aid to more effective monitoring of road construction and maintenance operations

I am directed to refer to the Ministry's letter of even number dated 3.4.84 requiring that immediate arrangements to be made for the use of roughometers during inspection in order to achieve better monitoring and greater accountability in road construction and maintenance operations. The question of laying down standards for roughness values which could be used for assessing the quality of construction and maintenance of roads under varying parameters is under consideration in the Ministry. In the meanwhile, as far as newly constructed roads are concerned, it has been decided to formulate norms on the basis of experience gained in the programme of roughness measurement extending to nearly 42,000 kms on different types of roads carried out under the Road User Cost Study. On the basis of this data, the recommended roughness values for newly constructed roads are contained in the Table annexed.

2. It is desired that newly constructed road sections in your State may be evaluated for riding quality against the following norms :

- |                             |   |            |
|-----------------------------|---|------------|
| 1. Asphaltic concrete       | — | 2500 mm/km |
| 2. Premix bituminous carpet | — | 3500 mm/km |
| 3. Surface dressing         | — | 4500 mm/km |

The subsequent readings should be taken within 4-6 months after opening of the road to traffic or the defects liability period whichever is earlier. The roughness values during the second measurement should be judged

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against the following standards :

- |                       |   |            |
|-----------------------|---|------------|
| 1. Asphaltic concrete | — | 3000 mm/km |
| 2. Premix carpet      | — | 4000 mm/km |
| 3. Surface dressing   | — | 4500 mm/km |

If the roughness measurements taken immediately after construction and during the defects liability period are higher than the values suggested above, suitable action should be taken against defaulting contractors and the Supervisory staff.

3. The following periodicity may be observed for surprise checking of the roughness of National Highways in your State :

- |                                   |   |               |
|-----------------------------------|---|---------------|
| 1. By the Chief Engineer          | — | Once a month  |
| 2. By the Superintending Engineer | — | Twice a month |
| 3. By the Ministry's R.O.         | — | Once a month  |

The above instructions may be given wide publicity for compliance and the Ministry informed once a quarter about the outcome of the measurements and investigations.

TABLE-RECOMMENDED ROUGHNESS VALUES FOR ROADS IN INDIA IN MM/KM

Surface Type	(Towed Fifth Wheel Bump Integrator)			
	Road condition			
	Good	Average	Poor	Very poor
Asphaltic concrete	2000-2500	2500-3500	3500-4000	Over 4000
Premix bituminous carpet	2500-4500	4500-5500	5500-6500	Over 6500
Surface dressing	4000-5000	5000-6500	6500-7500	Over 7500
Water-bound macadam/gravel	8000-9000	9000-10000	10000-12000	Over 12000