

## CHAPTER 6

### FLEXIBLE PAVEMENT BASE COURSES

**6-1. Materials.** High-quality materials must be used in base courses of flexible pavements. These high-quality materials provide resistance to the high stresses that occur near the pavement surface. Guide specifications for graded crushed aggregate, limerock, and stabilized aggregate may be used without qualification for design of roads, streets, and parking areas. Guide specifications for dry- and water-bound macadam base courses may be used for design of pavements only when the cost of the dry- or water-bound macadam base does not exceed the cost of stabilized-aggregate base course, and the ability of probable bidders to construct pavements with dry- or water-bound macadam base to the required surface smoothness and grade tolerances has been proved by experience in the area.

**6-2. Compaction.** Base courses placed in flexible pavements should be compacted to the maximum density practicable, generally in excess of 100 percent of ASTM D 1557 maximum density but never less than 100 percent of ASTM D 1557 maximum density.

**6-3. Drainage.** Drainage design for base courses should be accomplished in accordance with TM 5-820-2/AFM 88-5, Chap. 2.

**6-4. Selection of Design CBR.** Because of the effects of processing samples for the laboratory CBR tests and because of the effects of the test

mold, the laboratory CBR test will not be used in determining CBR values of base courses. In-stead, selected CBR ratings will be assigned as shown in the following tabulation. These ratings have been based on service behavior records and, where pertinent, on in-place tests made on materials that had been subjected to traffic. It is imperative that the materials conform to the quality requirements given in the guide specifications so that they will develop the needed strengths.

No.	Type	De- sign CBR
1.....	Graded crushed aggregate .....	100
2.....	Water-bound macadam .....	100
3.....	Dry-bound macadam .....	100
4.....	Bituminous binder and surface courses, cen- tral plant, hot mix.	100
5.....	Limerock .....	80
6.....	Stabilized aggregate .....	80

**6-5. Minimum Thickness.** The minimum allowable thickness of base course will be 4 inches as shown in table 6-1, except that in no case will the total thickness of pavement plus base for class A through D roads and streets be less than 6 inches nor less than frost design minimum specified in chapter 18 when frost conditions are controlling. TM 5-822-5/AFM 88-7, Chap. 1

Table 6-1. Minimum Thickness of Pavement and Base Course.

Design index	Minimum Base Course CBR								
	100			80			50*		
	Pavement in.	Base in.	Total in.	Pavement in.	Base in.	Total in.	Pavement in.	Base in.	Total in.
1	ST**	4	4-1/2†	MST††	4	4-1/2†	2	4	6
2	MST††	4	5†	1-1/2	4	5-1/2†	2-1/2	4	6-1/2
3	1-1/2	4	5-1/2†	1-1/2	4	5-1/2†	2-1/2	4	6-1/2
4	1-1/2	4	5-1/2†	2	4	6	3	4	7
5	2	4	6	2-1/2	4	6-1/2	3-1/2	4	7-1/2
6	2-1/2	4	6-1/2	3	4	7	4	4	8
7	2-1/2	4	6-1/2	3	4	7	4	4	8
8	3	4	7	3-1/2	4	7-1/2	4-1/2	4	8-1/2
9	3	4	7	3-1/2	4	7-1/2	4-1/2	4	8-1/2
10	3-1/2	4	7	4	4	8	5	4	9

\* In general 50-CBR base course will only be used for classes E and F roads and streets.

\*\* Bituminous surface treatment (spray application).

† Minimum total thickness of pavement plus base for classes A through D roads and streets will be 6 inches.

†† Multiple bituminous surface treatment (spray application).