6100.2

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ROADS WING

Sub : Promoting the use of C.A.C. techniques in road construction

The need for extensive utilisation of the C.A.C. techniques in road construction both on National Highways and State Roads has been repeatedly brought out in the past in the Central Assessment Committee meetings and also in forums like Chief Engineers meetings, Transport Development Council meeting and in several communications issued from the Ministry. In this connection reference is also invited to this Ministry's circular letter No. PL-17 (18)/77 dated the 13th April, 1980.

2. Over the year, 20 techniques (Appendix I) have been approved by the Committee. The adoption of these techniques does not entail on the States any additional financial liability and any remote chance of failure due to inadequacy of any of the techniques is covered under the Central Risk Fund. With a view to encouraging and propagating their application, the Projects Chief Engineers (Roads) in the Roads Wing are requested to take up with State authorities so that at least one C.A.C. technique is adopted annually in each PWD circle. Guidelines regarding applicability of the different CAC techniques and their relative advantages are given in Appendix II enclosed for ready reference.

APPENDIX I

To

CE (R) I CE (R) II CE (R) III CE (R) IV CE (R) T &T

CENTRAL ASSESSMENT COMMITTEE

TECHNIQUES APPROVED FOR LARGE SCALE ADOPTION IN CONSTRUCTION OF PAVEMENTS.

Technique No.	*Title*
1.	Mechanically stabilized soil in sub-base.
2.	Lime stabilized soil in sub-base.
3.	Naturally occurring grave/soil gravel mixtures in sub-base and base course.
4.	Stabilized soil with soft aggregates in sub-base and base-course.
5.	Lime stabilised black cotton soil for base course or sub-base-course.
6.	Lime stabilized moorum for base-course and sub-base-course.
7.	Thin sand-asphalt surfacings.
8.	Bitumen mixes using uncrushed gravel with or without small percentage of fine aggregate.
9.	Precoated aggregates for surface dressing.
10.	Built-up spray grout.
11.	Precoated bitumen carpet over 50 mm thick bituminous macadam.
12.	Composite pavement with lime-burnt clay pozzolana concrete base under flexible topping.
13.	Lime fly ash stabilized soil as sub-base in pavement construction.
14.	Lime-fly ash concrete.
15.	Cement-fly ash concrete.
16.	Lean cement fly ash concrete.
17.	Lime-fly ash water bound macadam.
18.	Rolled lean cement concrete.
19.	Continuously reinforced concrete pavement with elastic joints.
20.	Lime-Fly ash concrete precast blocks for footpaths and pavement kerbs.

APPENDIX-II

CAC TECHNIQUES—CONDITIONS CONDUCIVE FOR APPLICATION WITH ADVANCE

Technique No.	Technique	Conventional material that could be substituted by the CAC specification.	Conditions conducive for application of the CAC technique with advantage.	Possible advantages compared to conventional specifications.
1	2	3	4	5
	A. SUB-BASE CONSTRUCTION :			
1.	Mechanically stabilised soil	Oversize metal WBM Brick/Stone soling, brick metalling.	Clayey soils and sands	Cost savings where conventional aggregates are expensive, better performance where subgrade soil is poor.
2.	Lime stabilised soil		Clayey soils	
3.	Lime-Fly ash stabilised soil		alluvial soils, fly ash available within a radius of 50-100 km.	
	B. SUB-BASE AND BASE COURSE CONSTRUCTION (GRANULAR)			
3.	Naturally occurring gravel/soil gravel mixtures.	O/S metal WBM, Brick/stone soling, Brick metalling.	Where such materials occur within economic loads.	
4.	Stabilised soil with soft aggregates.	-do-	Medium/low rainfall areas, where conventional aggregates are expensive.	Cost savings where conventional aggregates are expensive.
5.	Lime stabilised black cotton soil.	-do-	In black cotton soil areas.	
6.	Lime stabilized moorum	-do-	In moorum areas where the moorum has high PI value.	
	C. SEMI-RIGID BASE AND COMPOSITE CONSTRUCTION :			
2.	Composite pavement with lime burnt clay pozzolana concrete base under flexible topping.		Poor soil, high water table, possibility of submergence, heavy traffic, high rainfall.	Longer life and less maintenance for conditions under Col. 4; Economical where conventional aggregates are expensive.
	Lime-Fly ash concrete. Lean cement-fly ash concrete Lime-fly ash WBM. Rolled lean cement concrete.	WBM, BUSG, BM		
	D. BITUMINOUS CONSTRUCTION :			
7.	Thin sand—asphalt surfacing	Premix carpet	Sand available in plenty and stone aggretage expensive.	Economical utilisation of local materials.
8.	Bitumen mixes using uncrushed gravel with proper specifically designed mixes.	-do-	Rounded materials available in plenty.	
9.	Pre-coated chips surface dressing.	Premix carpet and ordinary surface dressing.	Situations where embankment of aggregates is not satisfactory, low pneumatic traffic. Also slick spots.	Better performance skid resistant.
10.	BUSG (Built up spray grout)	WBM or BM	Strengthening existing pavements where traffic diversion is not possible for permitting WBM construction.	Construction convenience.
11.	Precoated carpet over 50 mm thick BM.	WBM	Strengthening existing pavement under heavy traffic.	Better performance. and riding surface.
	E. RIGID PAVEMENT CONSTRUCTION :			
15.	Cement fly ash concrete.	Plain c.c.	To save 15-20% cement where fly ash is available within 50-100 km. lead.	Savings in cost and cement.
19.	Continuously reinforcement concrete pavement with elastic joints.	Flexible or Plain c.c pavement.	Heavily trafficked rural highways.	Savings in cement.
	F. MISCELLANEOUS :			
20.	Lime-fly ash concrete precast Blocks for foot paths and pavement kerbs.	Stone blocks, or ordinary c.c	To save cement	Savings in cement.